

INTRODUCTION

How to Use This Manual

This manual is divided into multiple sections. The first page of each section is marked with a black tab that lines up with its corresponding thumb index tab on this page and the back cover. You can quickly find the first page of each section without looking through a full table of contents. The symbols printed at the top corner of each page can also be used as a quick reference system.


Each section includes:

1. A table of contents, or an exploded view index showing:
 - Parts disassembly sequence.
 - Bolt torques and thread sizes.
 - Page references to descriptions in text.
2. Disassembly/assembly procedures and tools.
3. Inspection.
4. Testing/troubleshooting.
5. Repair.
6. Adjustments.

Safety Messages

Your safety, and the safety of others, is very important. To help you make informed decisions, we have provided safety messages, and other safety information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle. You must use your own good judgment.

You will find important safety information in a variety of forms including:

- **Safety Labels** — on the vehicle.
- **Safety Messages** — preceded by a safety alert symbol  and one of three signal words, DANGER, WARNING, or CAUTION. These signal words mean:

DANGER

You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.

WARNING

You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.

CAUTION

You CAN be HURT if you don't follow instructions.

- **Instructions** — how to service this vehicle correctly and safely.













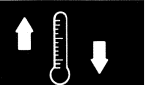



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As you read this manual, you will find information that is preceded by a **NOTICE** symbol. The purpose of this message is to help prevent damage to your vehicle, other property, or the environment.

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Honda Motor Co., Ltd.
Service Publication Office

As sections with * include SRS components;
special precautions are required when servicing.

General Information	
Specifications	
Maintenance	
*Engine Electrical	
Engine Mechanical	
Engine Cooling	
Fuel and Emissions	
*Transaxle	
*Steering	
Suspension (Including TPMS)	
*Brakes (Including VSA)	
*Body	
*Heating, Ventilation, and Air Conditioning	
*Body Electrical	
*Audio, Navigation, and Telematics	
*Restraints	

2009-12 Honda Fit
Volume 1 of 3

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

The Fit SRS includes a driver's airbag in the steering wheel hub, a front passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags, side airbags, side curtain airbags, and/or seat belt tensioners.
- Do not bump or impact the SRS unit, front impact sensors, or side impact sensors, especially when the ignition switch is in ON (II), or for at least 3 minutes after the ignition switch is turned to LOCK (0); otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, center console, dashboard, dashboard under cover, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.





General Information

General Information

Chassis and Paint Codes

'09 Model	1-2
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General Information

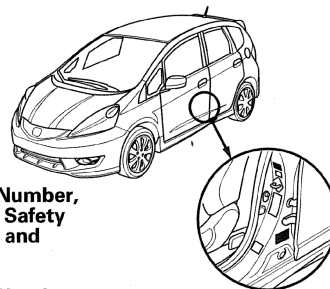
Chassis and Paint Codes - '09 Model

Vehicle Identification Number

J H M G E 8 7 2 * 9 S 0 0 0 0 0 1

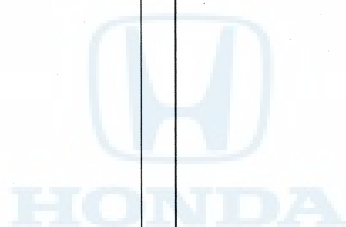
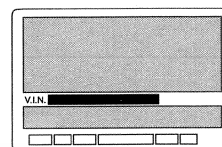
a b c d e f g h

- a. **Manufacturer, Make, and Type of Vehicle**
JHM: Honda Motor Co., Ltd.
Honda passenger vehicle
- b. **Line, Body, and Engine Type**
GE8: Fit/L15A7
- c. **Body Type and Transmission Type**
7: 4-door Hatchback/5-speed Manual
8: 4-door Hatchback/5-speed Automatic
- d. **Vehicle Grade (Series)**
USA models Canada models
2: Fit 2: DX
4: Fit Sport 3: DX-A
6: Sport Navi 5: LX
 8: Sport
- e. **Check Digit**
- f. **Model Year**
9: '09
- g. **Factory Code**
S: Suzuka Factory in Japan
C: Saitama Factory in Japan
- h. **Serial Number**
000001—: USA models
800001—: Canada models



Vehicle Identification Number,
Federal Motor Vehicle Safety
Standard Certification and
Paint Code Label.

Vehicle Identification Number,
Canadian Motor Vehicle Safety
Standard Certification and
Paint Code Label.





Engine Number

L15A7 - 1100001

a

b

a. Engine Type

L15A7: 1.5 L SOHC i-VTEC Sequential Multiport
Fuel-injected engine

b. Serial Number

1100001-: Produced in Suzuka

2650001-: Produced in Saitama (M/T model)

2850001-: Produced in Saitama (A/T model)

Transmission Number

SP4M - 3000001

a

b

a. Transmission Type

SP4M: 5-speed Manual

SP5A: 5-speed Automatic

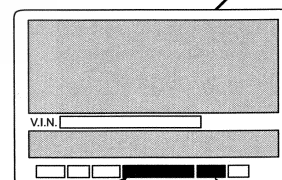
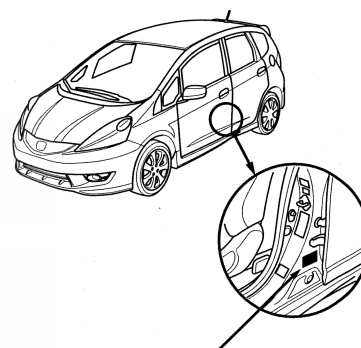
b. Serial Number

3000001-: SP4M

1000001-: SP5A

Paint Code

Code	Color	USA models	Canada models
B-549M	Tidewater Blue Metallic	<input type="radio"/>	<input type="radio"/>
B-548P	Blue Sensation Pearl	<input type="radio"/>	<input type="radio"/>
NH-578	Taffeta White	<input type="radio"/>	<input type="radio"/>
NH-642M	Storm Silver Metallic	<input type="radio"/>	<input type="radio"/>
NH-731P	Crystal Black Pearl	<input type="radio"/>	<input type="radio"/>
R-81	Milano Red	<input type="radio"/>	<input type="radio"/>
PB-83P	Blackberry Pearl	<input type="radio"/>	<input type="radio"/>
YR-576M	Orange Revolution Metallic	<input type="radio"/>	<input type="radio"/>



PAINT CODE

INTERIOR COLOR CODE

General Information

Chassis and Paint Codes - '10 Model

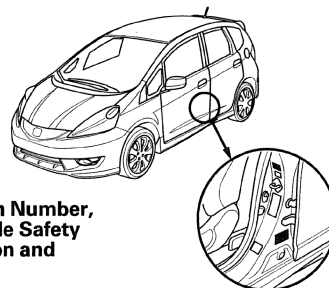
Vehicle Identification Number

JHM GE8 G 2 * A S 000001

a b c d e f g h

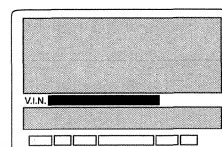
- a. **Manufacturer, Make, and Type of Vehicle**
JHM: Honda Motor Co., Ltd.
Honda passenger vehicle
- b. **Line, Body, and Engine Type**
GE8: Fit/L15A7
- c. **Body Type and Transmission Type**
G: 4-door Hatchback/5-speed Manual
H: 4-door Hatchback/5-speed Automatic
- d. **Vehicle Grade (Series)**

USA models	Canada models
2: Fit	2: DX
4: Fit Sport	4: DX-A
6: Sport Navi	6: LX
	8: Sport
- e. **Check Digit**
- f. **Model Year**
A: '10
- g. **Factory Code**
S: Suzuka Factory in Japan
C: Saitama Factory in Japan
- h. **Serial Number**
000001—: USA models
800001—: Canada models



Vehicle Identification Number,
Federal Motor Vehicle Safety
Standard Certification and
Paint code Label.

Vehicle Identification Number,
Canadian Motor Vehicle Safety
Standard Certification and
paint Code Label.





Engine Number

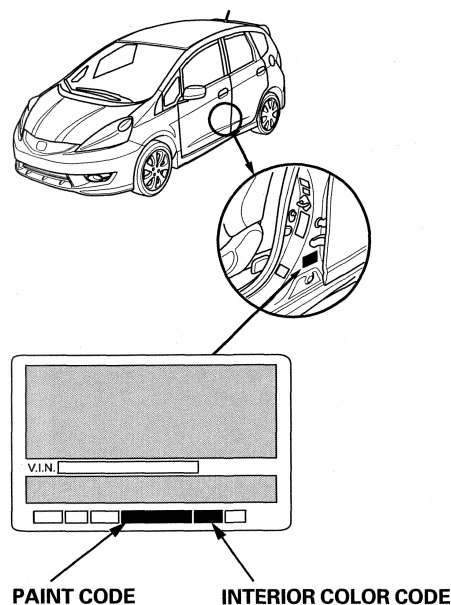
L15A7 - 2100001	
a	b
a. Engine Type L15A7: 1.5 L SOHC i-VTEC Sequential Multiport Fuel-injected engine	
b. Serial Number 2100001-: Produced in Suzuka 3650001-: Produced in Saitama (M/T model) 3850001-: Produced in Saitama (A/T model)	

Transmission Number

SP4M - 4000001	
a	b
a. Transmission Type SP4M: 5-speed Manual SP5A: 5-speed Automatic (Produced in Suzuka) M5PA: 5-speed Automatic (Produced in Saitama)	
b. Serial Number 4000001-: SP4M 2000001-: SP5A and M5PA	

Paint Code

Code	Color	USA models	Canada models
B-549M	Tidewater Blue Metallic	<input type="radio"/>	<input type="radio"/>
B-548P	Blue Sensation Pearl	<input type="radio"/>	<input type="radio"/>
NH-578	Taffeta White	<input type="radio"/>	<input type="radio"/>
NH-642M	Storm Silver Metallic	<input type="radio"/>	<input type="radio"/>
NH-731P	Crystal Black Pearl	<input type="radio"/>	<input type="radio"/>
R-81	Milano Red	<input type="radio"/>	<input type="radio"/>
PB-83P	Blackberry Pearl	<input type="radio"/>	<input type="radio"/>
YR-576M	Orange Revolution Metallic	<input type="radio"/>	<input type="radio"/>



General Information

Chassis and Paint Codes - '11 Model

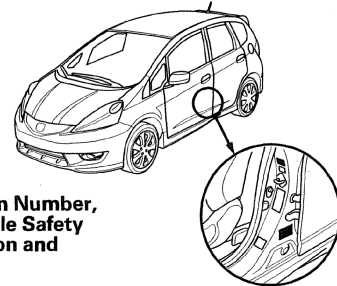
Vehicle Identification Number

J H M G E 8 G 2 * B C 0 0 0 0 0 1

a b c d e f g h

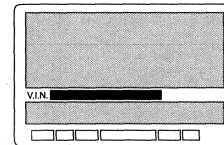
- a. Manufacturer, Make, and Type of Vehicle**
JHM: Honda Motor Co., Ltd.
Honda passenger vehicle
- b. Line, Body, and Engine Type**
GE8: Fit/L15A7
- c. Body Type and Transmission Type**
G: 4-door Hatchback/5-speed Manual
H: 4-door Hatchback/5-speed Automatic
- d. Vehicle Grade (Series)**

USA models	Canada models
3: Fit VSA	2: DX
5: Fit Sport VSA	3: DX-A
6: Sport Navi	5: LX
	7: Sport VSA
- e. Check Digit**
- f. Model Year**
B: '11
- g. Factory Code**
S: Suzuka Factory in Japan
C: Saitama Factory in Japan
- h. Serial Number**
000001 —: USA models
800001 —: Canada models



Vehicle Identification Number,
Federal Motor Vehicle Safety
Standard Certification and
Paint code Label.

Vehicle Identification Number,
Canadian Motor Vehicle Safety
Standard Certification and
paint Code Label.





Engine Number

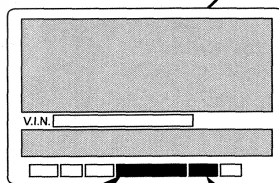
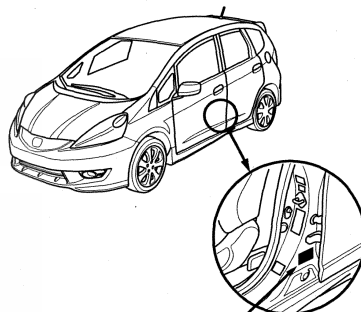
L15A7 - 4650001	
a	b
a. Engine Type L15A7: 1.5 L SOHC i-VTEC Sequential Multiport Fuel-injected engine	
b. Serial Number 3100001-: Produced in Suzuka 4650001-: Produced in Saitama (M/T model) 4850001-: Produced in Saitama (A/T model)	

Transmission Number

SP4M - 5000001	
a	b
a. Transmission Type SP4M: 5-speed Manual M5PA: 5-speed Automatic	
b. Serial Number 5000001-: SP4M 3000001-: M5PA	

Paint Code

Code	Color	USA models	Canada models
NH-578	Taffeta White	<input type="radio"/>	<input type="radio"/>
NH-700M	Alabaster Silver Metallic	<input type="radio"/>	
NH-731P	Crystal Black Pearl	<input type="radio"/>	<input type="radio"/>
NH-737M	Polished Metal Metallic	<input type="radio"/>	<input type="radio"/>
B-553P	Vortex Blue Pearl	<input type="radio"/>	<input type="radio"/>
B-564M	Celestial Blue Metallic	<input type="radio"/>	
R-81	Milano Red	<input type="radio"/>	<input type="radio"/>
YR-576M	Orange Revolution Metallic	<input type="radio"/>	<input type="radio"/>



PAINT CODE

INTERIOR COLOR CODE

General Information

Chassis and Paint Codes - '12 Model

Vehicle Identification Number

J H M G E 8 G 2 * C C 0 0 0 0 0 1

a b c d e f g h

a. Manufacturer, Make, and Type of Vehicle

JHM: Honda Motor Co., Ltd.

Honda passenger vehicle

LUC: Honda Automobile (China) Co., Ltd.

Honda passenger vehicle

b. Line, Body, and Engine Type

GE8: Fit/L15A7

c. Body Type and Transmission Type

G: 4-door Hatchback/5-speed Manual

H: 4-door Hatchback/5-speed Automatic

d. Vehicle Grade (Series)

USA models

Canada models

3: Fit

2: DX

5: Fit Sport

3: DX-A

6: Sport Navi

5: LX

7: Sport

e. Check Digit

f. Model Year

C: '12

g. Factory Code

S: Suzuka Factory in Japan

C: Saitama Factory in Japan

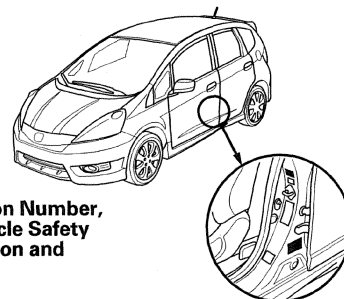
3: Huangpu Guangzhou Factory in China

h. Serial Number

000001—: USA models

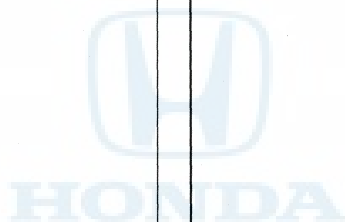
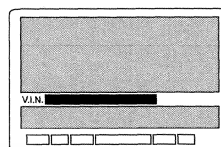
: Canada models (Produced in China)

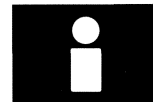
800001—: Canada models



Vehicle Identification Number,
Federal Motor Vehicle Safety
Standard Certification and
Paint code Label.

Vehicle Identification Number,
Canadian Motor Vehicle Safety
Standard Certification and
paint Code Label.





Engine Number

L15A7 - 5650001

a

b

a. Engine Type

L15A7: 1.5 L SOHC i-VTEC Sequential Multiport Fuel-injected engine

b. Serial Number

4100001-: Produced in Suzuka

4200001-: Produced in China (Canada models)

5650001-: Produced in Saitama (M/T model)

5900001-: Produced in Saitama (A/T model)

Transmission Number

SP4M - 6000001

a

b

a. Transmission Type

SP4M: 5-speed Manual

CKWM: 5-speed Manual (Produced in China)

MP5A: 5-speed Automatic

GPVA: 5-speed Automatic (Produced in China)

b. Serial Number

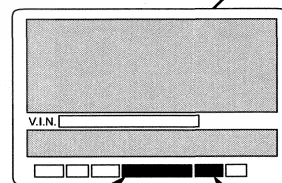
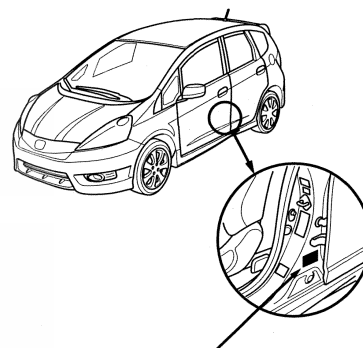
1000001-: CKWM and GPVA

3000001-: MP5A

6000001-: SP4M

Paint Code

Code	Color	USA models	Canada models
NH-578	Taffeta White	<input type="radio"/>	<input type="radio"/>
NH-700M	Alabaster Silver Metallic	<input type="radio"/>	<input type="radio"/>
NH-731P	Crystal Black Pearl	<input type="radio"/>	<input type="radio"/>
NH-737M	Polished Metal Metallic	<input type="radio"/>	<input type="radio"/>
BG-59M	Blue Raspberry Metallic	<input type="radio"/>	<input type="radio"/>
B-553P	Vortex Blue Pearl	<input type="radio"/>	<input type="radio"/>
R-81	Milano Red	<input type="radio"/>	<input type="radio"/>
YR-592M	Orangeburst Metallic	<input type="radio"/>	<input type="radio"/>

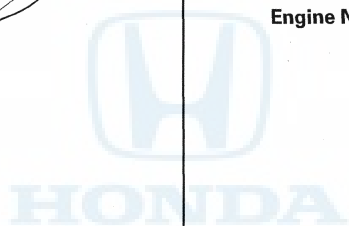
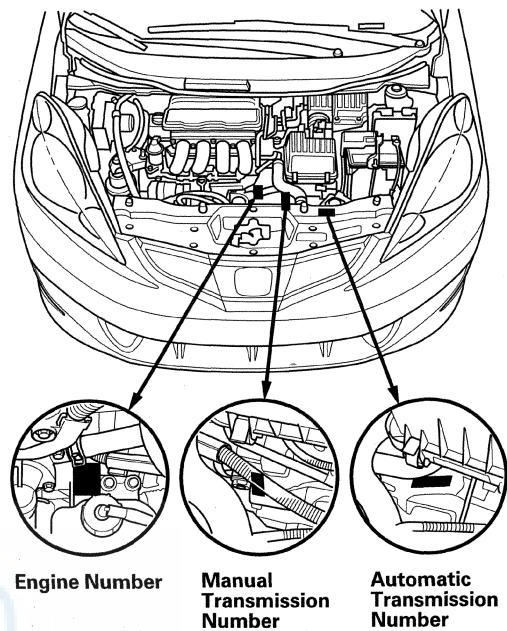
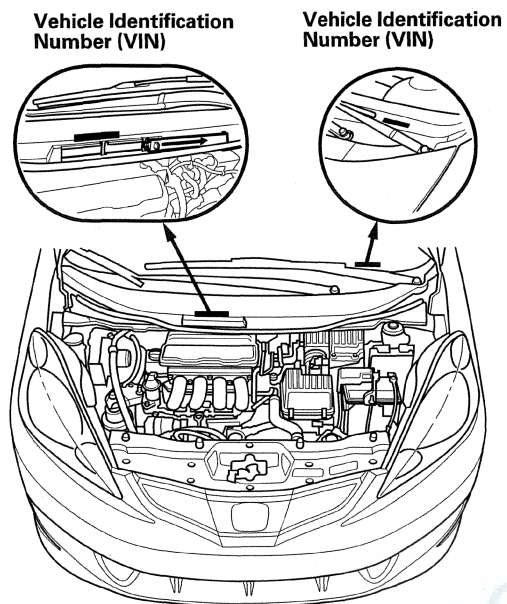


PAINT CODE

INTERIOR COLOR CODE

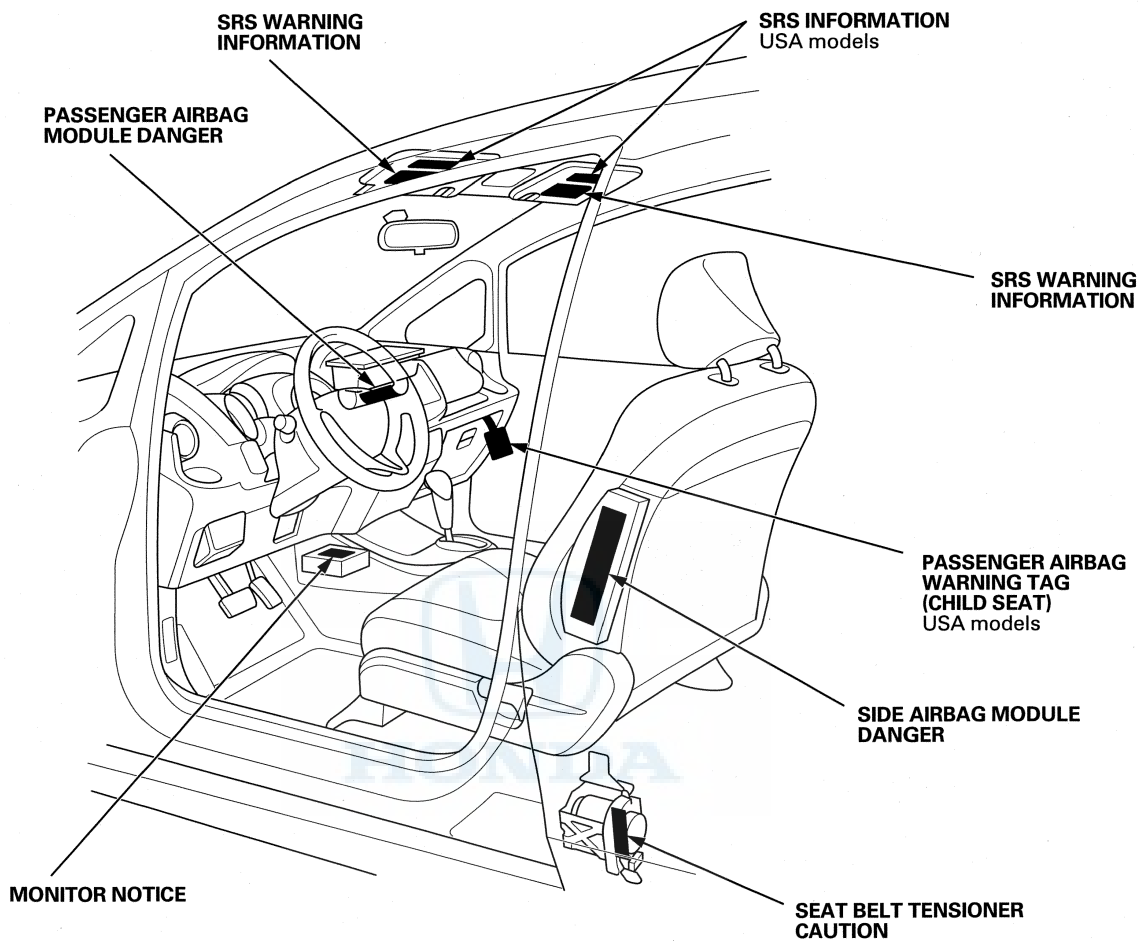
General Information

Identification Number Locations

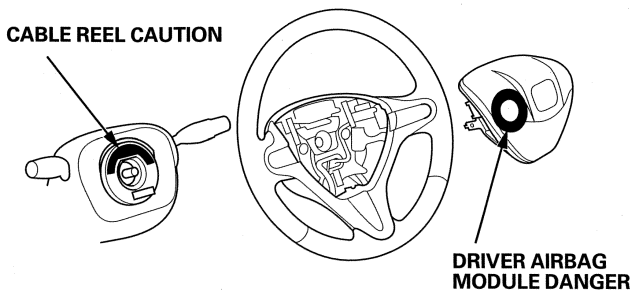




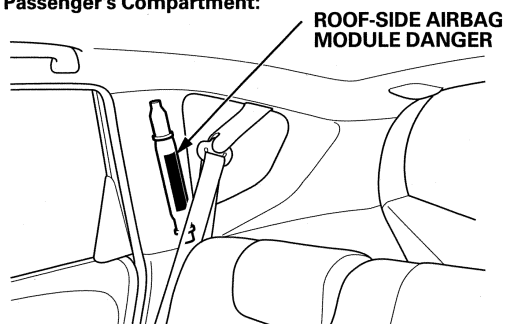
Danger/Warning/Caution Label Locations



Steering Wheel:



Rear Passenger's Compartment:

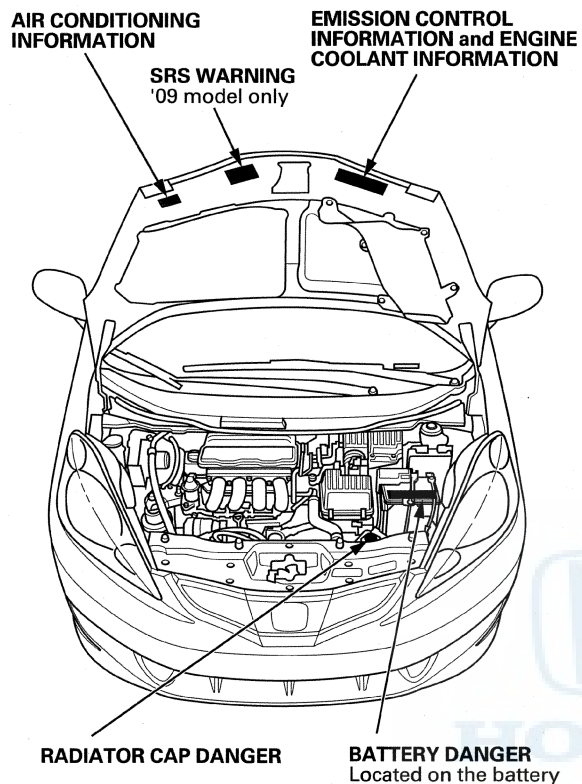


(cont'd)

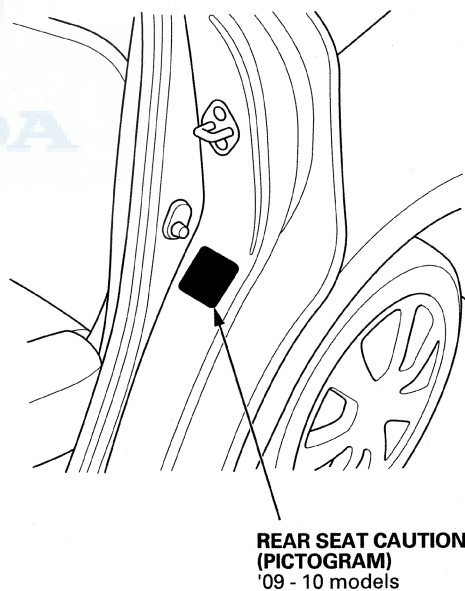
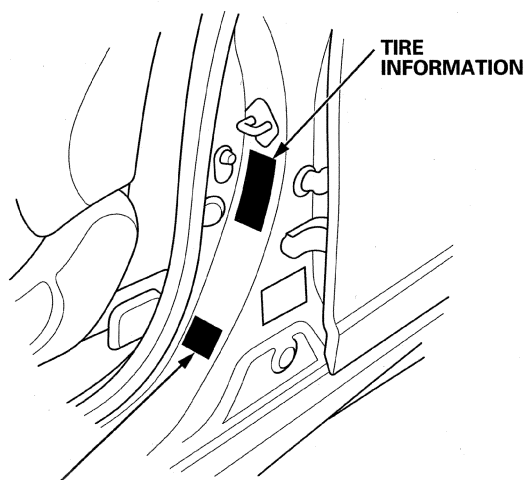
General Information

Danger/Warning/Caution Label Locations (cont'd)

Engine Compartment:



Doorjamb Area:







Under-Hood Emission Control Label

Emission Group Identification

Example:

INFORMATION		VEHICLE EMISSION CONTROL INFORMATION							
<p>▶ THE FACTORY INSTALLED LONG-LIFE COOLANT MUST BE REPLACED ACCORDING TO MAINTENANCE MINOR SUB CODES, OR AT 10 YEARS WHICHEVER COMES FIRST, THEREAFTER EVERY 5 YEARS.</p> <p>▶ WHEN ADDING OR REPLACING THE COOLANT, ALWAYS USE HONDA RECOMMENDED GENUINE LONG-LIFE ANTI-FREEZE/COOLANT TYPE 2. THE COOLANT IS PRE-MIXED WITH 50% DISTILLED WATER. IT DOES NOT REQUIRE ANY ADDITIONAL FLUID.</p> <p>▶ NEVER ADD WATER TO THE COOLANT, OR THE LIFE OF THE ENGINE MAY BE SERIOUSLY SHORTENED.</p> <p>▶ CHECK OR ADD THE COOLANT AT THE RESERVE TANK, NOT THE RADIATOR.</p> <p>▶ FOR FURTHER INFORMATION ON THE COOLING SYSTEM, READ THE OWNER'S MANUAL, OR CHECK WITH YOUR HONDA DEALER.</p>		<p>CONFORMS TO REGULATIONS : 2009MY</p> <table><tr><td>U.S. EPA: T285 LDV</td><td>ORD: CA OBD II</td><td>FUEL: GASOLINE</td></tr><tr><td>ARB: LEV II ULEV PC</td><td>ORD: CA OBD II</td><td>FUEL: GASOLINE</td></tr></table> <p>WU-TWC, TWC, A/F SENSOR, HO2S, EGR, SF</p> <div> HONDA MOTOR CO., LTD.</div> <div> 9-B RP3-ADD</div> <div>9HXXV01.53B9 9HXXR009WVEA 1.5L</div>		U.S. EPA: T285 LDV	ORD: CA OBD II	FUEL: GASOLINE	ARB: LEV II ULEV PC	ORD: CA OBD II	FUEL: GASOLINE
U.S. EPA: T285 LDV	ORD: CA OBD II	FUEL: GASOLINE							
ARB: LEV II ULEV PC	ORD: CA OBD II	FUEL: GASOLINE							

'09 Model

CONFORMS TO REGULATIONS: 2009 MY

'10 Model

CONFORMS TO REGULATIONS: 2010 MY

'11 Model

CONFORMS TO REGULATIONS: 2011 MY

'12 Model

CONFORMS TO REGULATIONS: 2012 MY

Test Group and Evaporative Family

Test Group:

C HNX V 01.5 HB2

C	HNX	V	01.5	HB2
a	b	c	d	e

a. Model Year

9: '09

A: '10

B: '11

C: '12

b. Manufacturer Subcode

HNX: Honda

c. Family Type

V: LDV

d. Displacement Group

e. Sequence Characters

3B9: '09 model

FB3: '10 model

KB2: '11 model

HB2: '12 model

Evaporative Family:

C HNX R 0096 VEA

C	HNX	R	0096	VEA
a	b	c	d	e

a. Model Year

9: '09

A: '10

B: '11

C: '12

b. Manufacturer Subcode

HNX: Honda

c. Family Type

R: Refueling

d. Canister Working Capacity Group

e. Sequence Characters

VEA: '09-12 models

General Information

Lift and Support Points

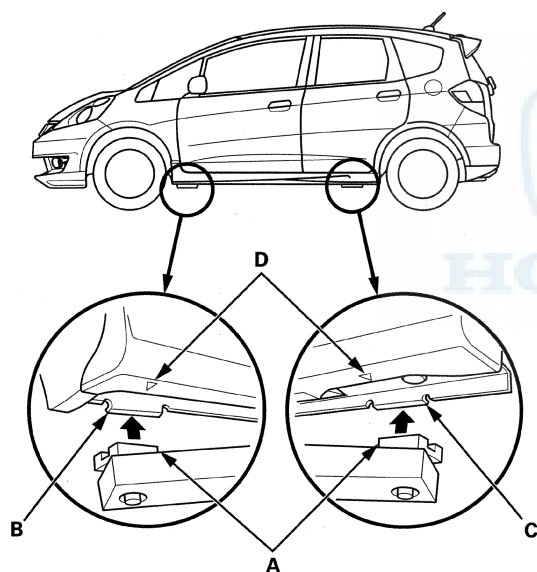
NOTE: If you are going to remove heavy components such as suspension or the fuel tank from the rear of the vehicle, first support the front of the vehicle with tall safety stands. When substantial weight is removed from the rear of the vehicle, the center of gravity can change, causing the vehicle to tip forward on the lift.

Vehicle Lift

1. Position the lift pads (A) under the vehicle's front support points (B) and rear support points (C) by the reference mark (D).

NOTICE

Be sure the lift pads are properly placed to avoid damaging the vehicle.



2. Raise the lift a few inches, and rock the vehicle gently to be sure it is firmly supported.
3. Raise the lift to its full height, and inspect the vehicle support points for solid contact with the lift pads.

Safety Stands

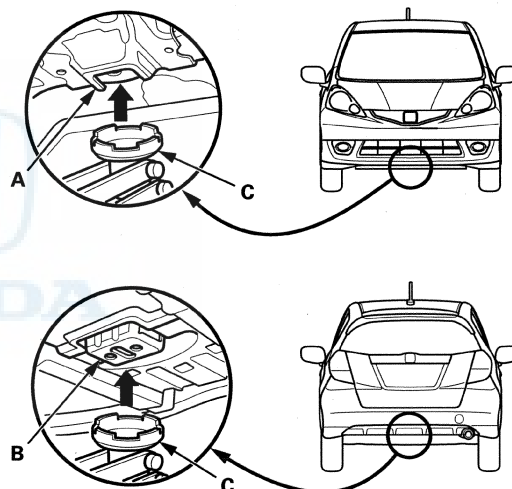
To support the vehicle on safety stands, use the same support points as for a vehicle lift. Always use safety stands when working on or under any vehicle that is supported only by a jack.

Floor Jack

1. When lifting the front of the vehicle, set the parking brake. When lifting the rear of the vehicle, put the shift lever in reverse for manual transmission, or in P for automatic transmission.
2. Block the wheels that are not being lifted.
3. Position the floor jack under the front jacking bracket (A) or the rear jacking bracket (B). Center the jacking bracket on the jack lift platform (C), and jack up the vehicle high enough to fit the safety stands under it.

NOTICE

Be sure the floor jack is properly placed to avoid damaging the vehicle.



4. Position the safety stands under the support points, and adjust them so the vehicle is level side to side.
5. Lower the vehicle onto the stands.



Towing

If the vehicle needs to be towed, call a professional towing service. Never tow the vehicle behind another vehicle with just a rope or chain. It is very dangerous.

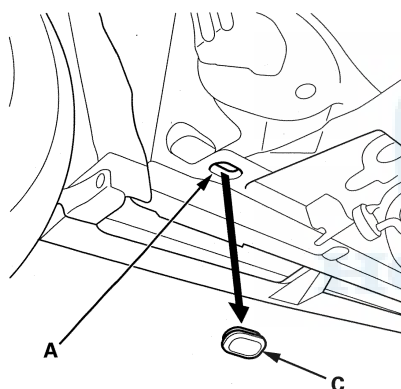
Emergency Towing — There are three popular methods of towing a vehicle.

Flat-bed Tow Truck Equipment — The operator loads the vehicle on the back of a flat-bed tow truck. **This is the best way of transporting the vehicle.**

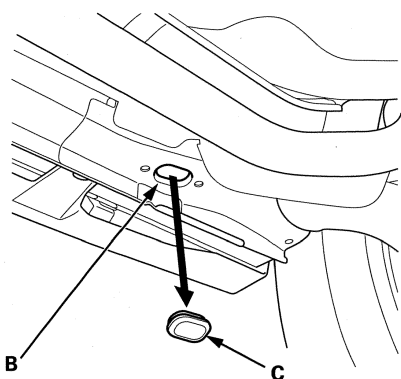
To accommodate the flat-bed tow truck equipment, the vehicle is equipped with the front tie down hook slots (A) and the rear tie down hook slots (B).

NOTE: The tie down hook slots have rubber plugs (C) over the openings.

Front:



Rear:



The towing hooks can be used with a winch to pull the vehicle onto the flat-bed tow truck, and the tie down hook slots can be used to secure the vehicle to the flat-bed tow truck.

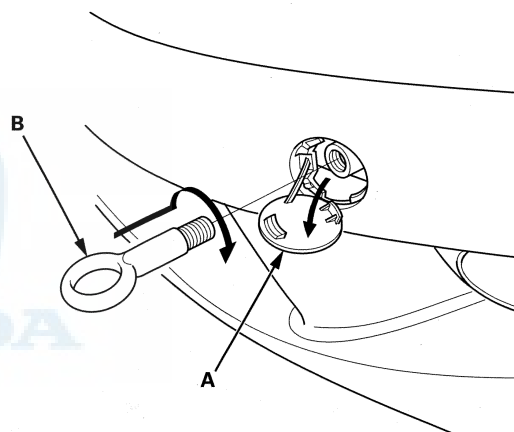
Towing Hook Installation — The detachable towing hook is for towing very short distances, such as freeing the vehicle. The hook attaches to the anchor in the front or rear bumper.

NOTICE

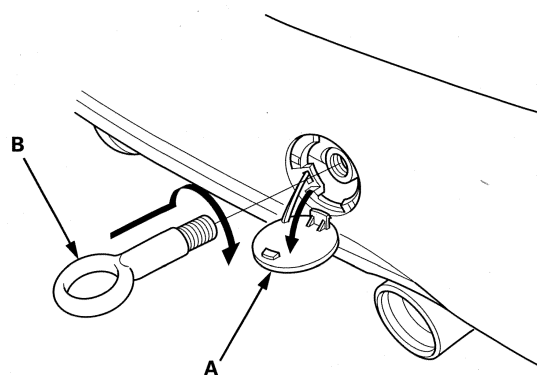
- To avoid damage to the vehicle, use the towing hook for straight flat ground towing only. Do not tow on an angle.
- Do not use the detachable towing hook as a tie down to secure the vehicle to the flat-bed tow truck. Use the tie down hook slots provided.

1. Remove the cover (A) from the bumper.

Front bumper:



Rear bumper:



2. Remove the detachable towing hook from the tool kit under the cargo area.
3. Screw in the detachable towing hook (B), and tighten it securely by hand.

(cont'd)

General Information

Towing (cont'd)

Wheel Lift Equipment — The tow truck uses two pivoting arms that go under the tires (front or rear) and lifts them off the ground. The other two wheels remain on the ground. **This is an acceptable way of towing the vehicle.**

Sling-type Equipment — The tow truck uses metal cables with hooks on the ends. These hooks go around parts of the frame or suspension, and the cables lift that end of the vehicle off the ground. The vehicle's suspension and body can be seriously damaged if this method of towing is attempted. **This method of towing the vehicle is unacceptable.**

If the vehicle cannot be transported by a flat-bed tow truck, it should be towed with the front wheels off the ground. If the vehicle is damaged, and must be towed with the front wheels on the ground, or with all four wheels on the ground, do this:

Manual Transmission

- Release the parking brake.
- Shift the transmission to neutral.
- Leave the ignition switch in ACCESSORY (I) so the steering wheel does not lock.
- Make sure all accessories are turned off to minimize battery current draw.

Automatic Transmission

- Release the parking brake.
- Start the engine.
- Shift to D, then to N.
- Turn off the engine.
- Leave the ignition switch in ACCESSORY (I) so the steering wheel does not lock.
- Make sure the all accessories are turned off to minimize battery current draw.

It is best to tow the vehicle no farther than 50 miles (80 km), and keep the vehicle speed below 35 mph (55 km/h).

NOTICE

- Improper towing preparation will damage the transmission. Follow the above procedure exactly. If you cannot shift the transmission or start the engine (A/T model), the vehicle must be transported on a flat-bed tow truck.
- Trying to lift or tow the vehicle by the bumpers will cause serious damage. The bumpers are not designed to support the vehicle's weight.

Parts Marking

To deter vehicle theft, certain major components are marked with the vehicle identification number (VIN). Original parts have self-adhesive labels. Replacement body parts have generic self-adhesive labels. These labels should not be removed. The original engine or transmission VIN plates are not transferable to the replacement engine or transmission.

NOTE: Be careful not to damage the parts marking labels during body repair. Mask the labels before repairing the part.

Specifications

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Torque Summary

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Standards and Service Limits

Engine Electrical

Item	Measurement	Qualification	Standard or New	Service Limit
Ignition coil	Rated voltage		12 V	
	Firing order		1-3-4-2	
Spark plug	Type	NGK	IZFR6K13	
		DENSO	SKJ20DR-M13	
	Gap		1.2-1.3 mm (0.047-0.051 in)	—
Ignition timing	At idle	M/T in neutral	0 ± 2 ° BTDC	
	Check the red mark	A/T in N or P	0 ± 2 ° BTDC	
Drive belt	Tension		Auto-tensioner	
Alternator	Output	At 13.5 V and normal engine temperature	95 A	
	Coil (rotor) resistance	At 68 °F (20 °C)	2.1-2.3 Ω	
	Slip ring O.D.		22.7 mm (0.894 in)	21.2 mm (0.835 in)
	Brush length		23 mm (0.91 in)	18 mm (0.71 in)
Starter	Output		1.0 kW	
	Commutator mica depth		0.50-0.80 mm (0.0197-0.0315 in)	0.20 mm (0.0079 in)
	Commutator runout		0.02 mm (0.0008 in) max.	0.05 mm (0.0020 in)
	Commutator O.D.		28.0 mm (1.102 in)	27.0 mm (1.063 in)
	Brush length		14.0-14.5 mm (0.551-0.571 in)	9.0 mm (0.354 in)
	Brush spring tension		13.73-17.65 N (1.400-1.800 kgf, 3.086-3.968 lbf)	—

Engine Assembly

Item	Measurement	Qualification	Standard or New	Service Limit
Compression	Pressure (checked with engine starter cranking at wide-open throttle)	Minimum	—	981 kPa (10.00 kgf/cm ² , 142.2 psi)
		Maximum variation	—	196 kPa (2.00 kgf/cm ² , 28.4 psi)



Cylinder Head

Item	Measurement	Qualification	Standard or New	Service Limit
Head	Warpage		0.08 mm (0.003 in) max.	—
	Height		119.9—120.1 mm (4.720—4.728 in)	—
Camshaft	End play		0.05—0.25 mm (0.0020—0.0098 in)	0.5 mm (0.020 in)
	Camshaft-to-holder oil clearance		0.045—0.084 mm (0.00177—0.00331 in)	0.100 mm (0.00394 in)
	Total runout		0.03 mm (0.0012 in) max.	—
	Cam lobe height	Intake PRI	35.241 mm (1.38744 in)	—
		Intake SEC	36.173 mm (1.42413 in)	—
		Exhaust	35.471 mm (1.39649 in)	—
Valve	Clearance (cold)	Intake	0.15—0.19 mm (0.006—0.007 in)	—
		Exhaust	0.26—0.30 mm (0.011—0.011 in)	—
	Stem O.D.	Intake	5.48—5.49 mm (0.2157—0.2161 in)	5.45 mm (0.2146 in)
		Exhaust	5.45—5.46 mm (0.2146—0.2150 in)	5.42 mm (0.2134 in)
	Stem-to-guide clearance	Intake	0.020—0.050 mm (0.00079—0.00197 in)	0.08 mm (0.0031 in)
		Exhaust	0.050—0.080 mm (0.00197—0.00315 in)	0.11 mm (0.0043 in)
Valve seat	Width	Intake	0.850—1.150 mm (0.03346—0.04528 in)	1.60 mm (0.0630 in)
		Exhaust	1.250—1.550 mm (0.04921—0.06102 in)	2.00 mm (0.0787 in)
	Stem installed height	Intake	46.1—46.5 mm (1.815—1.831 in)	46.8 mm (1.843 in)
		Exhaust	46.2—46.6 mm (1.819—1.835 in)	46.9 mm (1.846 in)
Valve guide	Installed height	Intake	15.85—16.35 mm (0.6240—0.6437 in)	—
		Exhaust	15.85—16.35 mm (0.6240—0.6437 in)	—
Rocker arm	Arm-to-shaft clearance	Intake	0.017—0.048 mm (0.00067—0.00189 in)	0.08 mm (0.0031 in)
		Exhaust	0.019—0.050 mm (0.00075—0.00197 in)	0.08 mm (0.0031 in)

HONDA

Standards and Service Limits

Engine Block

Item	Measurement	Qualification	Standard or New	Service Limit
Block	Warpage of deck		0.07 mm (0.002 in) max.	—
	Bore diameter		73.000—73.015 mm (2.87401—2.87460 in)	73.065 mm (2.87657 in)
	Bore taper		—	0.05 mm (0.0020 in)
	Reboring limit		—	0.25 mm (0.0098 in)
Piston	Skirt O.D. at 16 mm (0.63 in) from bottom of skirt		72.980—72.990 mm (2.87322—2.87362 in)	72.97 mm (2.8728 in)
	Clearance in cylinder		0.010—0.035 mm (0.00039—0.00138 in)	0.05 mm (0.0020 in)
Piston ring	Ring-to-groove clearance	Top (RIKEN)	0.065—0.090 mm (0.003—0.003 in)	0.15 mm (0.005 in)
		Top (NIPPON PISTON RING)	0.061—0.090 mm (0.003—0.003 in)	0.15 mm (0.005 in)
		Second	0.030—0.055 mm (0.002—0.002 in)	0.12 mm (0.004 in)
	Ring end gap	Top	0.15—0.30 mm (0.006—0.011 in)	0.60 mm (0.023 in)
		Second (RIKEN)	0.30—0.42 mm (0.012—0.016 in)	0.65 mm (0.025 in)
		Second (NIPPON PISTON RING)	0.35—0.50 mm (0.014—0.019 in)	0.65 mm (0.025 in)
		Oil	0.20—0.70 mm (0.008—0.027 in)	0.80 mm (0.031 in)
Piston pin	O.D.		17.996—18.000 mm (0.70850—0.70866 in)	—
	Pin-to-piston clearance		0.010—0.017 mm (0.00039—0.00067 in)	—
Connecting rod	Pin-to-rod interference		0.019—0.036 mm (0.00075—0.00142 in)	—
	Small end bore diameter		17.964—17.977 mm (0.70724—0.70775 in)	—
	Big end bore diameter	Nominal	43.0 mm (1.693 in)	—
	End play		0.15—0.35 mm (0.006—0.013 in)	0.40 mm (0.015 in)
Crankshaft	Main journal diameter		49.976—50.000 mm (1.96756—1.96850 in)	—
	Rod journal diameter		39.976—40.000 mm (1.57386—1.57480 in)	—
	Rod/main journal taper		0.005 mm (0.00020 in) max.	0.010 mm (0.00039 in)
	Rod/main journal out-of-round		0.005 mm (0.00020 in) max.	0.010 mm (0.00039 in)
	End play		0.10—0.35 mm (0.0039—0.0138 in)	0.45 mm (0.0177 in)
	Total runout		0.03 mm (0.0012 in) max.	0.04 mm (0.0016 in)
Crankshaft bearing	Main bearing-to-journal oil clearance		0.018—0.036 mm (0.00071—0.00142 in)	0.050 mm (0.00197 in)
	Connecting rod bearing-to-journal oil clearance		0.020—0.038 mm (0.00079—0.00150 in)	0.050 mm (0.00197 in)

Engine Lubrication

Item	Measurement	Qualification	Standard or New	Service Limit
Engine oil	Capacity	Engine overhaul	4.2 L (4.4 US qt)	—
		Oil change including filter	3.6 L (3.8 US qt)	—
		Oil change without filter	3.4 L (3.6 US qt)	—
Oil pump	Inner rotor-to-outer rotor radial clearance		0.06—0.16 mm (0.003—0.006 in)	0.20 mm (0.007 in)
	Pump housing-to-outer rotor radial clearance		0.100—0.175 mm (0.004—0.006 in)	0.20 mm (0.007 in)
	Pump housing-to-rotor axial clearance		0.02—0.06 mm (0.001—0.002 in)	0.15 mm (0.005 in)
Relief valve	Oil pressure with oil temperature at 176 °F (80 °C)	At idle	69 kPa (0.70 kgf/cm ² , 10.0 psi) min.	—
		At 3,000 rpm	343 kPa (3.50 kgf/cm ² , 49.8 psi) min.	—

Cooling System

Item	Measurement	Qualification	Standard or New	Service Limit
Radiator	Coolant capacities (including engine, heater, hoses, and reservoir)	Engine overhaul (M/T)	4.86 L (1.284 US gal)	—
		Engine overhaul (A/T)	4.96 L (1.310 US gal)	—
		Coolant change (M/T)	4.37 L (1.154 US gal)	—
		Coolant change (A/T)	4.47 L (1.181 US gal)	—
	Coolant type		Honda Long Life Antifreeze/Coolant Type 2	
Coolant reservoir	Coolant capacity		0.44 L (0.116 US gal)	—
Radiator cap	Opening pressure		93.3—122.7 kPa (0.951—1.251 kgf/cm ² , 13.53—17.79 psi)	—
Thermostat	Opening temperature	Begins to open	169—176 °F (76—80 °C)	—
		Fully open	194 °F (90 °C)	—
	Valve lift at fully open		8.0 mm (0.315 in) min.	—

Fuel and Emissions

Item	Measurement	Qualification	Standard or New	Service Limit
Fuel pressure regulator	Pressure with fuel pressure gauge connected		320—370 kPa (3.3—3.8 kgf/cm ² , 47—54 psi)	—
Fuel tank	Capacity		40 L (10.6 US gal)	—
Engine idle	Idle speed without load	M/T in neutral, A/T in N or P	700 ± 50 rpm	
	Idle speed with high electrical load	M/T in neutral, A/T in N or P	790 ± 50 rpm	

Standards and Service Limits

Clutch

Item	Measurement	Qualification	Standard or New	Service Limit
Clutch pedal	Height from floor		150 mm (5.91 in)	—
	Stroke		120—130 mm (4.72—5.12 in)	—
	Play		4.1—17.4 mm (0.161—0.685 in)	—
	Disengagement height from the floor		75.7 mm (2.98 in)	—
Flywheel	Runout on clutch mating surface		0.05 mm (0.0020 in) max.	0.15 mm (0.0059 in)
Clutch disc	Rivet head depth		1.00—1.50 mm (0.0394—0.0591 in)	0.2 mm (0.008 in)
	Thickness		7.25—7.95 mm (0.2854—0.3130 in)	5.0 mm (0.197 in)
Pressure plate	Warpage		0.03 mm (0.001 in) max.	0.15 mm (0.005 in)
	Evenness of the height of the diaphragm spring fingers		0.6 mm (0.024 in) max.	1.0 mm (0.039 in)

Manual Transmission and M/T Differential

Item	Measurement	Qualification	Standard or New	Service Limit
Manual transmission fluid	Capacity: use Honda MTF	Fluid change	1.5 L (1.6 US qt)	—
		Overhaul	1.6 L (1.7 US qt)	—
Mainshaft	End play		0.11—0.18 mm (0.0043—0.0071 in)	Adjust
	Diameter of distance collar contact area		28.992—29.005 mm (1.14142—1.14193 in)	28.93 mm (1.1390 in)
	Diameter of ball bearing contact area (clutch housing side)		25.977—25.990 mm (1.02271—1.02323 in)	25.92 mm (1.0205 in)
	Diameter of needle bearing contact area		34.984—35.000 mm (1.37732—1.37795 in)	34.93 mm (1.3752 in)
	Diameter of ball bearing contact area (transmission housing side)		25.987—26.000 mm (1.02311—1.02362 in)	25.93 mm (1.0209 in)
	Runout		0.02 mm (0.0008 in) max.	0.05 mm (0.0020 in)
	Diameter of pilot bearing contact area		14.870—14.890 mm (0.58543—0.58622 in)	—
Mainshaft 3rd, 4th gear	I.D.		39.009—39.025 mm (1.53578—1.53641 in)	39.07 mm (1.5382 in)
	Clearance	2nd—3rd	0.06—0.21 mm (0.003—0.008 in)	0.33 mm (0.013 in)
	End play	4th	0.06—0.19 mm (0.003—0.007 in)	0.31 mm (0.012 in)
	Thickness	3rd	27.92—27.97 mm (1.0992—1.1012 in)	27.85 mm (1.0965 in)
		4th	27.02—27.07 mm (1.0638—1.0657 in)	26.65 mm (1.0492 in)
Mainshaft 5th gear	I.D.		39.009—39.025 mm (1.53578—1.53641 in)	39.07 mm (1.5382 in)
	End play (distance collar side)		0.06—0.19 mm (0.003—0.007 in)	0.31 mm (0.012 in)
	Thickness		28.92—28.97 mm (1.1386—1.1405 in)	28.85 mm (1.1358 in)
Mainshaft 4th/5th gear distance collar	I.D.		29.014—29.024 mm (1.14228—1.14267 in)	29.06 mm (1.1441 in)
	O.D.		34.989—35.000 mm (1.37752—1.37795 in)	34.93 mm (1.3752 in)
	Overall length		51.97—52.03 mm (2.0461—2.0484 in)	—
MBS distance collar	Length of needle bearing contact area	4th, 5th	24.03—24.06 mm (0.9461—0.9472 in)	—
	I.D.		26.02—26.17 mm (1.0244—1.0303 in)	—
Countershaft	Length		12.00—12.05 mm (0.4724—0.4744 in)	—
	Diameter of needle bearing contact area (clutch housing side)		34.000—34.015 mm (1.33858—1.33917 in)	33.95 mm (1.3366 in)
Countershaft	Diameter of ball bearing contact area (transmission housing side)		24.980—24.993 mm (0.98346—0.98397 in)	24.93 mm (0.9815 in)
	Diameter of 1st gear distance collar contact area		36.487—36.500 mm (1.43649—1.43700 in)	36.44 mm (1.4346 in)
	Runout		0.02 mm (0.0008 in) max.	0.05 mm (0.0020 in)
	I.D.		48.509—48.525 mm (1.90980—1.91043 in)	48.580 mm (1.91259 in)
Countershaft 1st gear	End play (distance collar side)		0.03—0.12 mm (0.002—0.004 in)	0.24 mm (0.009 in)
	Thickness		27.42—27.47 mm (1.0795—1.0815 in)	27.39 mm (1.0783 in)

Manual Transmission and M/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Countershaft 2nd gear	I.D.		45.009—45.025 mm (1.77200—1.77263 in)	45.07 mm (1.7744 in)
	End play		0.04—0.12 mm (0.002—0.004 in)	0.24 mm (0.009 in)
	Thickness		27.41—27.46 mm (1.0791—1.0811 in)	27.36 mm (1.0772 in)
Countershaft 1st gear distance collar	I.D.		36.50—36.51 mm (1.4370—1.4374 in)	36.52 mm (1.4378 in)
	O.D.		44.489—44.500 mm (1.75153—1.75196 in)	44.44 mm (1.7496 in)
	Overall length		30.50—30.54 mm (1.2008—1.2024 in)	—
	Length of needle bearing contact area		26.53—26.58 mm (1.0445—1.0465 in)	—
Countershaft 2nd gear distance collar	I.D.		34.000—34.010 mm (1.33858—1.33897 in)	34.04 mm (1.3402 in)
	O.D.		39.989—40.000 mm (1.57437—1.57480 in)	39.93 mm (1.5720 in)
	Length		27.53—27.56 mm (1.0839—1.0850 in)	27.51 mm (1.0831 in)
Reverse idler gear	I.D.		15.016—15.043 mm (0.59118—0.59224 in)	15.08 mm (0.5937 in)
	Gear-to-reverse idler gear shaft clearance		0.032—0.077 mm (0.00126—0.00303 in)	0.14 mm (0.0055 in)
Synchro ring	Ring-to-gear clearance (ring pushed against gear)		0.85—1.10 mm (0.034—0.043 in)	0.4 mm (0.016 in)
Double cone synchro	Outer synchro ring-to-synchro cone clearance (ring pushed against gear)		0.5—1.0 mm (0.020—0.039 in)	0.3 mm (0.012 in)
	Synchro cone-to-gear clearance (ring pushed against gear)		0.5—1.0 mm (0.020—0.039 in)	0.3 mm (0.012 in)
	Outer synchro ring-to-gear clearance (ring pushed against gear)		0.95—1.68 mm (0.038—0.066 in)	0.6 mm (0.024 in)
Shift fork	Finger thickness	1st/2nd, 3rd/4th	7.4—7.6 mm (0.291—0.299 in)	—
		5th	6.7—6.9 mm (0.264—0.272 in)	—
	Fork-to-synchro sleeve clearance		0.35—0.65 mm (0.014—0.025 in)	1.0 mm (0.039 in)
Reverse shift fork	Finger width		13.5—13.8 mm (0.531—0.543 in)	—
	Fork-to-reverse idler gear clearance		1.30—1.90 mm (0.051—0.074 in)	2.5 mm (0.098 in)
Detent ball spring	Free length	1st/2nd, 3rd/4th, 5th	22.1 mm (0.870 in)	When worn or damaged
Steel ball	Ball size		7.94 mm (0.3126 in)	When worn or damaged
Shift arm	I.D.		13.973—14.000 mm (0.55012—0.55118 in)	—
	Finger width		12.9—13.0 mm (0.508—0.512 in)	—
	Shift arm-to-shift fork clearance		0.2—0.5 mm (0.008—0.020 in)	0.62 mm (0.024 in)
Select lever	Finger width		12.80—12.95 mm (0.5039—0.5098 in)	—
Change lever	Shaft-to-select lever clearance		0.05—0.35 mm (0.002—0.013 in)	0.55 mm (0.021 in)
	Groove width		13.00—13.15 mm (0.5118—0.5177 in)	—
	Shaft-to-shift arm clearance		0.013—0.070 mm (0.00051—0.00276 in)	0.1 mm (0.004 in)
M/T differential pinion gear	Backlash		0.05—0.15 mm (0.0020—0.0059 in)	—
M/T differential 80 mm shim	80 mm shim-to-bearing outer race clearance in transmission housing		0.01—0.1 mm (0.0004—0.004 in)	Adjust

Standards and Service Limits

Automatic Transmission and A/T Differential

Item	Measurement	Qualification	Standard or New	Service Limit
Automatic transmission fluid	Capacity: use genuine Honda ATF DW-1	Fluid change	2.5 L (2.6 US qt)	—
		Overhaul	5.85 L (6.18 US qt)	—
ATF pressure	Line pressure	At 2,000 rpm in N or P	900–960 kPa (9.18–9.79 kgf/cm ² , 130.6–139.2 psi)	850 kPa (8.67 kgf/cm ² , 123.3 psi)
	1st clutch pressure	At 2,000 rpm in 1st gear in S or 1	890–970 kPa (9.08–9.89 kgf/cm ² , 129.1–140.7 psi)	840 kPa (8.57 kgf/cm ² , 121.9 psi)
	2nd clutch pressure	At 2,000 rpm in 2nd gear in S or 2	890–970 kPa (9.08–9.89 kgf/cm ² , 129.1–140.7 psi)	840 kPa (8.57 kgf/cm ² , 121.9 psi)
	3rd clutch pressure	At 2,000 rpm in 3rd gear in S or D3	890–970 kPa (9.08–9.89 kgf/cm ² , 129.1–140.7 psi)	840 kPa (8.57 kgf/cm ² , 121.9 psi)
	4th clutch pressure	At 2,000 rpm in 4th gear in S or D	890–970 kPa (9.08–9.89 kgf/cm ² , 129.1–140.7 psi)	840 kPa (8.57 kgf/cm ² , 121.9 psi)
	5th clutch pressure	At 2,000 rpm in 5th gear in S or D	890–970 kPa (9.08–9.89 kgf/cm ² , 129.1–140.7 psi)	840 kPa (8.57 kgf/cm ² , 121.9 psi)
Torque converter	Stall speed		2,200 rpm	—
	Check with vehicle on level ground	Service limit	2,050–2,350 rpm	—
Clutch	Clearance between clutch end-plate and top disc	1st	1.62–1.82 mm (0.0638–0.0717 in)	—
		2nd	0.5–0.7 mm (0.020–0.028 in)	—
		3rd	0.73–0.93 mm (0.0287–0.0366 in)	—
		4th	0.7–0.9 mm (0.028–0.035 in)	—
		5th	0.73–0.93 mm (0.0287–0.0366 in)	—
	Clutch return spring free length	1st	36.0 mm (1.417 in)	34.5 mm (1.358 in)
		2nd	39.4 mm (1.551 in)	37.4 mm (1.472 in)
		3rd	45.15 mm (1.7776 in)	43.0 mm (1.693 in)
		4th	39.4 mm (1.551 in)	37.4 mm (1.472 in)
		5th	45.15 mm (1.7776 in)	43.0 mm (1.693 in)
	Clutch disc thickness	1st	1.94 mm (0.0764 in)	—
		2nd	1.96 mm (0.0772 in)	—
		3rd	1.94 mm (0.0764 in)	—
		4th	1.96 mm (0.0772 in)	—
		5th	1.94 mm (0.0764 in)	—
	Clutch plate thickness	1st	1.6 mm (0.063 in)	When discolored
		2nd	2.3 mm (0.091 in)	When discolored
		3rd	2.0 mm (0.079 in)	When discolored
		4th	1.6 mm (0.063 in)	When discolored
		5th	2.0 mm (0.079 in)	When discolored
	Clutch wave-plate height	1st, 3rd, and 5th clutches	0.07–0.20 mm (0.0028–0.0079 in)	0.05 mm (0.0020 in)
	1st, 3rd, and 5th clutch end-plate thickness	Mark 1	2.1 mm (0.083 in)	When discolored
		Mark 2	2.2 mm (0.087 in)	When discolored
		Mark 3	2.3 mm (0.091 in)	When discolored
		Mark 4	2.4 mm (0.094 in)	When discolored
		Mark 5	2.5 mm (0.098 in)	When discolored
		Mark 6	2.6 mm (0.102 in)	When discolored
		Mark 7	2.7 mm (0.106 in)	When discolored
		Mark 8	2.8 mm (0.110 in)	When discolored
		Mark 9	2.9 mm (0.114 in)	When discolored
	2nd and 4th clutch end-plate thickness	Mark AC or AM	2.1 mm (0.083 in)	When discolored
		Mark AD or AN	2.2 mm (0.087 in)	When discolored
		Mark AE or AP	2.3 mm (0.091 in)	When discolored
		Mark AF or AQ	2.4 mm (0.094 in)	When discolored
		Mark AG or AR	2.5 mm (0.098 in)	When discolored
		Mark AH or AS	2.6 mm (0.102 in)	When discolored
		Mark AJ or AT	2.7 mm (0.106 in)	When discolored
		Mark AK or AU	2.8 mm (0.110 in)	When discolored
		Mark AL or AV	2.9 mm (0.114 in)	When discolored

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Mainshaft	Diameter of needle bearing contact area	At stator shaft	22.984—23.000 mm (0.90488—0.90551 in)	When worn or damaged
		At 3rd gear	46.986—46.999 mm (1.84984—1.85035 in)	When worn or damaged
		At 5th gear collar	31.975—31.991 mm (1.25886—1.25949 in)	When worn or damaged
	I.D. of gears	3rd gear	52.000—52.013 mm (2.04724—2.04775 in)	When worn or damaged
		5th gear	37.000—37.016 mm (1.45669—1.45732 in)	When worn or damaged
	Axial clearance of gears	3rd gear	0.04—0.10 mm (0.0016—0.0039 in)	—
		5th gear	0.15—0.27 mm (0.0059—0.0106 in)	—
	Thrust washer thickness (40 x 63 mm)	No. 1	3.750 mm (0.14764 in)	When worn or damaged
		No. 2	3.775 mm (0.14862 in)	When worn or damaged
		No. 3	3.800 mm (0.14961 in)	When worn or damaged
		No. 4	3.825 mm (0.15059 in)	When worn or damaged
		No. 5	3.850 mm (0.15157 in)	When worn or damaged
		No. 6	3.875 mm (0.15256 in)	When worn or damaged
		No. 7	3.900 mm (0.15354 in)	When worn or damaged
		No. 8	3.925 mm (0.15453 in)	When worn or damaged
		No. 9	3.950 mm (0.15551 in)	When worn or damaged
		No. 10	3.975 mm (0.15650 in)	When worn or damaged
		No. 11	4.000 mm (0.15748 in)	When worn or damaged
	5th gear collar length		60.4—60.5 mm (2.378—2.382 in)	—
	5th gear collar flange thickness		3.70—3.85 mm (0.1457—0.1516 in)	When worn or damaged
	Sealing ring thickness		1.91—1.97 mm (0.0752—0.0776 in)	1.86 mm (0.0732 in)
	Sealing ring groove width		2.025—2.060 mm (0.07972—0.08110 in)	2.080 mm (0.08189 in)
	Feed pipe bushing I.D.		8.000—8.015 mm (0.31496—0.31555 in)	8.030 mm (0.31614 in)
	Clutch feed pipe O.D.	3rd clutch	7.97—7.98 mm (0.3138—0.3142 in)	7.95 mm (0.3130 in)
Countershaft	Diameter of needle bearing contact area	At torque converter housing	33.504—33.517 mm (1.31905—1.31956 in)	When worn or damaged
		At 5th gear	32.986—32.999 mm (1.29866—1.29917 in)	When worn or damaged
		At reverse selector hub	35.983—35.999 mm (1.41665—1.41728 in)	When worn or damaged
	I.D. of gears	5th gear	39.000—39.016 mm (1.53543—1.53606 in)	When worn or damaged
		Reverse gear	42.000—42.016 mm (1.65354—1.65417 in)	When worn or damaged
	Axial clearance of gears	5th gear	0.04—0.27 mm (0.0016—0.0106 in)	—
		Reverse gear	0.10—0.25 mm (0.0039—0.0098 in)	—
	Collar, 33.2 x 40 x 26 mm length		25.95—26.00 mm (1.0217—1.0236 in)	—
	Reverse selector hub width		29.25—29.45 mm (1.1516—1.1594 in)	—
	Reverse selector hub O.D.		51.87—51.90 mm (2.0421—2.0433 in)	When worn or damaged

Standards and Service Limits

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft	Diameter of needle bearing contact area	At 1st gear	30.986—30.999 mm (1.21992—1.22043 in)	When worn or damaged
		At 2nd gear	42.986—42.999 mm (1.69236—1.69287 in)	When worn or damaged
		At 4th gear collar	34.975—34.991 mm (1.37697—1.37760 in)	When worn or damaged
	I.D. of gears	1st gear	38.000—38.016 mm (1.49606—1.49669 in)	When worn or damaged
		2nd gear	49.000—49.016 mm (1.92913—1.92976 in)	When worn or damaged
		4th gear	41.000—41.016 mm (1.61417—1.61480 in)	When worn or damaged
	Axial clearance of gears	1st gear	0.04—0.12 mm (0.002—0.004 in)	—
		2nd gear	0.04—0.12 mm (0.0016—0.0047 in)	—
		4th gear	0.10—0.22 mm (0.0039—0.0087 in)	—
	Thrust washer thickness (31 x 50 mm)	No. 1	3.925 mm (0.15453 in)	When worn or damaged
		No. 2	3.950 mm (0.15551 in)	When worn or damaged
		No. 3	3.975 mm (0.15650 in)	When worn or damaged
		No. 4	4.000 mm (0.15748 in)	When worn or damaged
		No. 5	4.025 mm (0.15846 in)	When worn or damaged
		No. 6	4.050 mm (0.15945 in)	When worn or damaged
		No. 7	4.075 mm (0.16043 in)	When worn or damaged
		No. 8	4.100 mm (0.16142 in)	When worn or damaged
		No. 9	4.125 mm (0.16240 in)	When worn or damaged
		No. 10	4.150 mm (0.16339 in)	When worn or damaged
		No. 11	4.175 mm (0.16437 in)	When worn or damaged
		No. 12	4.200 mm (0.16535 in)	When worn or damaged
		No. 13	4.225 mm (0.16634 in)	When worn or damaged
		No. 14	4.250 mm (0.16732 in)	When worn or damaged
		No. 15	4.275 mm (0.16831 in)	When worn or damaged
		No. 16	4.300 mm (0.16929 in)	When worn or damaged
		No. 17	4.325 mm (0.17028 in)	When worn or damaged

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Secondary shaft (cont'd)	Thrust washer thickness (43 x 54.5 mm)	No. 1	2.900 mm (0.11417 in)	When worn or damaged
		No. 2	2.925 mm (0.11516 in)	When worn or damaged
		No. 3	2.950 mm (0.11614 in)	When worn or damaged
		No. 4	2.975 mm (0.11713 in)	When worn or damaged
		No. 5	3.000 mm (0.11811 in)	When worn or damaged
		No. 6	3.025 mm (0.11909 in)	When worn or damaged
		No. 7	3.050 mm (0.12008 in)	When worn or damaged
		No. 8	3.075 mm (0.12106 in)	When worn or damaged
		No. 9	3.100 mm (0.12205 in)	When worn or damaged
		No. 10	3.125 mm (0.12303 in)	When worn or damaged
		No. 11	3.150 mm (0.12402 in)	When worn or damaged
		No. 12	3.175 mm (0.12500 in)	When worn or damaged
		No. 13	3.200 mm (0.12598 in)	When worn or damaged
	4th gear collar length		32.9—33.0 mm (1.295—1.299 in)	—
	4th gear collar flange thickness		3.75—3.90 mm (0.1476—0.1535 in)	When worn or damaged
	Sealing ring thickness		1.87—1.97 mm (0.0736—0.0776 in)	1.82 mm (0.0717 in)
	Sealing ring groove width		2.025—2.060 mm (0.07972—0.08110 in)	2.080 mm (0.08189 in)
	Feed pipe O.D.	2nd clutch	6.97—6.98 mm (0.2744—0.2748 in)	6.95 mm (0.2736 in)
		4th clutch	11.47—11.48 mm (0.4516—0.4520 in)	11.45 mm (0.4508 in)
	Clutch feed pipe bushing O.D.	2nd clutch	7.018—7.030 mm (0.27630—0.27677 in)	7.045 mm (0.27736 in)
		4th clutch	11.500—11.518 mm (0.45276—0.45346 in)	11.530 mm (0.45394 in)
	ATF guide collar of sealing ring contact I.D.		21.200—21.221 mm (0.83464—0.83547 in)	21.25 mm (0.8366 in)
Idler gear shaft	Diameter of needle bearing contact area	At torque converter housing (shaft end side)	30.003—30.013 mm (1.18122—1.18161 in)	When worn or damaged
	Cotter thickness		1.39—1.42 mm (0.0547—0.0559 in)	—
Reverse idler gear	Reverse idler gear shaft O.D. at needle bearing contact area		14.99—15.00 mm (0.5902—0.5906 in)	When worn or damaged
	I.D.		20.001—20.014 mm (0.78744—0.78795 in)	When worn or damaged
	I.D. of transmission housing at reverse idler gear shaft contact area		14.800—14.818 mm (0.58268—0.58338 in)	—
	I.D. of reverse idler gear shaft holder		14.800—14.824 mm (0.58268—0.58362 in)	When worn or damaged
ATF pump	ATF pump thrust clearance		0.03—0.06 mm (0.002—0.002 in)	0.07 mm (0.002 in)
	Clearance between ATF pump gear and main valve body	Drive gear	0.210—0.265 mm (0.009—0.010 in)	—
		Driven gear	0.070—0.125 mm (0.003—0.004 in)	—
	ATF pump driven gear I.D.		14.016—14.034 mm (0.55181—0.55252 in)	When worn or damaged
	ATF pump driven gear shaft O.D.		13.980—13.990 mm (0.55039—0.55079 in)	When worn or damaged

Standards and Service Limits

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Stator shaft	I.D. at needle bearing contact area	At torque converter side	27.000—27.021 mm (1.06299—1.06382 in)	When worn or damaged
		At ATF pump side	29.000—29.021 mm (1.14173—1.14256 in)	—
	I.D. at mainshaft sealing ring contact area		29.000—29.021 mm (1.14173—1.14256 in)	29.050 mm (1.14370 in)
Reverse shift fork	Fork finger thickness		5.90—6.00 mm (0.2323—0.2362 in)	5.40 mm (0.2126 in)
Park gear and pawl	—		—	When worn or damaged
Servo body	Shift fork shaft bore I.D.		14.000—14.010 mm (0.55118—0.55157 in)	When worn or damaged
	Shift fork shaft valve bore I.D.		37.000—37.039 mm (1.45669—1.45823 in)	37.045 mm (1.45846 in)
Regulator valve body	Mainshaft sealing ring contact I.D.		29.000—29.021 mm (1.14173—1.14256 in)	29.05 mm (1.1437 in)
Main valve body spring	Shift valve A spring	Wire diameter	0.8 mm (0.031 in)	—
		O.D.	7.1 mm (0.280 in)	—
		Free length	23.7 mm (0.933 in)	—
		No. of coil	9.7	—
	Shift valve C spring	Wire diameter	0.8 mm (0.031 in)	—
		O.D.	7.1 mm (0.280 in)	—
		Free length	23.7 mm (0.933 in)	—
		No. of coil	9.7	—
	Shift valve D spring	Wire diameter	0.8 mm (0.031 in)	—
		O.D.	5.6 mm (0.220 in)	—
		Free length	28.1 mm (1.106 in)	—
		No. of coil	15.9	—
	Relief valve spring	Wire diameter	1.0 mm (0.039 in)	—
		O.D.	9.6 mm (0.378 in)	—
		Free length	34.1 mm (1.343 in)	—
		No. of coil	10.2	—
	Lock-up control valve spring	Wire diameter	0.6 mm (0.024 in)	—
		O.D.	7.1 mm (0.280 in)	—
		Free length	29.6 mm (1.165 in)	—
		No. of coil	11.2	—
	Cut valve B spring	Wire diameter	0.8 mm (0.031 in)	—
		O.D.	9.9 mm (0.390 in)	—
		Free length	27.3 mm (1.075 in)	—
		No. of coil	8	—
	Cooler check valve spring	Wire diameter	0.85 mm (0.0335 in)	—
		O.D.	6.6 mm (0.260 in)	—
		Free length	27.0 mm (1.063 in)	—
		No. of coil	11.3	—
	Servo control valve spring	Wire diameter	0.8 mm (0.031 in)	—
		O.D.	9.9 mm (0.390 in)	—
		Free length	27.3 mm (1.075 in)	—
		No. of coil	8	—

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Regulator valve body spring	1st accumulator spring A	Wire diameter	2.4 mm (0.094 in)	—
		O.D.	18.6 mm (0.732 in)	—
		Free length	50.1 mm (1.972 in)	—
		No. of coil	6.7	
	1st accumulator spring B	Wire diameter	2.4 mm (0.094 in)	—
		O.D.	12.2 mm (0.480 in)	—
		Free length	35.0 mm (1.378 in)	—
		No. of coil	7.7	
	4th accumulator spring	Wire diameter	2.5 mm (0.098 in)	—
		O.D.	14.6 mm (0.575 in)	—
		Free length	29.9 mm (1.177 in)	—
		No. of coil	4.9	
	Regulator valve spring A	Wire diameter	1.9 mm (0.075 in)	—
		O.D.	14.7 mm (0.579 in)	—
		Free length	80.6 mm (3.173 in)	—
		No. of coil	16.1	
	Regulator valve spring B	Wire diameter	1.6 mm (0.063 in)	—
		O.D.	9.2 mm (0.362 in)	—
		Free length	44.00 mm (1.7323 in)	—
		No. of coil	12.5	
	Stator reaction spring	Wire diameter	4.5 mm (0.177 in)	—
		O.D.	35.4 mm (1.394 in)	—
		Free length	30.3 mm (1.193 in)	—
		No. of coil	1.92	
	Lock-up shift valve spring	Wire diameter	1.0 mm (0.039 in)	—
		O.D.	6.6 mm (0.260 in)	—
		Free length	35.5 mm (1.398 in)	—
		No. of coil	18.2	
	Torque converter check valve spring	Wire diameter	1.2 mm (0.047 in)	—
		O.D.	8.6 mm (0.339 in)	—
		Free length	33.8 mm (1.331 in)	—
		No. of coil	12.2	

Standards and Service Limits

Automatic Transmission and A/T Differential (cont'd)

Item	Measurement	Qualification	Standard or New	Service Limit
Servo body spring	2nd accumulator spring A	Wire diameter	1.8 mm (0.071 in)	—
		O.D.	14.6 mm (0.575 in)	—
		Free length	43.8 mm (1.724 in)	—
		No. of coil	7.9	—
	2nd accumulator spring B	Wire diameter	1.85 mm (0.0728 in)	—
		O.D.	9.4 mm (0.370 in)	—
		Free length	32.5 mm (1.280 in)	—
		No. of coil	8.7	—
	3rd accumulator spring A	Wire diameter	1.8 mm (0.071 in)	—
		O.D.	14.6 mm (0.575 in)	—
		Free length	43.8 mm (1.724 in)	—
		No. of coil	7.9	—
	3rd accumulator spring B	Wire diameter	1.85 mm (0.0728 in)	—
		O.D.	9.4 mm (0.370 in)	—
		Free length	32.5 mm (1.280 in)	—
		No. of coil	8.7	—
	5th accumulator spring A	Wire diameter	2.5 mm (0.098 in)	—
		O.D.	16.6 mm (0.654 in)	—
		Free length	46.9 mm (1.846 in)	—
		No. of coil	7.8	—
	5th accumulator spring B	Wire diameter	1.9 mm (0.075 in)	—
		O.D.	10.0 mm (0.394 in)	—
		Free length	38.5 mm (1.516 in)	—
		No. of coil	10.6	—
	Cut valve A spring	Wire diameter	0.9 mm (0.035 in)	—
		O.D.	9.9 mm (0.390 in)	—
		Free length	22.3 mm (0.878 in)	—
		No. of coil	6.9	—
	Shift valve B spring	Wire diameter	0.8 mm (0.031 in)	—
		O.D.	7.1 mm (0.280 in)	—
		Free length	23.7 mm (0.933 in)	—
		No. of coil	9.7	—
A/T differential carrier	Pinion shaft contact area I.D.		18.010—18.028 mm (0.70905—0.70976 in)	—
	Driveshaft contact area I.D.		26.025—26.045 mm (1.02460—1.02539 in)	—
	Intermediate shaft contact area I.D.		26.025—26.045 mm (1.02460—1.02539 in)	—
	Clearance between carrier and pinion shaft		0.023—0.057 mm (0.00091—0.00224 in)	0.10 mm (0.0039 in)
	Clearance between carrier and driveshaft		0.045—0.086 mm (0.00177—0.00339 in)	0.12 mm (0.0047 in)
	Clearance between carrier and intermediate shaft		0.075—0.111 mm (0.00295—0.00437 in)	0.12 mm (0.0047 in)
	Carrier bearing starting torque (preload)	For new bearing	2.7—3.9 N·m (0.28—0.40 kgf·m, 2.0—2.9 lbf·ft)	Adjust
		For reused bearing	2.5—3.6 N·m (0.25—0.37 kgf·m, 1.8—2.7 lbf·ft)	Adjust
	Final driven gear backlash	References	0.085—0.144 mm (0.00335—0.00567 in)	0.20 mm (0.0079 in)
A/T differential pinion gear	Backlash		0.05—0.15 mm (0.0020—0.0059 in)	—
	I.D.		18.042—18.066 mm (0.71031—0.71126 in)	—
	Clearance between pinion gear and pinion shaft		0.055—0.095 mm (0.00217—0.00374 in)	0.12 mm (0.0047 in)

Steering

Item	Measurement	Qualification	Standard or New	Service Limit
Steering wheel	Rotational play measured at outside edge		0–10 mm (0–0.39 in)	—
	Initial turning load measured at outside edge with engine running		29 N (3.0 kgf, 6.6 lbf)	—
Gearbox	Angle of rack guide screw loosened from locked position		13±1 °	

Suspension

Item	Measurement	Qualification	Standard or New	Service Limit
Wheel alignment	Camber	Front	0° 00' ±1°	
		Rear	–1° 00' ±1°	
	Caster	Front	3° 20' ±1°	
		Rear	2.5±2.5 mm (0.098±0.098 in)	
	Total toe-in	Front	0±3 mm (0±0.12 in)	
		Rear	2.5±2.5 mm (0.098±0.098 in)	
Wheel	Front wheel turning angle	Inward	38° 04' ±2°	
		Outward (reference)	32° 00' ±1°	
	Aluminum wheel runout	Axial	0–0.7 mm (0–0.028 in)	2.0 mm (0.079 in)
		Radial	0–0.7 mm (0–0.028 in)	1.5 mm (0.059 in)
Wheel bearing	Steel wheel runout	Axial	0–1.0 mm (0–0.039 in)	2.0 mm (0.079 in)
		Radial	0–1.0 mm (0–0.039 in)	1.5 mm (0.059 in)
	End play	Front	0–0.05 mm (0–0.0020 in)	—
		Rear	0–0.05 mm (0–0.0020 in)	—

Brakes

Item	Measurement	Qualification	Standard or New	Service Limit
Parking brake lever	Number of clicks when lever pulled with 196 N (20.0 kgf, 44.1 lbf) of force		5 to 7 clicks	
Brake pedal	Height from floor	M/T	132 mm (5.20 in)	—
		A/T	147 mm (5.79 in)	—
Brake disc	Free play		1–5 mm (0.04–0.20 in)	—
	Thickness		21.0 mm (0.827 in)	19.0 mm (0.748 in)
	Runout		—	0.04 mm (0.0016 in)
Brake pad	Parallelism		—	0.015 mm (0.00059 in)
			10.0 mm (0.394 in)	1.6 mm (0.063 in)
Rear brake (drum brake)	Drum I.D.		200.0 mm (7.874 in)	201 mm (7.91 in)
	Brake shoe lining thickness		4.5 mm (0.177 in)	1.0 mm (0.039 in)

Air Conditioning

Item	Measurement	Qualification	Standard or New	Service Limit
Refrigerant	Type		HFC-134a (R-134a)	
	Capacity of system		370–420 g (13.1–14.8 oz)	—
Refrigerant oil	Type		SP-10 (P/N 38897-P13-A01AH)	
	Capacity of components	Condenser (including receiver/dryer)	25 mL (5/6 fl-oz)	
		Evaporator	35 mL (1 1/6 fl-oz)	
		Each line and hose	10 mL (1/3 fl-oz)	
		Receiver/dryer	10 mL (1/3 fl-oz)	
		Compressor	80–90 mL (2 2/3–3 fl-oz)	
Compressor ('09-10 models)	Field coil resistance	At 68 °F (20 °C)	3.15–3.45 Ω	
	Pulley-to-armature plate clearance		0.35–0.65 mm (0.014–0.025 in)	—
Compressor ('11-12 models)	Field coil resistance	At 68 °F (20 °C)	3.35–3.65 Ω	
	Pulley-to-armature plate clearance		0.35–0.65 mm (0.014–0.025 in)	—

Torque Summary

Torque Specifications

NOTE

- Refer to the S/M section for the precautions and complete procedures.
- Refer to the S/M section for the bolts/nuts not indicated here.

*1: Parts to be tightened in a particular order.

*2: Follow the S/M procedures closely for torque, sequence, and special steps.

Engine Electrical

Location	Item	Remark	Torque
Starting system	Starter bolt (12 mm)		64 N·m (6.5 kgf·m, 47 lbf·ft)
	Starter bolt (10 mm)		44 N·m (4.5 kgf·m, 33 lbf·ft)
	Starter harness clamp nut		9 N·m (0.9 kgf·m, 7 lbf·ft)
Ignition system	Spark plugs		18 N·m (1.8 kgf·m, 13 lbf·ft)
Charging System	Alternator bolts		24 N·m (2.4 kgf·m, 17 lbf·ft)
	Drive belt auto-tensioner bolts		24 N·m (2.4 kgf·m, 17 lbf·ft)
	Drive belt auto-tensioner pulley bolt		44 N·m (4.5 kgf·m, 33 lbf·ft)

Engine Mechanical

Location	Item	Remark	Torque
Engine assembly	Side engine mount bracket nut (14 mm) *1	Use new nut	93 N·m (9.5 kgf·m, 69 lbf·ft)
	Side engine mount bracket nut (12 mm) *1	Use new nut	49 N·m (5.0 kgf·m, 36 lbf·ft)
	Side engine mount bolts	Use new bolts	59 N·m (6.0 kgf·m, 43 lbf·ft)
	M/T model: Transmission mount bracket bolt *1	Use new bolt	54 N·m (5.5 kgf·m, 40 lbf·ft)
	A/T model: Transmission mount bracket bolt (12 mm) *1	Use new bolt	74 N·m (7.5 kgf·m, 54 lbf·ft)
	A/T model: Transmission mount bracket bolt (10 mm) *1	Use new bolt	54 N·m (5.5 kgf·m, 40 lbf·ft)
	Transmission mount bracket nuts *1	Use new nuts	74 N·m (7.5 kgf·m, 54 lbf·ft)
	Transmission mount bolts *1	Use new bolts	59 N·m (6.0 kgf·m, 43 lbf·ft)
	M/T model: Torque rod bracket bolt (14 mm)	Use new bolt	83 N·m (8.5 kgf·m, 61 lbf·ft)
	M/T model: Torque rod bracket bolts (12 mm)		83 N·m (8.5 kgf·m, 61 lbf·ft)
	A/T model: Torque rod bracket bolt (12 mm)		83 N·m (8.5 kgf·m, 61 lbf·ft)
	A/T model: Torque rod bracket bolts (10 mm)	Use new bolts	44 N·m (4.5 kgf·m, 33 lbf·ft)
	Torque rod bolt *1	Use new bolt	83 N·m (8.5 kgf·m, 61 lbf·ft)
	Torque rod nut *1	Use new nut	93 N·m (9.5 kgf·m, 69 lbf·ft)
Engine lubrication	Oil filter		12 N·m (1.2 kgf·m, 9 lbf·ft)
	Oil filter feed pipe	Use oil on threads	39 N·m (4.0 kgf·m, 29 lbf·ft)
	Oil pan drain bolt	Use new washer	39 N·m (4.0 kgf·m, 29 lbf·ft)
	Oil pressure switch	Use liquid gasket on threads	18 N·m (1.8 kgf·m, 13 lbf·ft)
Intake manifold and exhaust system	Intake manifold chamber bolts *2		24 N·m (2.4 kgf·m, 17 lbf·ft)
	Intake manifold bolts *2		24 N·m (2.4 kgf·m, 17 lbf·ft)
	Intake manifold nuts *2		24 N·m (2.4 kgf·m, 17 lbf·ft)
	Exhaust pipe B self-locking nuts	Use new nuts	33 N·m (3.4 kgf·m, 25 lbf·ft)
	Muffler bolts*2		22 N·m (2.2 kgf·m, 16 lbf·ft)

Engine Cooling

Location	Item	Remark	Torque
Cooling system	Engine block drain bolt	Use new washer	78 N·m (8.0 kgf·m, 58 lbf·ft)

Torque Specifications

NOTE

- Refer to the S/M section for the precautions and complete procedures.
- Refer to the S/M section for the bolts/nuts not indicated here.

*1: Parts to be tightened in a particular order.

*2: Follow the S/M procedures closely for torque, sequence, and special steps.

Fuel Emissions

Location	Item	Remark	Torque
Fuel and emissions	A/F sensor		44 N·m (4.5 kgf-m, 33 lbf-ft)
	ECT Sensor 1		12 N·m (1.2 kgf-m, 8.7 lbf-ft)
	EGR pipe bolts		22 N·m (2.2 kgf-m, 16 lbf-ft)
	EGR pipe nuts		22 N·m (2.2 kgf-m, 16 lbf-ft)
	EGR valve nuts		22 N·m (2.2 kgf-m, 16 lbf-ft)
	Fuel tank locknut*2		70 N·m (7.1 kgf-m, 51 lbf-ft)
	Fuel tank support straps bolts		38 N·m (3.9 kgf-m, 28 lbf-ft)
	Knock sensor		32 N·m (3.3 kgf-m, 24 lbf-ft)
	PCV Valve		44 N·m (4.5 kgf-m, 33 lbf-ft)
	Rocker arm oil pressure switch		22 N·m (2.2 kgf-m, 16 lbf-ft)
	Secondary HO2S		44 N·m (4.5 kgf-m, 33 lbf-ft)
	Tank mount bracket bolts		22 N·m (2.2 kgf-m, 16 lbf-ft)
	Throttle body bolts		22 N·m (2.2 kgf-m, 16 lbf-ft)
	Under floor three way converter cover self-locking nuts	Use new nuts	33 N·m (3.4 kgf-m, 25 lbf-ft)
	Warm up three way catalytic converter bracket bolt		44 N·m (4.5 kgf-m, 33 lbf-ft)
	Warm up three way catalytic converter lower bolts		22 N·m (2.2 kgf-m, 16 lbf-ft)
	Warm up three way catalytic converter upper bolts		31 N·m (3.2 kgf-m, 23 lbf-ft)
	Warm up three way catalytic converter upper nuts		31 N·m (3.2 kgf-m, 23 lbf-ft)

Clutch

Location	Item	Remark	Torque
Clutch	Clutch pedal nut		13 N·m (1.3 kgf-m, 9.4 lbf-ft)
	Clutch pedal position switch locknuts		9.8 N·m (1.0 kgf-m, 7.2 lbf-ft)
	Master cylinder nuts		13 N·m (1.3 kgf-m, 9.4 lbf-ft)
	Master cylinder push rod nut		9.8 N·m (1.0 kgf-m, 7.2 lbf-ft)
	Clutch line flare nuts		15 N·m (1.5 kgf-m, 11 lbf-ft)
	Slave cylinder bolts		22 N·m (2.2 kgf-m, 16 lbf-ft)
	Flywheel bolts*2	Use oil on the seating surface	118 N·m (12 kgf-m, 87 lbf-ft)
	Pressure plate bolts*1		25 N·m (2.6 kgf-m, 19 lbf-ft)
	Release fork bolt		29 N·m (3.0 kgf-m, 22 lbf-ft)

Torque Summary

Manual Transmission and M/T Differential

Location	Item	Remark	Torque
Manual transmission	MTF drain plug	Use new sealing washer	39 N·m (4.0 kgf·m, 29 lbf·ft)
	MTF filler plug	Use new sealing washer	44 N·m (4.5 kgf·m, 33 lbf·ft)
	Back-up light switch	Use new washer	29 N·m (3.0 kgf·m, 22 lbf·ft)
	Transmission bolts		64 N·m (6.5 kgf·m, 47 lbf·ft)
	Shift cable bracket bolts		27 N·m (2.8 kgf·m, 20 lbf·ft)
	Shift lever housing bolts		22 N·m (2.2 kgf·m, 16 lbf·ft)
	Shift lever knob		8 N·m (0.8 kgf·m, 5.8 lbf·ft)

Automatic Transmission

Location	Item	Remark	Torque
Automatic Transmission	ATF drain plug	Use new sealing washer	49 N·m (5.0 kgf·m, 36 lbf·ft)
	Clutch pressure inspection hole sealing bolts	Use new sealing washer	18 N·m (1.8 kgf·m, 13 lbf·ft)
	Drive plate bolts*2		74 N·m (7.5 kgf·m, 54 lbf·ft)
	Transmission fluid pressure switches	Use new sealing washer	20 N·m (2.0 kgf·m, 14 lbf·ft)
	Shift lever assembly bolts		22 N·m (2.2 kgf·m, 16 lbf·ft)
	Transmission housing bolts		64 N·m (6.5 kgf·m, 47 lbf·ft)
	Subframe mounting bolts		93 N·m (9.5 kgf·m, 69 lbf·ft)
	Lower torque rod bolt		83 N·m (8.5 kgf·m, 61 lbf·ft)
	Lower torque rod nut		93 N·m (9.5 kgf·m, 69 lbf·ft)
	Shift control lever locknut	Use new lock washer	14 N·m (1.4 kgf·m, 10 lbf·ft)
	Transmission range switch locknut		12 N·m (1.2 kgf·m, 8.7 lbf·ft)

Driveline/Axle

Location	Item	Remark	Torque
Driveline/axle	Drive shaft spindle nut	<ul style="list-style-type: none"> ● Use oil on the seating surface ● Use new nut 	181 N·m (18.5 kgf·m, 134 lbf·ft)
	Intermediate shaft dowel bolts		39 N·m (4.0 kgf·m, 29 lbf·ft)
	Intermediate shaft flange bolt		39 N·m (4.0 kgf·m, 29 lbf·ft)
	Heat shield bolts		22 N·m (2.2 kgf·m, 16 lbf·ft)

Torque Specifications

NOTE

- Refer to the S/M section for the precautions and complete procedures.
- Refer to the S/M section for the bolts/nuts not indicated here.

*1: Parts to be tightened in a particular order.

Steering

Location	Item	Remark	Torque
Steering	Steering wheel bolt		39 N·m (4.0 kgf·m, 29 lbf·ft)
	Steering joint bolt		28 N·m (2.9 kgf·m, 21 lbf·ft)
	Steering column bolts*1		22 N·m (2.2 kgf·m, 16 lbf·ft)
	Steering column nuts*1		13 N·m (1.3 kgf·m, 9.4 lbf·ft)
	Steering gearbox bolts*1	Use new bolts	60 N·m (6.1 kgf·m, 44 lbf·ft)
	Steering gearbox stiffener plates bolts*1	Use new bolts	59 N·m (6.0 kgf·m, 43 lbf·ft)
	Tie-rod end ball joint nut		43 N·m (4.4 kgf·m, 32 lbf·ft)
	Tie-rod end locking nut		44 N·m (4.5 kgf·m, 33 lbf·ft)

Suspension

Location	Item	Remark	Torque
Front suspension	Wheel nuts		108 N·m (11.0 kgf·m, 80 lbf·ft)
	Knuckle damper pinch bolts/nuts	Use new bolts/nuts	90 N·m (9.2 kgf·m, 66 lbf·ft)
	Lower arm ball joint castle nut	Use new nut	64—74 N·m (6.5—7.5 kgf·m, 47—55 lbf·ft)
	Lower arm bolts	Use new bolts	93 N·m (9.5 kgf·m, 69 lbf·ft)
	Stabilizer bar bushing holders flange bolts		22 N·m (2.2 kgf·m, 16 lbf·ft)
	Stabilizer link flange nut (to damper)	Use new nut	29 N·m (3.0 kgf·m, 22 lbf·ft)
	Stabilizer link self-locking nut (to stabilizer bar)	Use new nut	38 N·m (3.9 kgf·m, 28 lbf·ft)
	Damper upper nut		44 N·m (4.5 kgf·m, 32 lbf·ft)
Rear suspension	Wheel nuts		108 N·m (11.0 kgf·m, 80 lbf·ft)
	Axle beam bolts	Use new bolts	93 N·m (9.5 kgf·m, 69 lbf·ft)
	Damper lower flange bolt	Use new bolt	54 N·m (5.5 kgf·m, 40 lbf·ft)
	Damper upper self-locking nut	Use new nut	29 N·m (3.0 kgf·m, 22 lbf·ft)

Brakes

Location	Item	Remark	Torque
Conventional brake	Front brake caliper bolts		23 N·m (2.3 kgf·m, 17 lbf·ft)
	Front brake caliper bracket bolts		108 N·m (11.0 kgf·m, 80 lbf·ft)
	Front brake hose banjo bolt	Use new washers	34 N·m (3.5 kgf·m, 25 lbf·ft)
	Master cylinder nuts		15 N·m (1.5 kgf·m, 11 lbf·ft)
	Master cylinder brake line (ABS)		15 N·m (1.5 kgf·m, 11 lbf·ft)
	Master cylinder brake line (VSA)		22 N·m (2.2 kgf·m, 16 lbf·ft)
	Brake booster/brake pedal nuts		12 N·m (1.2 kgf·m, 8.9 lbf·ft)
	Parking brake lever bolts		22 N·m (2.2 kgf·m, 16 lbf·ft)
ABS	ABS modulator control unit brake line		15 N·m (1.5 kgf·m, 11 lbf·ft)
VSA	VSA modulator-control unit brake line (10 mm)		15 N·m (1.5 kgf·m, 11 lbf·ft)
	VSA modulator-control unit brake line (12 mm)		22 N·m (2.2 kgf·m, 16 lbf·ft)

Torque Summary

Body

Location	Item	Remark	Torque
Frame	Front subframe bolts	Use new bolts	93 N·m (9.5 kgf·m, 69 lbf·ft)
	Front crossmember brace bolts		54 N·m (5.5 kgf·m, 40 lbf·ft)
	Middle front floor crossmember bolts		22 N·m (2.2 kgf·m, 16 lbf·ft)

Heating, Ventilation, and Air Conditioning

Location	Item	Remark	Torque
A/C compressor	A/C compressor bolts		22 N·m (2.2 kgf·m, 16 lbf·ft)
	A/C compressor center nut	Use new nut	26 N·m (2.7 kgf·m, 19 lbf·ft)
	A/C compressor relief valve	Use new O-ring	9.8 N·m (1.00 kgf·m, 7.2 lbf·ft)
Receiver line	A/C pressure switch	Use new O-ring	11 N·m (1.1 kgf·m, 8 lbf·ft)

Body Electrical

Location	Item	Remark	Torque
Wipers/washers	Windshield wiper arm nut		18 N·m (1.8 kgf·m, 13 lbf·ft)
	Rear window wiper arm nut		15.7 N·m (1.6 kgf·m, 12 lbf·ft)



Design Specifications

specs

Item	Measurement	Qualification		Specification
DIMENSIONS	Overall length			4,105 mm (161.6 in)
	Overall width			1,695 mm (66.7 in)
	Overall height			1,525 mm (60.0 in)
	Wheelbase			2,500 mm (98.4 in)
	Track (USA models)	Front	Fit Sport, Fit Sport VSA, Sport Navi	1,476 mm (58.1 in)
			Fit, Fit VSA	1,492 mm (58.7 in)
		Rear	Fit Sport, Fit Sport VSA, Sport Navi	1,459 mm (57.4 in)
			Fit, Fit VSA	1,475 mm (58.1 in)
	Track (Canada models)	Front	Sport, Sport VSA	1,476 mm (58.1 in)
			DX, DX-A, LX	1,492 mm (58.7 in)
		Rear	Sport, Sport VSA	1,459 mm (57.4 in)
			DX, DX-A, LX	1,475 mm (58.1 in)
	Seating capacity			Five (5)
WEIGHT	Gross Vehicle Weight Rating (GVWR)			3,512 lbs (1,594 kg)
ENGINE	Type			Water-cooled, 4-stroke SOHC i-VTEC engine
	Cylinder arrangement			Inline 4-cylinder, transverse
	Bore and stroke			73.0 x 89.4 mm (2.87 x 3.52 in)
	Displacement			1,497 cm ³ (91.3 cu in)
	Compression ratio			10.4
	Valve train			Chain drive, SOHC i-VTEC 4 valves per cylinder
	Lubrication system			Forced, wet sump, with trochoid pump
	Fuel required			Regular UNLEADED gasoline with 87 Pump Octane Number or higher
STARTER	Type			Gear reduction
	Normal output			1.0 kW
	Nominal voltage			12 V
	Hour rating			30 seconds
	Rotation direction			Clockwise as viewed from drive end

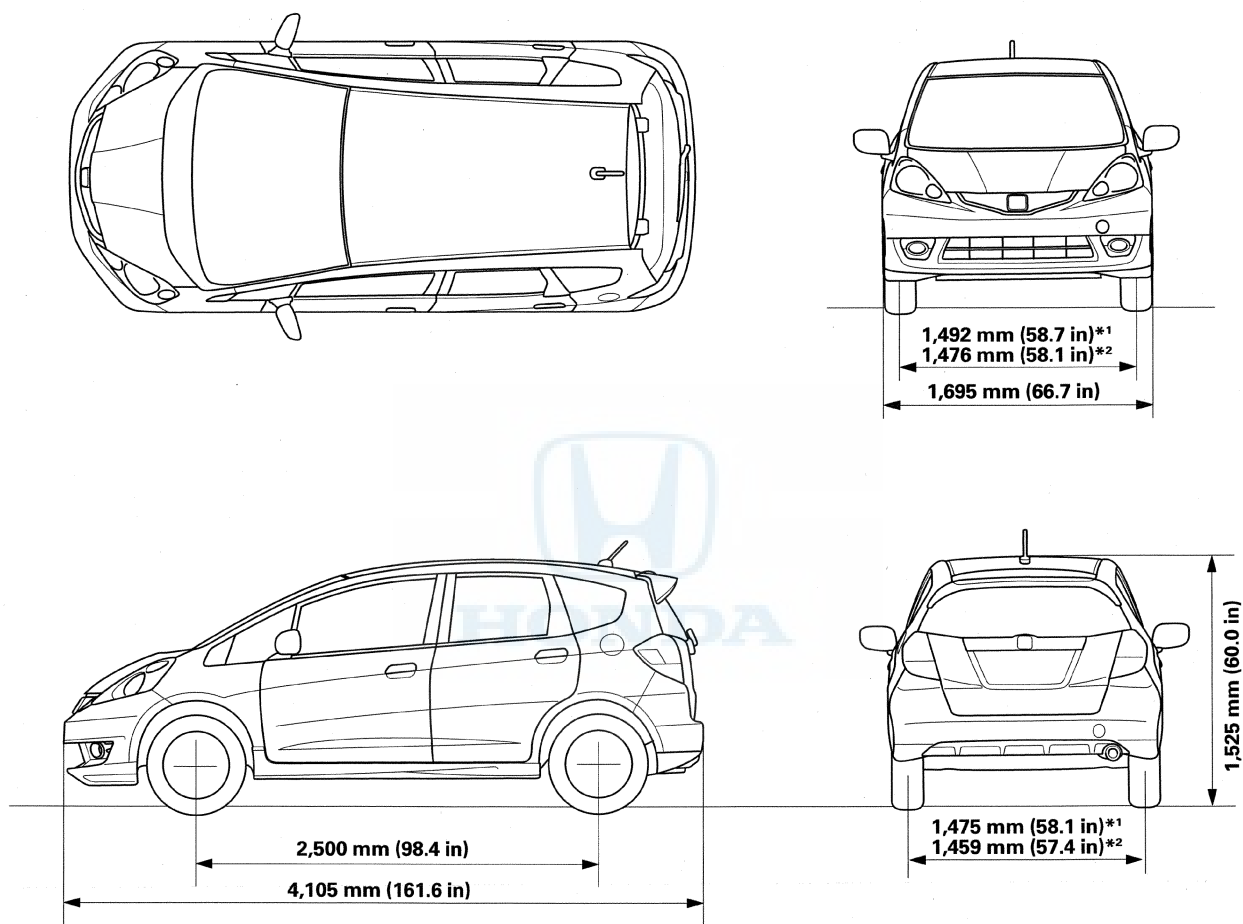
Design Specifications

Item	Measurement	Qualification	Specification
CLUTCH	Type		Single plate dry, diaphragm spring
MANUAL TRANSMISSION	Type		Synchronized, five-speed forward, one reverse
	Primary reduction		Direct 1:1
	Gear ratio	1st	3.308
		2nd	1.870
		3rd	1.303
		4th	0.949
		5th	0.727
		Reverse	3.308
		Final	4.625
	Final reduction	Type	Single helical gear
AUTOMATIC TRANSMISSION	Type		Electronically-controlled automatic, five-speed forward, one reverse, three-element torque converter with lock-up clutch
	Primary reduction		Direct 1:1
	Gear ratio	1st	2.996
		2nd	1.679
		3rd	1.067
		4th	0.761
		5th	0.552
		Reverse	1.957
		Final	4.563
	Final reduction	Type	Single helical gear
STEERING	Type		Electrical power-assisted rack and pinion
	Overall ratio		12.7
	Turns, lock-to-lock		2.48
	Steering wheel diameter		370 mm (14.6 in)
SUSPENSION	Type	Front	Macpherson strut with stabilizer, coil spring
		Rear	Torsion beam, coil spring
	Shock absorber	Front	Telescopic, hydraulic, nitrogen gas-filled
		Rear	Telescopic, hydraulic, nitrogen gas-filled
TIRES	Size		See tire information label attached to the doorjamb
WHEEL ALIGNMENT	Camber	Front	0° 00' ± 1°
		Rear	-1° 00' ± 1°
	Caster	Front	-3° 20' ± 1°
	Total toe-in	Front	0 ± 3 mm (0 ± 0.12 in)
		Rear	2.5 ± 2.5 mm (0.10 ± 0.10 in)
BRAKES	Type of service brake	Front	Power-assisted self-adjusting ventilated disc
		Rear	Power-assisted self-adjusting drum
	Type of parking brake		Mechanical actuating, rear wheels
	Pad friction surface area (swept area)	Front	40.1 cm² (6.22 sq in) x 2
	Shoe friction surface area	Rear	57.6 cm² (8.93 sq in) x 2

Item	Measurement	Qualification	Specification
AIR CONDITIONING	Compressor	Type	Scroll
		Capacity	77.1 mL (4.7 cu in)/rev
		Maximum speed	10,000 rpm
		Lubricant capacity	80 mL (2 2/3 fl-oz)
		Lubricant type	SP-10
	Condenser	Type	Corrugated fin
	Evaporator	Type	Corrugated fin
	Blower	Type	Radial
		Motor type	170 W/12 V
		Speed control	4-speed
		Maximum capacity	400 m ³ (14,126 cu ft)/h
	Temperature control		Air-mix type
	Compressor clutch	Type	Dry, single plate, Poly V-belt drive
		Electrical power consumption at 68 °F (20 °C)	42 W maximum at 12 V
ELECTRICAL RATINGS	Refrigerant	Type	HFC-134a (R-134a)
		Capacity	370–420 g (13.1–14.8 oz)
	Battery		12 V–40 Ah/20 HR (12 V–32 Ah/5 HR)
	Fuses	Battery terminal fuse box	100 A, 70 A, 20 A
		Under-dash fuse/relay box	50 A, 30 A, 20 A, 15 A, 10 A, 7.5 A
	Light bulbs	Headlight high/low beam	12 V–55/50 W
		Front turn signal lights	12 V–21 W
		Front parking/side marker lights	12 V–5 W
		Fog lights	12 V–55 W
		Rear turn signal lights	12 V–21 W
		Brake/taillights	12 V–21/5 W
		High mount brake light	LED
		Back-up lights	12 V–16 W
		License plate lights	12 V–5 W
		Ceiling lights	12 V–8 W
		Console box light	12 V–1.4 W
		Cargo area light	12 V–5 W
		Front individual map lights	12 V–8 W
		Gauge lights	LED
		Indicator lights	12 V–0.84 W

Design Specifications

Body Specifications



*1: Fit, Fit VSA (USA model), DX, DX-A, LX (Canada model)

*2: Fit Sport, Fit Sport VSA, Sport Navi (USA model), Sport, Sport VSA (Canada model)



Maintenance

Maintenance

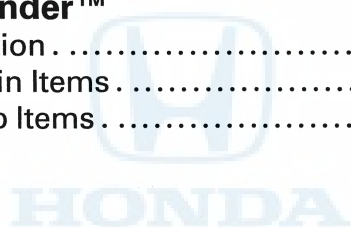
Lubricants and Fluids 3-2

Maintenance Minder™

General Information 3-4

Maintenance Main Items 3-8

Maintenance Sub Items 3-9



Maintenance

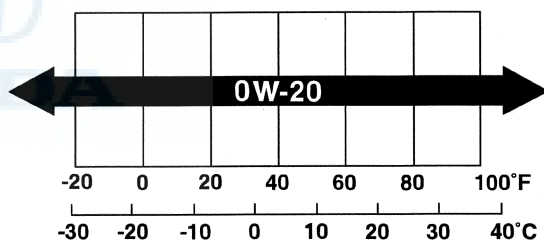
Lubricants and Fluids

Application	Lubricant or Fluid
Engine	Honda Motor Oil: 0W-20 Look for the API certification seal on the oil container. Make sure it says "For Gasoline Engines." SAE viscosity: See chart.
Manual transmission	Honda Manual Transmission Fluid (MTF): Always use Honda MTF. Using motor oil can cause stiffer shifting because it does not contain the proper additives.
Automatic transmission	Honda Automatic Transmission Fluid (ATF DW-1): Always use Honda ATF DW-1. Using a non-Honda ATF can affect shift quality.
Brake system (including ABS/VSA lines), Clutch system (manual transmission)	Honda DOT 3 Brake Fluid: Always use Honda DOT 3 Brake Fluid. Using a non-Honda brake fluid can cause corrosion and decrease the life of the system.
Cooling system	Always use Honda Long Life Antifreeze/coolant Type 2.

API CERTIFICATION SEAL



Recommended Engine Oil
Engine oil viscosity for ambient temperature ranges



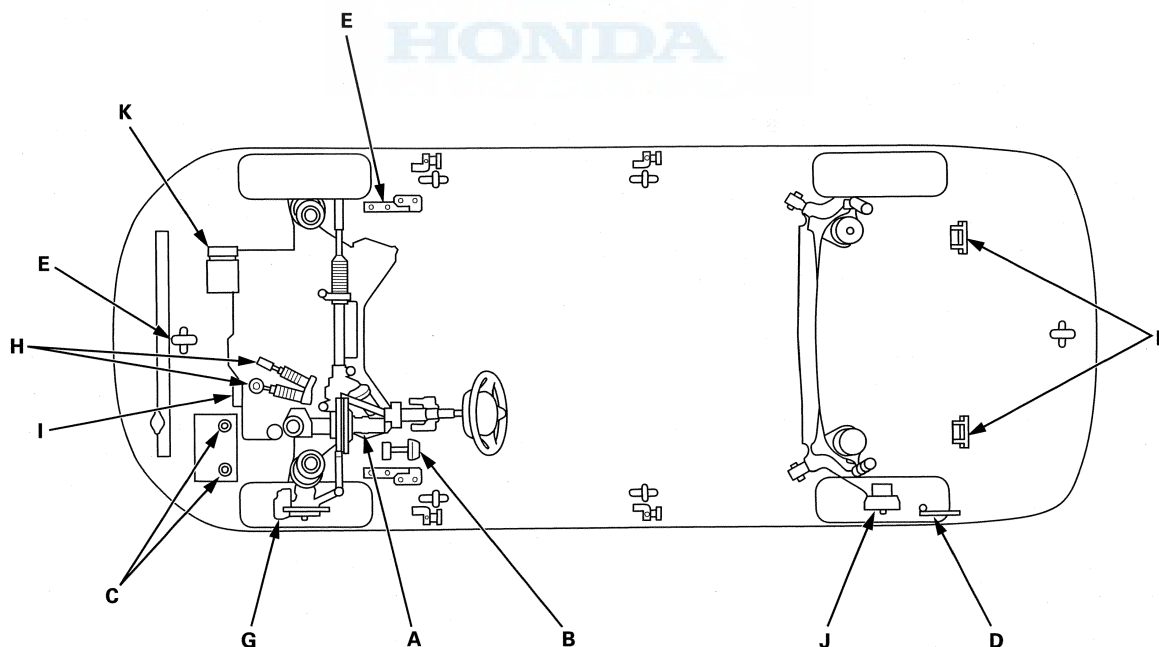


For the details of the lubrication points and the type of lubricants to be applied, refer to the illustrated index and the various work procedures (such as Assembly/Reassembly, Replacement, Overhaul, Installation, etc.) contained in each section.

Application		Lubricant or Fluid
A	Brake booster clevis pin	Multipurpose grease
B	Clutch master cylinder clevis pin (manual transmission)	
C	Battery terminals	
D	Fuel fill door (lock rod sliding area)	
E	Hood hinges and hood latch	
F	Tailgate hinges	
G	Caliper piston boots, caliper piston seals, caliper pins, and caliper pin boots	Honda silicone grease: P/N 08C30-B0234M
H	Shift cable ends (manual transmission)	Super High Temp Urea Grease P/N08798-9002
I	Slave cylinder push rod (manual transmission)	
J	Rear brake shoe linkage	Molykote 44MA Grease
K	Air conditioning compressor	Compressor oil: SP-10 (P/N 38897-P13-A01AH) for refrigerant HFC-134a (R-134a)

NOTE:

- Lubricate the following areas using the recommended lubricants and fluids.
- In corrosive areas, more frequent lubrication is necessary.

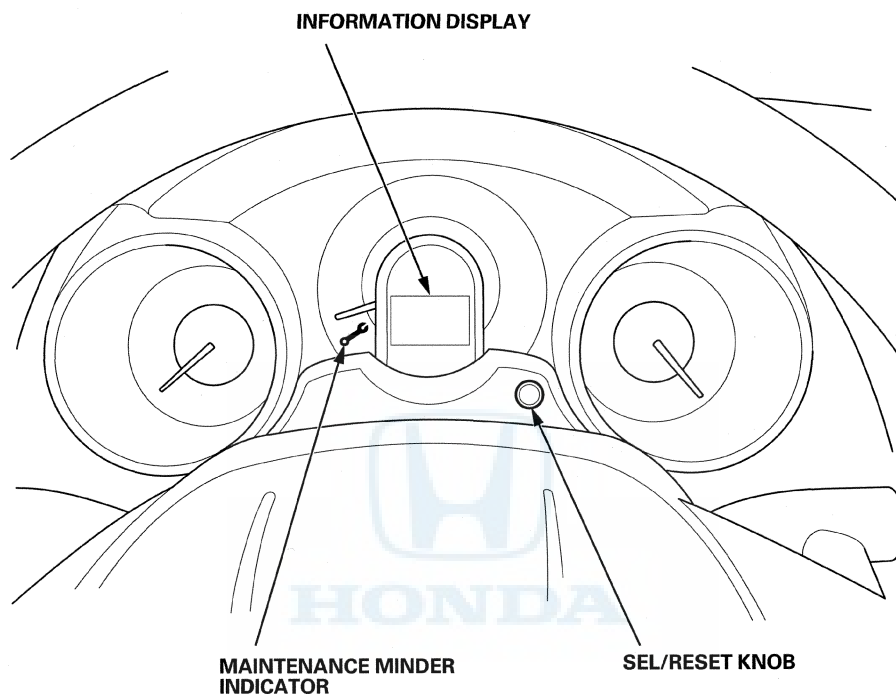


Maintenance Minder™

General Information

Maintenance Minder

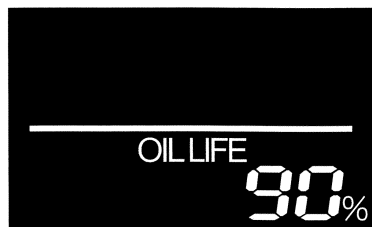
The Maintenance Minder is an important feature of the information display. Based on engine and transmission operating conditions and accumulated engine revolutions, the Fit's onboard computer (ECM/PCM) calculates the remaining engine oil and the transmission fluid life. The system also displays the remaining engine oil life along with the code(s) for other scheduled maintenance items needing service.





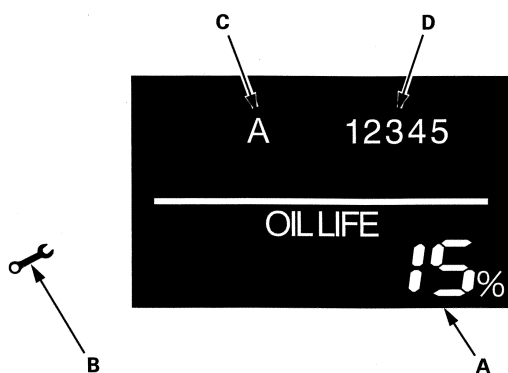
Service Information

1. The remaining engine oil life (A) is shown as a percentage on the information display. To see the current engine oil life, turn the ignition switch to ON (II), then push and release the SEL/RESET knob repeatedly until the engine oil life displays.

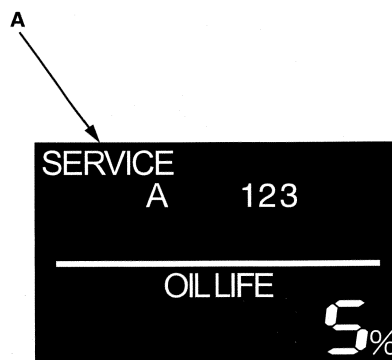


2. When the ignition switch is ON (II) and the remaining engine oil life (A) is 15 % to 6 %, the remaining engine oil life and other scheduled maintenance item(s) needing service are displayed. The Maintenance Minder indicator (B) also comes on when the engine oil life is 15 % or less. To cancel the display and the indicator, press the SEL/RESET knob.

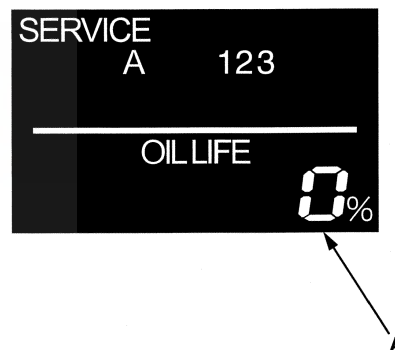
- Complete list of maintenance main items (C) (see page 3-8).
- Complete list of maintenance sub items (D) (see page 3-9).



3. When the ignition switch is ON (II) and the remaining engine oil life is 5 % to 1 %, the message "SERVICE" (A) is displayed along with engine oil life and the same maintenance item code(s).



4. When the ignition switch is ON (II) and the remaining engine oil life is 0 %, the engine oil life blinks. Pressing the SEL/RESET knob cancels the display, but the Maintenance Minder indicator stays on.

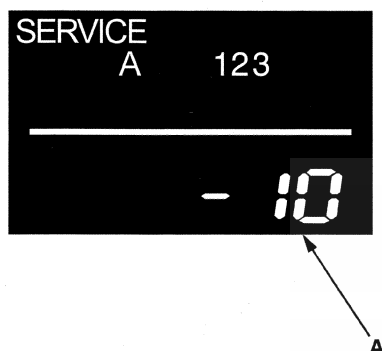


(cont'd)

Maintenance Minder™

General Information (cont'd)

5. If the indicated maintenance is not done, the engine oil life indicator shows a negative distance traveled, for example “-10” on the display. If the negative distance traveled is between 0 and -9, the indicator is displayed for only a few seconds when the ignition switch is turned to ON (II). The negative distance traveled (A) remains displayed after the vehicle is driven more than 10 miles (for USA models) or 10 km (for Canada models) after 0 % oil life is reached, and the display cannot be canceled. This means the indicated maintenance item(s) should have been done more than 10 miles (or 10 km) ago.



Resetting the Maintenance Minder

NOTE:

- The vehicle must be stopped to reset the Maintenance Minder.
- If a required service is done and the Maintenance Minder is not reset, or if the Maintenance Minder is reset without doing the service, the system will not show the proper maintenance timing. This can lead to serious mechanical problems because there will be no accurate record of when the required maintenance is needed.
- The engine oil life and the maintenance item(s) can be independently reset with the HDS.

1. Turn the ignition switch to ON (II).
2. Push the SEL/RESET knob repeatedly until the engine oil life indicator is displayed.
3. Press and hold the SEL/RESET knob for about 10 seconds. The engine oil life indicator and the maintenance item code(s) will blink then release the knob.

NOTE: If you are resetting the Maintenance Minder when the engine oil life is more than 15 %, make sure any maintenance item(s) requiring service are done before resetting the display.

4. Press and hold the SEL/RESET knob for another 5 seconds. The maintenance item code(s) will disappear, and the engine oil life will reset to “100 %.”





Resetting individual Maintenance Item

1. Connect the Honda Diagnostic System (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the engine control module/powertrain control module (ECM/PCM). If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
4. Select GAUGES in the BODY ELECTRICAL with the HDS.
5. Select ADJUSTMENT in the GAUGES with the HDS.
6. Select MAINTENANCE MINDER in the ADJUSTMENT with the HDS.
7. Select RESET in the MAINTENANCE MINDER with the HDS.
8. Select the individual maintenance item you wish to reset with the HDS.



Maintenance Minder™

Maintenance Main Items

If the message "SERVICE" does not appear more than 12 months after the display is reset, change the engine oil every year.

NOTE:

- Independent of the maintenance messages in the information display, replace the brake fluid every 3 years.
- Inspect idle speed every 160,000 miles (256,000 km).
- Adjust the valves during services A, B, 1, 2, or 3 if they are noisy.

Symbol	Maintenance Main Items
A	Replace engine oil (see page 8-10) – Engine oil capacity without oil filter: 3.4 L (3.6 US qt)
B	Replace engine oil and oil filter (see page 8-11) – Engine oil capacity with oil filter: 3.6 L (3.8 US qt)
	Check front and rear brakes (see page 19-3) <ul style="list-style-type: none">• Check pads and discs for wear (thickness), damage, and cracks.• Check calipers for damage, leaks, and tightness of mounting bolts.• Check wheel cylinders for leaks.• Check brake linings for cracking, glazing, wear, and for oil or grease contamination.
	Check parking brake adjustment (see page 19-7) – Check the number of clicks (5 to 7) when parking brake lever is pulled with 196 N (20.0 kgf, 44.1 lbf) of force.
	Inspect tie-rod ends, steering gearbox, and gearbox boots (see page 17-5) <ul style="list-style-type: none">• Check steering linkage.• Check boots for damage and leaking grease.
	Inspect suspension components (see page 18-3) <ul style="list-style-type: none">• Check bolts for tightness.• Check condition of ball joint boots for deterioration and damage.
	Inspect driveshaft boots (see page 16-4) – Check boots for cracks and boot bands for tightness.
	Inspect brake hoses and lines including ABS/VSA lines (see page 19-33) – Check master cylinder and ABS/VSA modulator-control unit for damage or leakage.
	Inspect all fluid levels and condition of fluids. <ul style="list-style-type: none">• Engine coolant (see page 10-7)• Clutch fluid (see page 12-4)• Manual transmission fluid (see page 13-5)• Automatic transmission fluid (see page 14-190)• Brake fluid (see page 19-8)• Windshield washer fluid
	Inspect exhaust system* (see page 9-12) – Check catalytic converter heat shields, exhaust pipes, and muffler for damage, leaks, and tightness.
	Inspect fuel lines* (see page 11-283) and connections* (see page 11-287) – Check for loose connections, cracks, and deterioration; retighten loose connections and replace damaged parts.
	Check expiration date for temporary tire repair kit (Canadian A/T model only)

NOTE: According to state and federal regulations, failure to do the maintenance items marked with an asterisk (*) will not void the customer's emissions warranties. However, Honda recommends that all maintenance services be done at the recommended interval, to ensure long-term reliability.



Maintenance Sub Items

Number	Maintenance Sub Items
1	Rotate tires, and check tire inflation and condition. - Follow the pattern shown in the Owner's Manual.
2	Replace air cleaner element (see page 11-308) - If the vehicle is driven primarily in dusty conditions, replace every 15,000 miles (24,000 km). Replace dust and pollen filter (see page 21-19) • If the vehicle is driven mostly in areas that have high concentrations of dust, pollen, or soot in the air, replace every 15,000 miles (24,000 km). • Replace filter whenever airflow from the heating and air conditioning system is less than normal. Inspect drive belt (see page 4-30) • Check for cracks, damage. • Check deflection and tension.
3	Replace manual transmission fluid (see page 13-5) - Capacity: 1.5 L (1.6 US qt); use Honda MTF. Replace automatic transmission fluid (see page 14-191) • Use Honda Automatic transmission fluid ATF DW-1. • Capacity: 2.5 L (2.6 US qt) • If the vehicle is towed behind a motor home, the transmission fluid must be change every 30,000 miles (48,000 km) or 2 years whichever comes first.
4	Replace spark plugs (see page 4-20) - Use IZFR6K13 (NGK) or SKJ20DR-M13 (DENSO). Inspect valve clearance (cold) (see page 6-8) • Intake: 0.15—0.19 mm (0.006—0.007 in) • Exhaust: 0.26—0.30 mm (0.011—0.011 in)
5	Replace engine coolant (see page 10-8) • Use Honda Long Life Antifreeze/Coolant Type 2. • Capacity (including engine, heater, hoses, and reservoir) - M/T model: 4.37 L (1.154 US gal) - A/T model: 4.47 L (1.181 US gal)

HONDA

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If engine electrical maintenance is required)

The Fit SRS includes a driver's airbag in the steering wheel hub, a front passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags, side airbags, side curtain airbags, and/or seat belt tensioners.
- Do not bump or impact the SRS unit, front impact sensors, or side impact sensors, especially when the ignition switch is in ON (II), or for at least 3 minutes after the ignition switch is turned to LOCK (0); otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, center console, dashboard, dashboard under cover, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.



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Engine Electrical

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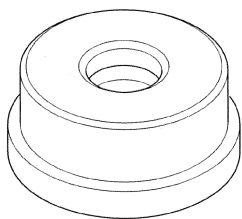
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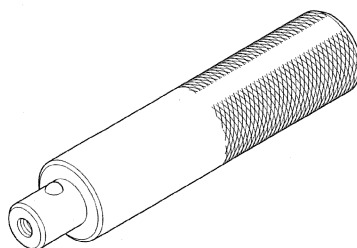
Engine Electrical

Special Tools

Ref.No.	Tool Number	Description	Qty
①	07746-0010300	Bearing Driver Attachment, 42 x 47 mm	1
②	07749-0010000	Driver Handle, 15 x 135L	1



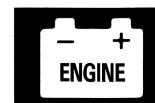
①



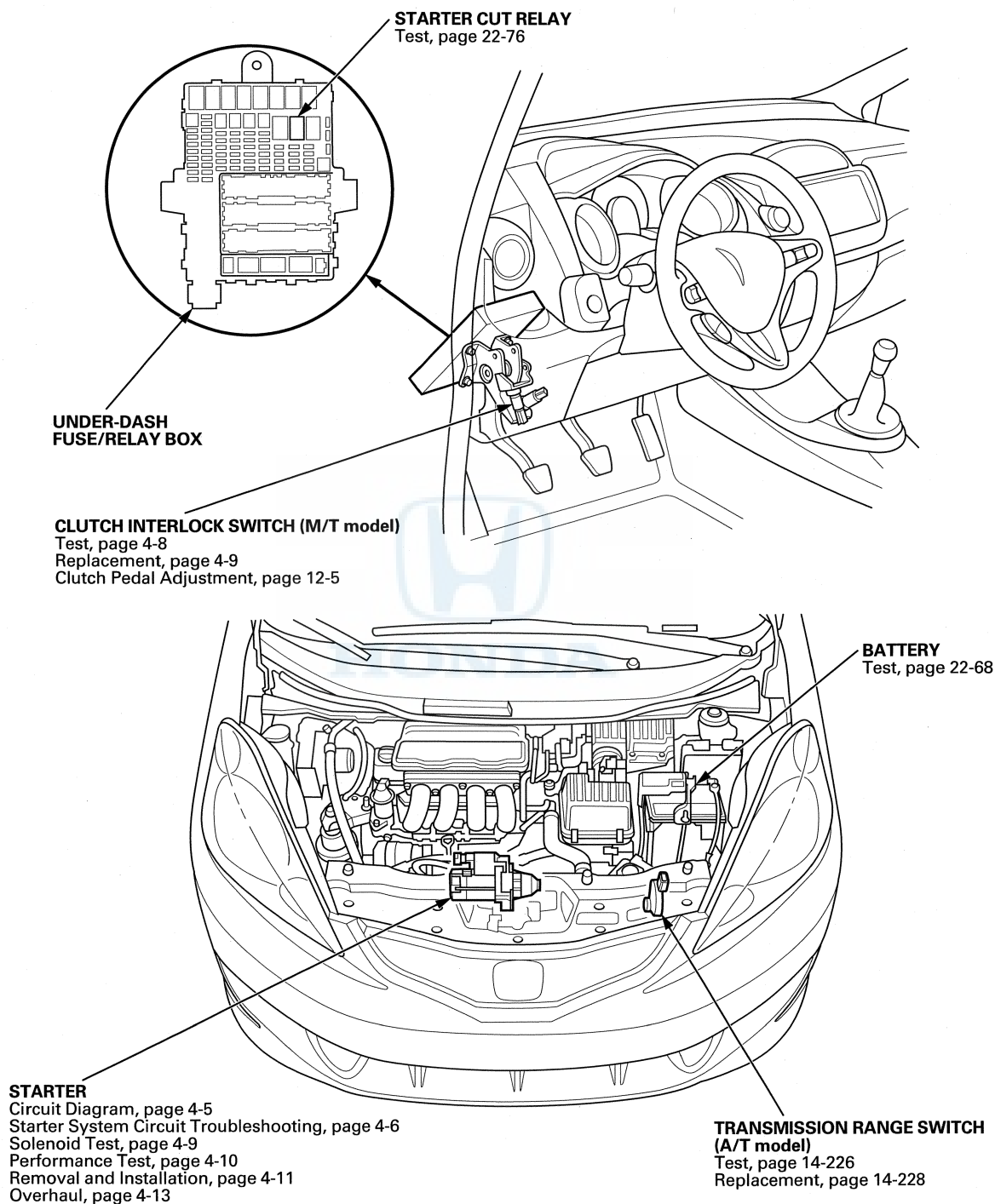
②



Starting System



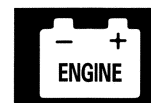
Component Location Index



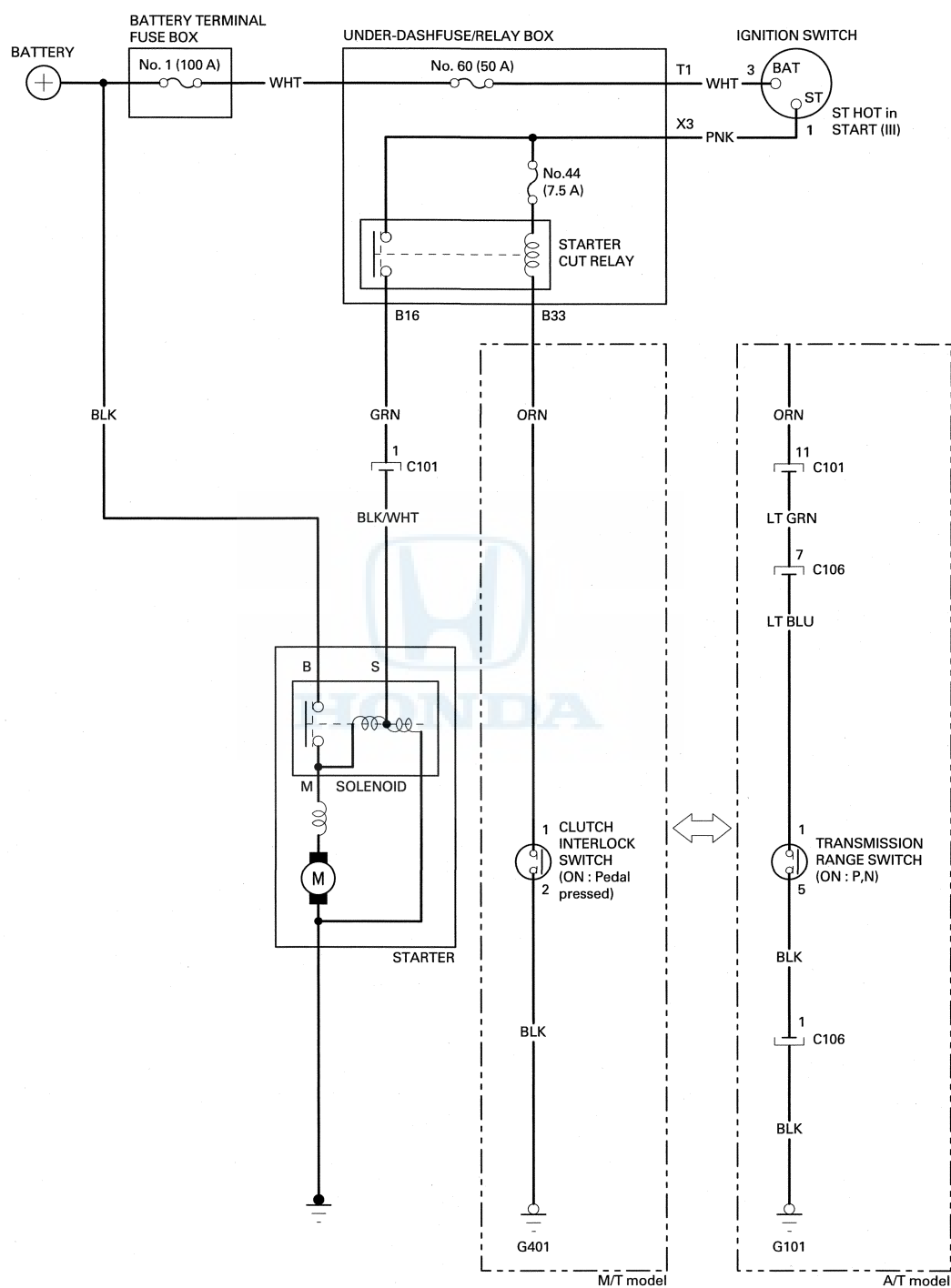
Starting System

Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Engine does not crank	<ol style="list-style-type: none"> 1. Check for loose battery terminals or connections. 2. Test the battery for a low state of charge (see page 22-68). 3. Check for PGM-FI DTCs (see page 11-3). 4. Check the starter (see page 4-10). 5. Check the starter cut relay (see page 22-76). 6. Check the starter system circuit troubleshooting (see page 4-6). 7. Check the clutch interlock switch (M/T model) (see page 4-8). 8. Check the transmission range switch (A/T model) (see page 14-226). 9. Check the ignition switch and its related circuits (see page 22-84). 	<ul style="list-style-type: none"> • Poor ground at G401 (M/T model), G101 (A/T model) • Seized engine
Engine cranks, but does not start	<ol style="list-style-type: none"> 1. Check for PGM-FI DTCs (see page 11-3). 2. Check for IMMOBI status and function (see page 22-327). 3. Check the fuel pressure (see page 11-282). 4. Check for a plugged or damaged fuel line (see page 11-283). 5. Check for a plugged fuel filter (see page 11-298). 6. Check the throttle body (see page 11-306). 7. Check for low engine compression (see page 6-6). 8. Check the camshaft timing (see page 6-12). 9. Do the ECM/PCM reset in the PGM-FI INSPECTION menu to cancel ALL INJECTORS STOP with the HDS. 	<ul style="list-style-type: none"> • Fuel level in tank • Weak or fouled spark plugs
Engine is hard to start	<ol style="list-style-type: none"> 1. Check for PGM-FI DTCs (see page 11-3). 2. Check the fuel pressure (see page 11-282). 3. Check for a plugged or damaged fuel line (see page 11-283). 4. Check for a plugged fuel filter (see page 11-298). 	Weak or fouled spark plugs
Engine cranks slowly	<ol style="list-style-type: none"> 1. Check for loose battery terminals or connections. 2. Test the battery for a low state of charge (see page 22-68). 3. Check the starter for binding (see page 4-13). 4. Check for excessive drag in the engine. 5. Check for excessive drag in the transmission. 	



Circuit Diagram



Starting System

Starter System Circuit Troubleshooting

Special Tools Required

Alternator, Regulator, Battery, and Starter Tester OTC3131*

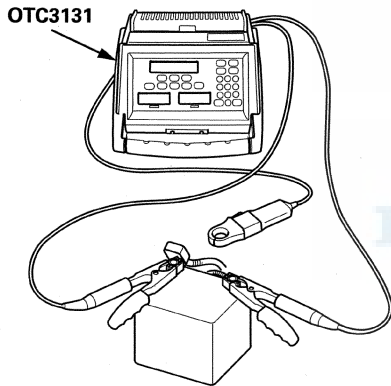
*Available through the Honda Tool and Equipment Program 888-424-6857

NOTE:

- Air temperature must be within 59–100 °F (15–38 °C) during this procedure.
- After this inspection, you must reset the ECM/PCM (see page 11-4). Otherwise, the ECM/PCM will continue to stop the fuel injectors from operating.
- The battery must be in good condition, and fully charged.

1. Connect the alternator, regulator, battery, and starter tester (OTC3131) to the battery as shown.

NOTE: The probe is not used for battery testing.



2. Do the BATTERY TEST.

Does the display indicate GOOD or LOW CHARGE?

YES—The battery is OK. Charge the battery if necessary, then go to step 3.

NO—If the display indicates BAD BATTERY, replace the battery, then retest. If the tester indicates CHARGE, and RETEST, charge the battery, then retest.

3. Connect the HDS to the DLC (see step 2 on page 11-3).
4. Turn the ignition switch to ON (II).
5. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
6. Select ALL INJECTORS STOP in the PGM-FI INSPECTION menu with the HDS.
7. Set the parking brake, then with the clutch pedal pressed (M/T model) or the shift lever in P or N (A/T model), turn the ignition switch to START (III) to crank the engine.

Does the starter crank the engine normally?

YES—The starting system is OK. Go to step 15.

NO—Go to step 8.

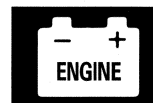
8. Turn the ignition switch to LOCK (0).
9. Check the electrical connections at the battery, the negative battery cable to the body, the engine ground cables, and the starter for looseness and corrosion. Then try cranking the engine again.

Does the starter crank the engine normally?

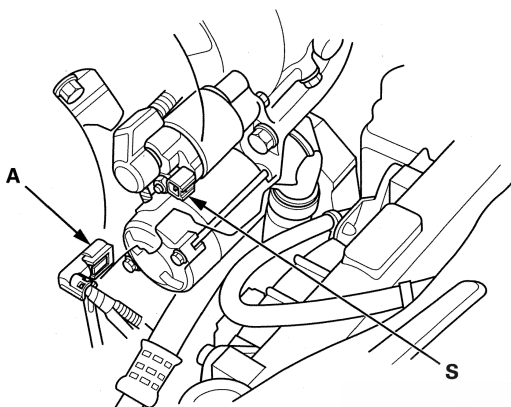
YES—Repairing the loose connection corrected the problem. The starting system is OK. Go to step 15.

NO—Based on the following symptoms, take the appropriate action:

- If the starter does not crank the engine at all, go to step 10.
- If the starter cranks the engine erratically or too slowly, go to step 12.
- If the starter does not disengage from the flywheel ring gear (M/T model) or the torque converter ring gear (A/T model) when you release the key, replace the starter (see page 4-11), or remove and disassemble it (see page 4-13), and check for the following:
 - Starter solenoid and switch malfunction
 - Dirty drive gear or damaged overrunning clutch
 - Damaged flywheel ring gear (M/T model)
 - Damaged torque converter ring gear (A/T model)



10. Make sure the shift lever is in neutral (M/T model) or P or N (A/T model), and set the parking brake, then disconnect the S terminal connector (A) from the starter S terminal. Connect a jumper wire from the battery positive terminal to the S terminal.



Does the starter crank the engine?

YES—Go to step 11.

NO—Replace the starter (see page 4-11), or remove and disassemble it (see page 4-13) as necessary. ■

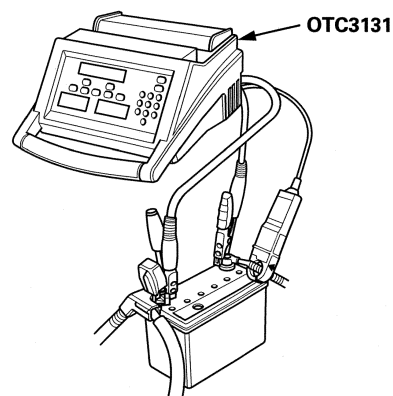
11. Check the following items in the order listed until you find the problem in the circuit:

NOTE: After the problem in the circuit is found and repaired, go to step 15.

- Check the No. 44 (7.5 A) fuse in the under-dash fuse/relay box.
- Check for an open or short in the PNK wire and connectors between the under-dash fuse/relay box and the ignition switch.
- Check for an open or short in the GRN, BLK/WHT wires and connectors between the under-dash fuse/relay box and the starter.
- Check for an open or short in the ORN wire and connectors between the under-dash fuse/relay box and the clutch interlock switch (M/T model).
- Check for an open or short in the ORN, LT GRN or LT BLU wire and connectors between the under-dash fuse/relay box and the transmission range switch (A/T model).
- Check for poor connections or loose terminals at the clutch interlock switch and body ground (G401) (M/T model).
- Check for poor connections or loose terminals at the transmission range switch and body ground (G101) (A/T model).
- Check for a faulty starter cut relay (see page 22-76).
- Check for a faulty ignition switch (see page 22-84).
- Check for a faulty clutch interlock switch (M/T model) (see page 4-8).
- Check for a faulty transmission range switch (A/T model) (see page 14-226).

12. Connect the alternator, regulator, battery, and starter tester (OTC3131) to the battery.

NOTE: The probe is used for starter testing.



(cont'd)

Starting System

Starter System Circuit Troubleshooting (cont'd)

13. Do the STARTING TEST.

Does the display indicate cranking voltage greater than or equal to 8.0 V and is the current draw less than or equal to 200 A?

YES—Go to step 14.

NO—Replace the starter (see page 4-11), or remove and disassemble it (see page 4-13), and check for these problems: ■

- Drag in the starter armature
- Short in the armature winding
- Excessive drag in the engine
- Open circuit in starter armature commutator segments
- Excessively worn starter brushes
- Open circuit in the starter brushes
- Dirty or damaged helical splines or drive gear
- Faulty over running clutch

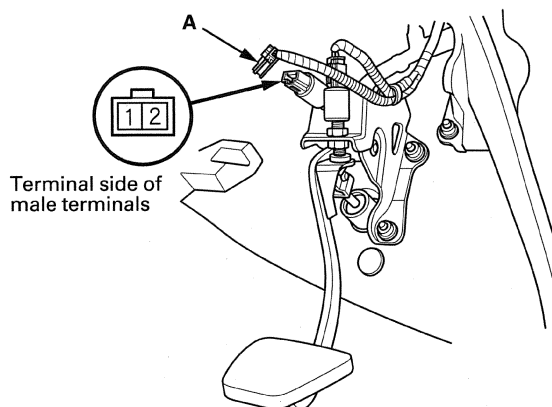
14. Remove the starter (see page 4-11), and inspect its drive gear and the flywheel ring gear (M/T model) or the torque converter ring gear (A/T model) for damage. Replace any damaged parts.

15. Select ECM/PCM reset (see page 11-4) in the PGM-FI INSPECTION menu to cancel ALL INJECTORS STOP with the HDS.

Clutch Interlock Switch Test

M/T model

1. Disconnect the 2P connector (A) from the clutch interlock switch.



2. Check for continuity between the terminals according to the table:

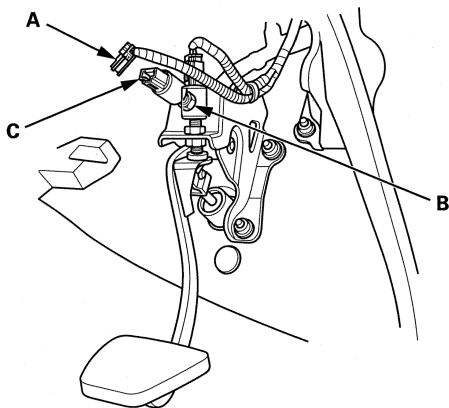
- If the continuity is not as specified, replace the clutch interlock switch (see page 4-9), and adjust the pedal height (see page 12-5).
- If OK, connect the clutch interlock switch 2P connector.

Terminal	1	2
Clutch Pedal		
PRESSED	○	○
RELEASED		

Clutch Interlock Switch Replacement

M/T model

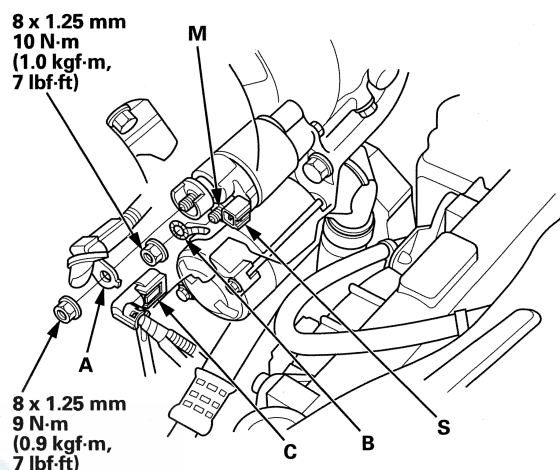
1. Disconnect the 2P connector (A) from the clutch interlock switch.



2. Loosen the locknut (B), then remove the clutch interlock switch (C).
3. Install the clutch interlock switch and adjust the pedal height (see page 12-5).

Starter Solenoid Test

1. Do the battery terminal disconnection procedure (see page 22-69).
2. Disconnect the positive starter cable (A), the motor wire (B), and the S terminal connector (C).



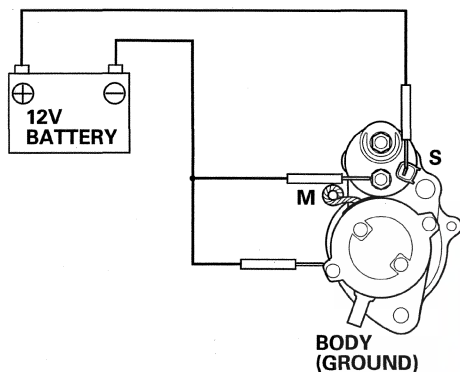
3. Check the hold-in coil for continuity between the S terminal and the armature housing (ground). There should be continuity:
 - If there is continuity, go to step 4.
 - If there is no continuity, replace the starter solenoid (see page 4-13).
4. Check the pull-in coil for continuity between the S terminal and M terminal. There should be continuity:
 - If there is continuity, the starter solenoid is OK.
 - If there is no continuity, replace the starter solenoid (see page 4-13).
5. Connect the wire and the connector in the reverse order of removal.
6. Do the battery terminal reconnection procedure (see page 22-70).

Starting System

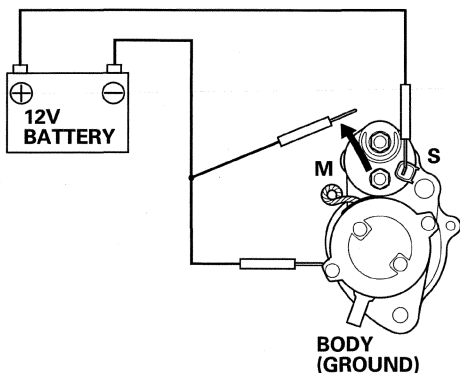
Starter Performance Test

1. Remove the starter (see page 4-11).
2. Disconnect the motor wires from the M terminal (see step 2 on page 4-9).
3. Clamp the starter firmly in a vise.
4. Make the connections for this test using the thickest (gauge) wire possible (preferably the same gauge as used on the vehicle).

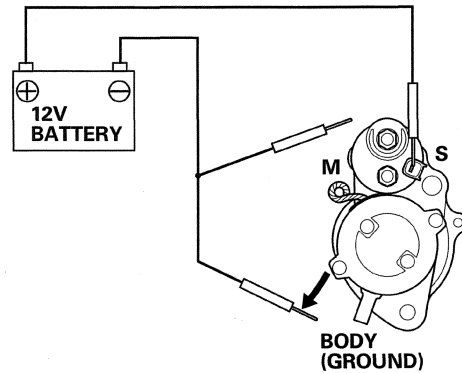
NOTE: To avoid damaging the starter, never leave the battery connected for more than 5 seconds.



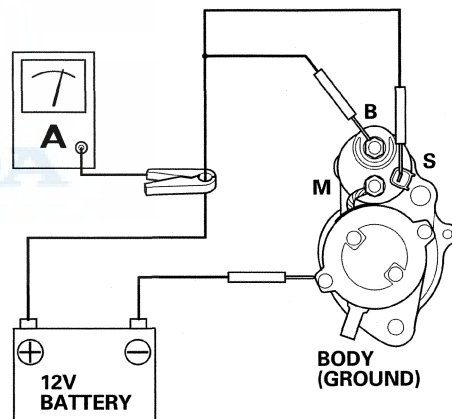
5. Connect the battery as shown. Make sure you disconnect the starter motor wire from the M terminal. If the starter pinion moves out, it is working properly.
6. Disconnect the battery from the M terminal. If the pinion does not retract, the hold-in coil of the starter solenoid is working properly.



7. Disconnect the battery from the starter body as shown. If the pinion retracts immediately, it is working properly.

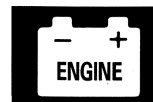


8. Reconnect the motor wire to the M terminal.
9. Connect the starter to the battery as shown, and confirm that the motor runs.



10. If the electric current meets the specification when the battery voltage is at 11.5 V, the starter is working properly.

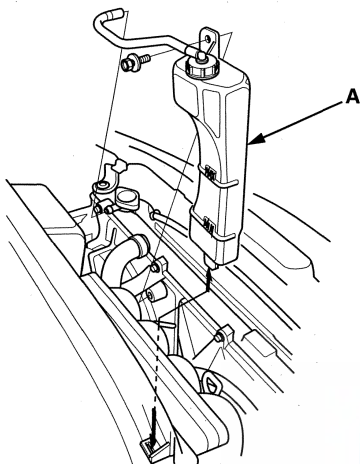
Specification
Electric Current: 90 A or less



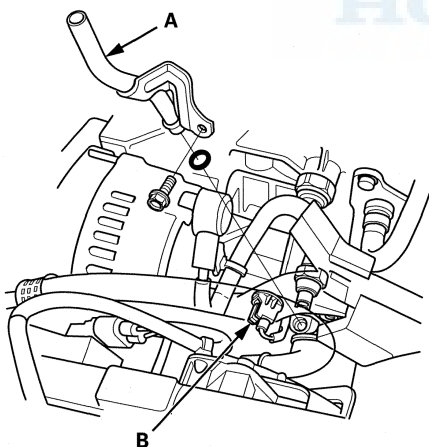
Starter Removal and Installation

Removal

1. Do the battery terminal disconnection procedure (see page 22-69).
2. Remove the coolant reservoir (A).

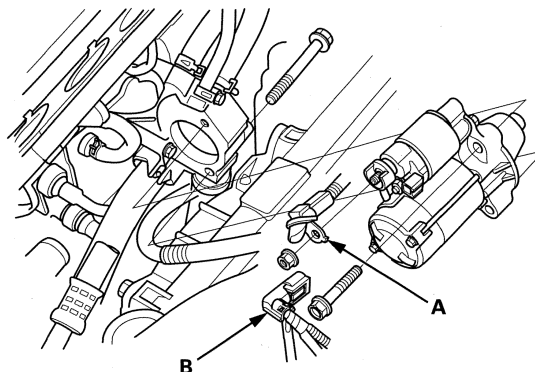


3. Remove the intake manifold (see page 9-7).
4. Remove the dipstick, then remove the dipstick tube (A).



5. Disconnect the oil pressure switch connector (B).

6. Disconnect the positive starter cable (A) and the S terminal connector (B).



7. Remove the two bolts holding the starter, then remove the starter from under the vehicle.

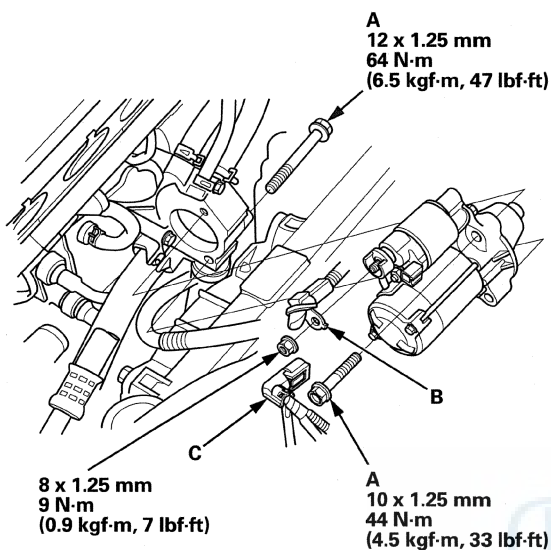
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Starting System

Starter Removal and Installation (cont'd)

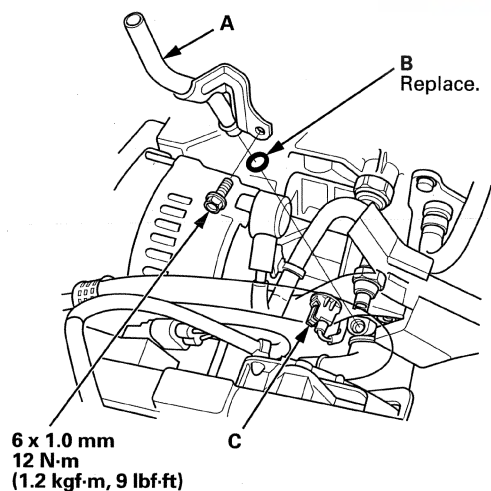
Installation

1. Install the starter, then tighten the mounting bolts (A).



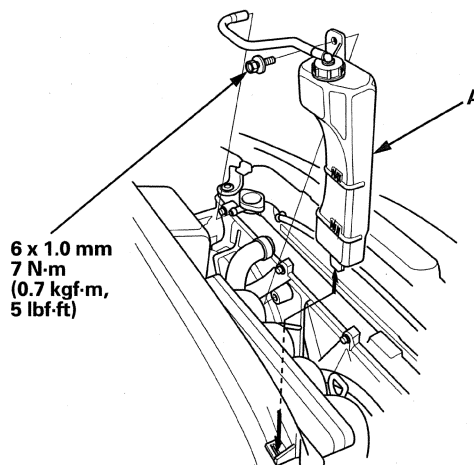
2. Connect the positive starter cable (B) and the S terminal connector (C). Make sure the crimped side of the ring terminal faces away from the starter when you connect it.

3. Install the dipstick tube (A) with a new O-ring (B).



4. Connect the oil pressure switch connector (C).

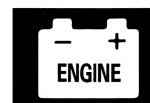
5. Install the coolant reservoir (A).



6. Install the intake manifold (see page 9-7).

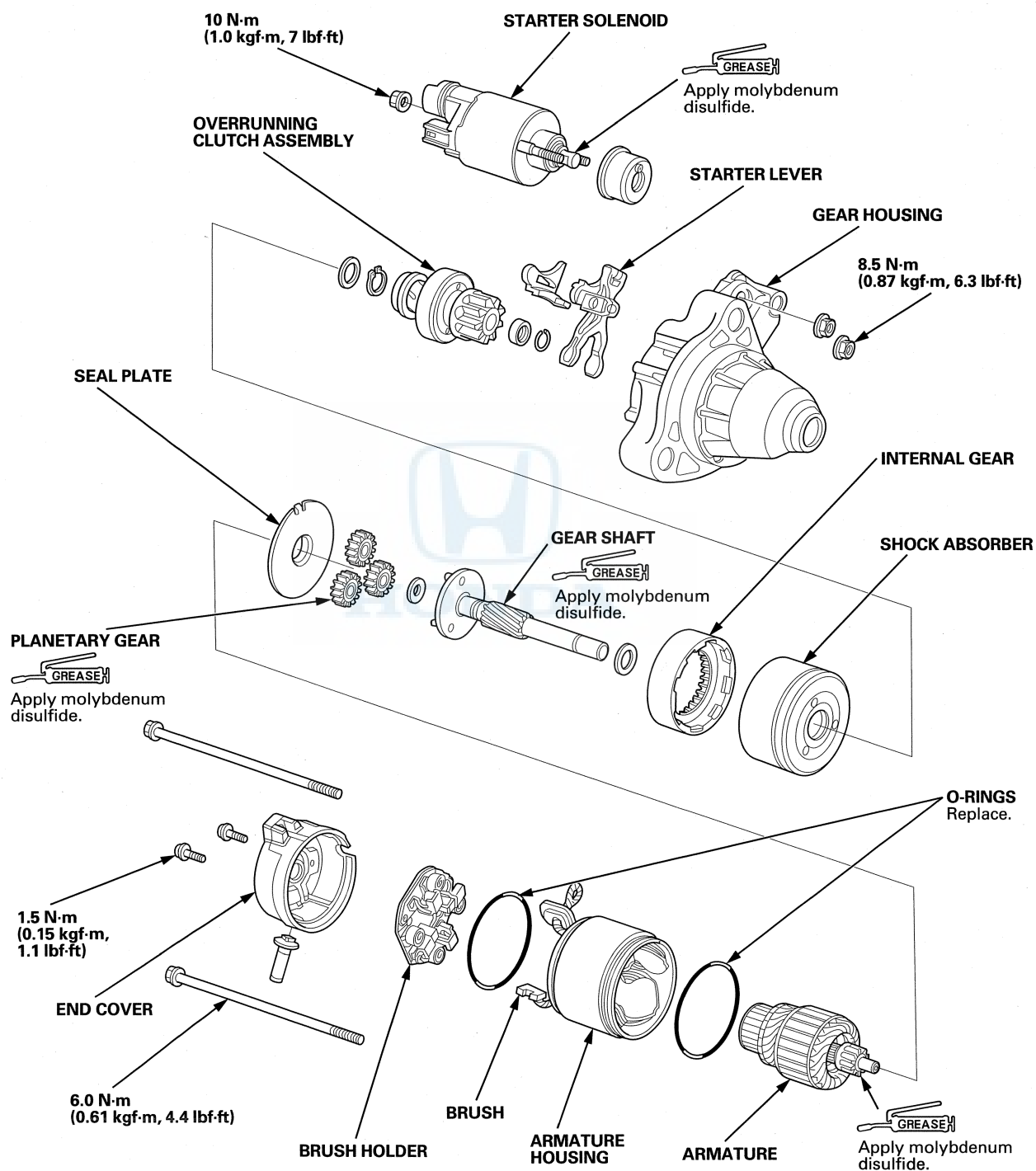
7. Do the battery terminal reconnection procedure (see page 22-70).

8. Start the engine to make sure the starter works properly.



Starter Overhaul

Exploded View



(cont'd)

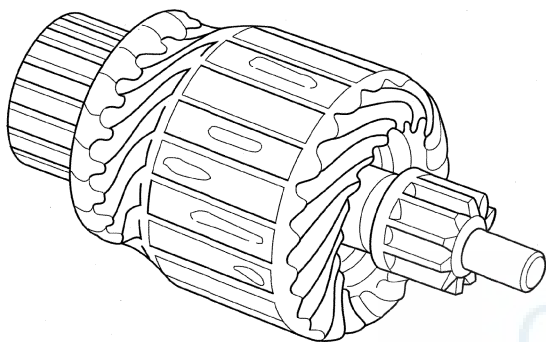
Starting System

Starter Overhaul (cont'd)

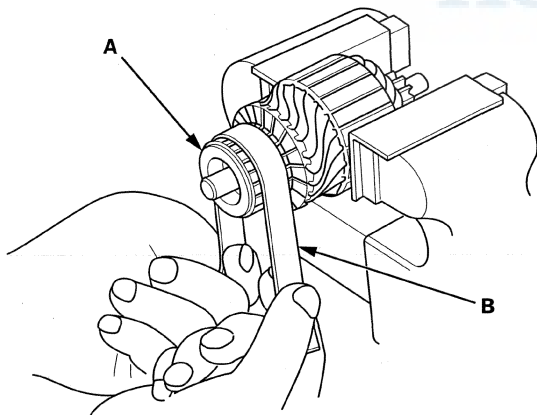
NOTE: Refer to the Exploded View if needed during this procedure.

Armature Inspection and Test

1. Remove the starter (see page 4-11).
2. Inspect the armature for wear or damage from contact with the permanent magnet. If there is wear or damage, replace the armature.



3. Check the commutator (A) surface. If the surface is dirty or burnt, resurface it with an emery cloth or a lathe to the specifications in step 4, or recondition with #500 or #600 sandpaper (B).

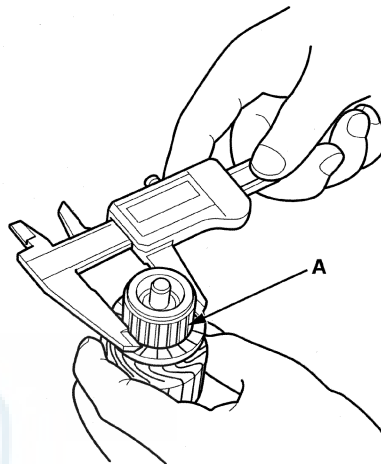


4. Check the commutator (A) diameter with a digital caliper or dial type caliper. If the diameter is below the service limit, replace the armature.

Commutator Diameter

Standard (New): 28.0 mm (1.102 in)

Service Limit: 27.0 mm (1.063 in)



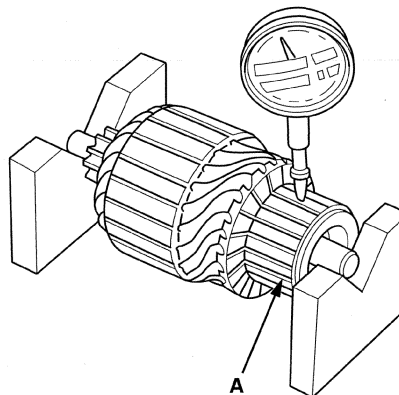
5. Measure the commutator (A) runout:

- If the commutator runout is within the service limit, check the commutator for carbon dust or brass chips between the segments.
- If the commutator runout is not within the service limit, replace the armature.

Commutator Runout

Standard (New): 0.02 mm (0.0008 in) max.

Service Limit: 0.05 mm (0.0020 in)

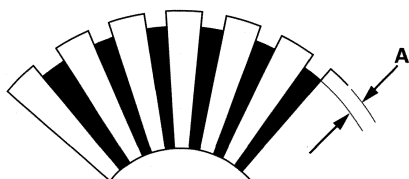


6. Use a digital caliper or dial type caliper to check the mica depth (A). If the mica depth is below the service limit, replace the armature.

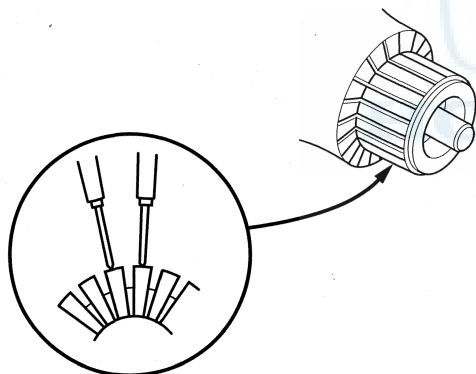
Commutator Mica Depth

Standard (New): 0.50—0.80 mm (0.0197—0.0315 in)

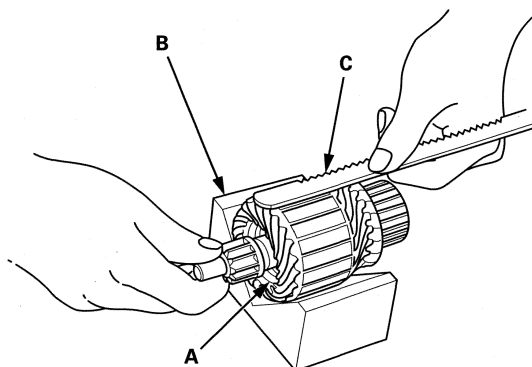
Service Limit: 0.20 mm (0.0079 in)



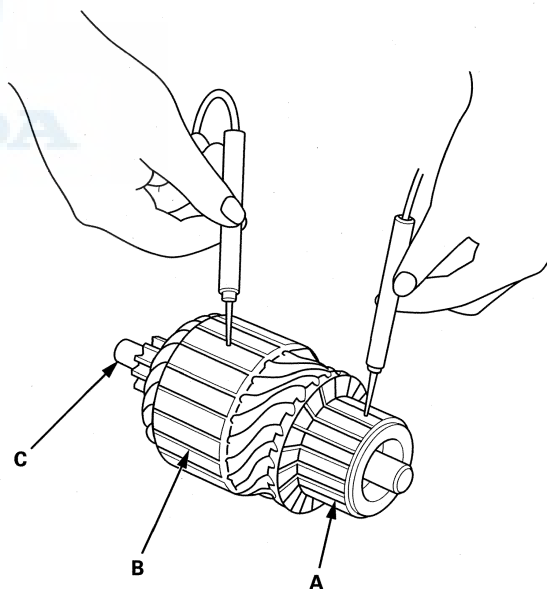
7. Use an ohmmeter to check for continuity between the segments of the commutator. If there is an open circuit between any segments, replace the armature.



8. Place the armature (A) on an armature tester (B). Hold a hacksaw blade (C) on the armature core. If the blade is attracted to the core while the core is turned, the armature is shorted. Replace the armature.



9. Use an ohmmeter to check for continuity between the commutator (A) and the armature coil core (B), and between the commutator and the armature shaft (C). If there is continuity, replace the armature.



(cont'd)

Starting System

Starter Overhaul (cont'd)

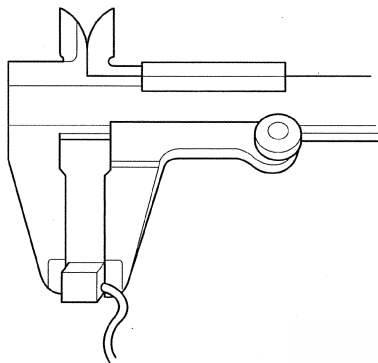
Starter Brush Inspection

10. Measure the brush length. If it is shorter than the service limit, replace the brush holder assembly.

Brush Length

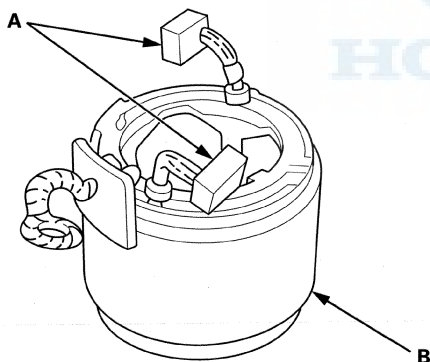
Standard (New): 14.0—14.5 mm (0.551—0.571 in)

Service Limit: 9.0 mm (0.354 in)



Starter Field Winding Test

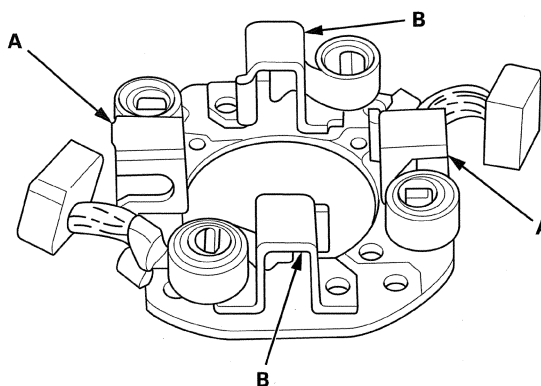
11. Check for continuity between the brushes (A). If there is no continuity, replace the armature housing (B).



12. Check for continuity between each brush and the armature housing. If there is continuity, replace the armature housing.

Starter Brush Holder Test

13. Check for continuity between the (+) brush holders (A) and the (−) brush holders (B). If there is continuity, replace the brush holder assembly.

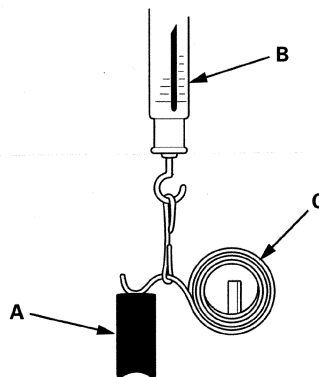


Brush Spring Inspection

14. Insert the brush (A) into the brush holder, and bring the brush into contact with the commutator, then attach a spring scale (B) to the spring (C). Measure the spring tension at the moment the spring lifts off the brush. If it is not within the standard, replace the brush holder assembly.

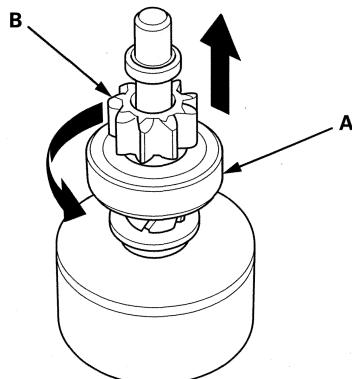
Spring Tension

Standard (New): 13.73—17.65 N (1.400—1.800 kgf, 3.086—3.968 lbf)



Overrunning Clutch Inspection

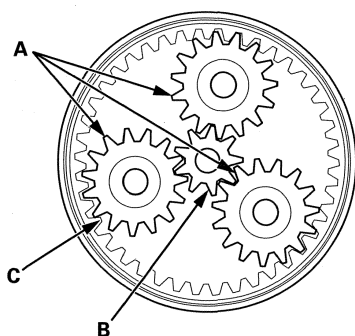
15. Slide the overrunning clutch (A) along the shaft. If it does not slide smoothly, replace it.



16. Hold the drive gear (B), and turn the overrunning clutch in the direction shown to make sure it turns freely. Also make sure the overrunning clutch locks in the opposite direction. If it does not lock in either direction or it locks in both directions, replace it.
17. If the starter drive gear is worn or damaged, replace the overrunning clutch assembly; the gear is not available separately. Check the condition of the flywheel ring gear (M/T model) or the torque converter ring gear (A/T model). If the starter drive gear teeth are damaged, replace it.

Planetary Gear Inspection

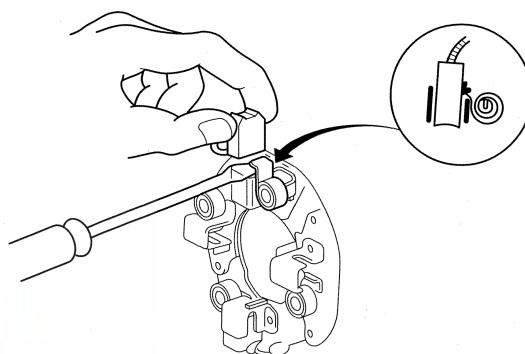
18. Check the planetary gears (A), the armature shaft gear (B), and internal ring gear (C). If they are worn or damaged, replace them.



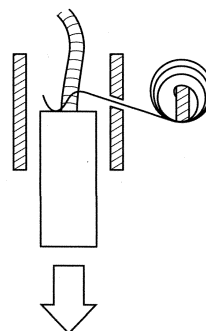
Starter Reassembly

19. Pry back each brush spring with a flat-blade screwdriver, then position the brush on the brush holder about halfway out of its holder. Release the spring to hold it in place.

NOTE: To seat new brushes. Slip a strip of #500 or #600 sandpaper, with the grit side up, between the commutator and each brush, and smoothly turn the armature. The contact surface of the brushes will be sanded to the same contour as the commutator.



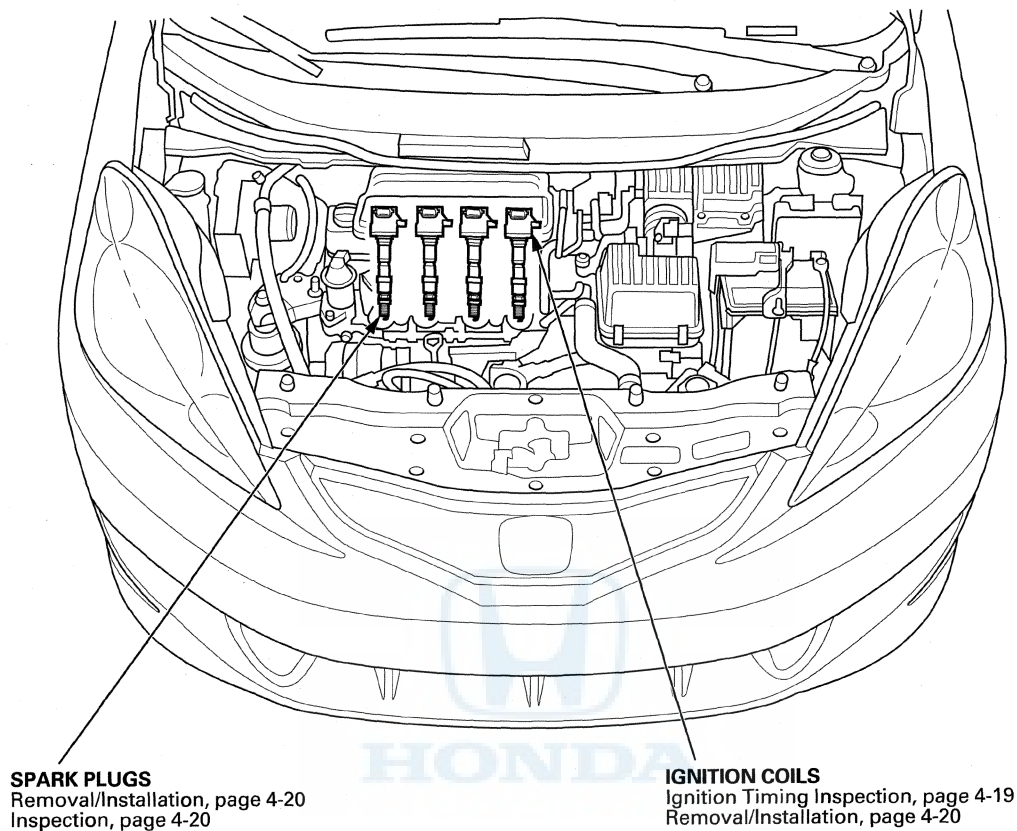
20. Install the armature in the housing, and install the brush holder. Next, pry back each brush spring again, and push the brush down until it seats against the commutator, then release the spring against the end of the brush.



21. Install the starter end cover to retain the brush holder.
22. Install the starter (see page 4-12).

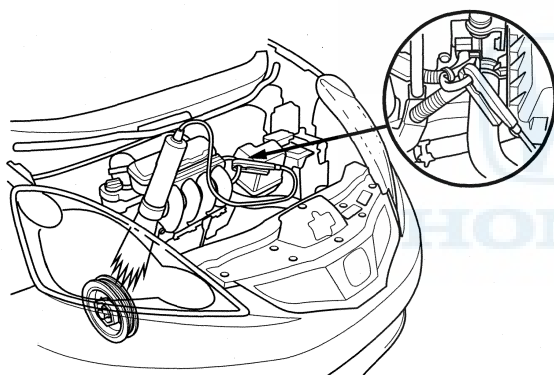
Ignition System

Component Location Index



Ignition Timing Inspection

1. Connect the HDS to the DLC (see step 2 on page 11-3).
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
4. Check for DTCs (see page 11-3). If a DTC is present, diagnose and repair the cause before continuing with this test.
5. Start the engine. Hold the engine speed at 3,000 rpm with no load (M/T in neutral, A/T in P or N) until the radiator fan comes on, then let it idle.
6. Check the idle speed (see page 11-267).
7. Jump the SCS line with the HDS.
8. Connect the timing light to the service loop (white tape).

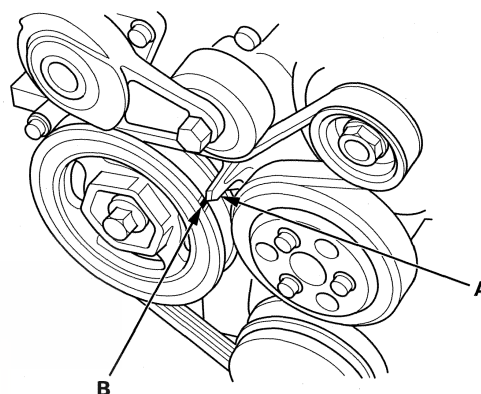


9. Aim the light toward the pointer (A) on the chain case. Check the ignition timing under no load condition (headlights, blower fan, rear window defogger, and air conditioner are turned off).

Ignition Timing

M/T model: $0 \pm 2^\circ$ BTDC (WHITE mark (B)) at idle in neutral

A/T model: $0 \pm 2^\circ$ BTDC (WHITE mark (B)) at idle in P or N



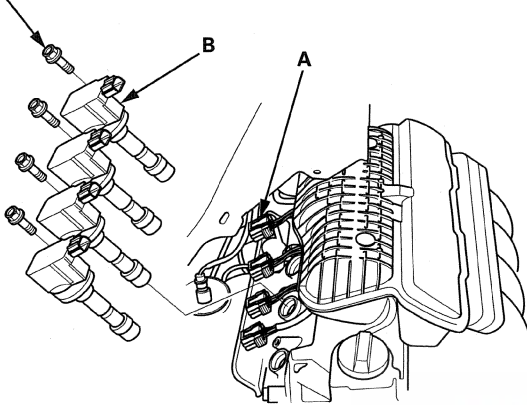
10. If the ignition timing differs from the specification, check the camshaft timing (see page 6-12). If the camshaft timing is OK, update the ECM/PCM, if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the system works properly, and the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215).
11. Disconnect the HDS and the timing light.

Ignition System

Ignition Coil and Spark Plug Removal/Installation

1. Remove the under-cowl panel (see page 20-185).
2. Disconnect the ignition coil connectors (A), then remove the ignition coils (B).

6 x 1.0 mm
9.8 N·m (1.0 kgf·m, 7 lbf·ft)



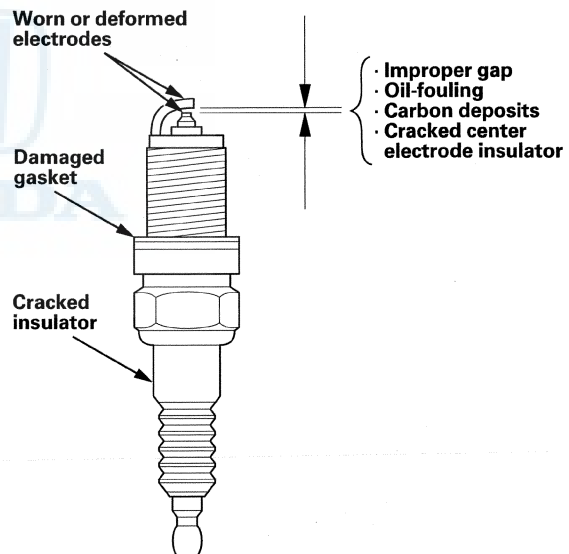
3. Remove the spark plugs, and inspect them (see page 4-20).
4. Apply a small amount of anti-seize compound to the plug threads, and screw the plugs into the cylinder head, finger tight, then tighten the plugs to the specified torque.

Specified Torque
18 N·m (1.8 kgf·m, 13 lbf·ft)

5. Install all remaining parts in the reverse order of removal.

Spark Plug Inspection

1. Remove the ignition coils and the spark plugs (see page 4-20).
2. Inspect the electrodes and the ceramic insulator:
 - Burned or worn electrodes may be caused by these conditions:
 - Advanced ignition timing
 - Loose spark plug
 - Plug heat range too hot
 - Insufficient cooling
 - Fouled plugs may be caused by these conditions:
 - Retarded ignition timing
 - Oil in combustion chamber
 - Incorrect spark plug gap
 - Plug heat range too cold
 - Excessive idling/low speed running
 - Clogged air cleaner element
 - Deteriorated ignition coils



3. Replace the plug at the specified interval, or if the center electrode (A) is rounded, or if the spark plug gap (B) is out of specification, or if the spark plug electrode is dirty or contaminated. Use only the spark plugs listed.

NOTE:

- Do not adjust the gap of iridium tip plugs.
- Do not use a plug cleaner.

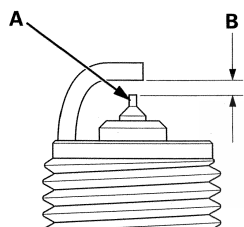
Spark Plugs

NGK: IZFR6K13

DENSO: SKJ20DR-M13

Electrode Gap

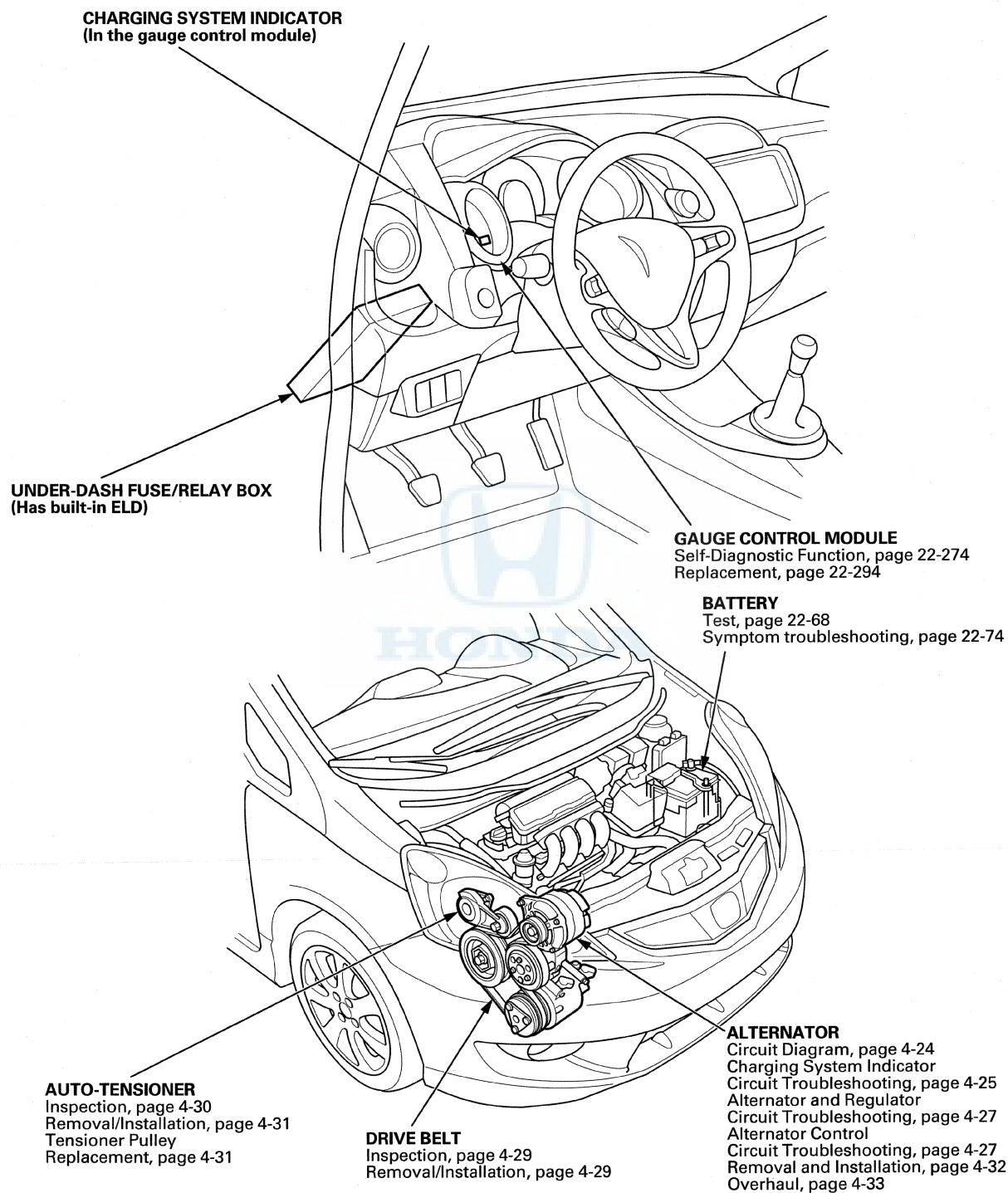
Standard (New): 1.2–1.3 mm (0.047–0.051 in)

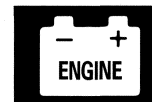


4. Install the spark plugs and the ignition coils (see page 4-20).

Charging System

Component Location Index





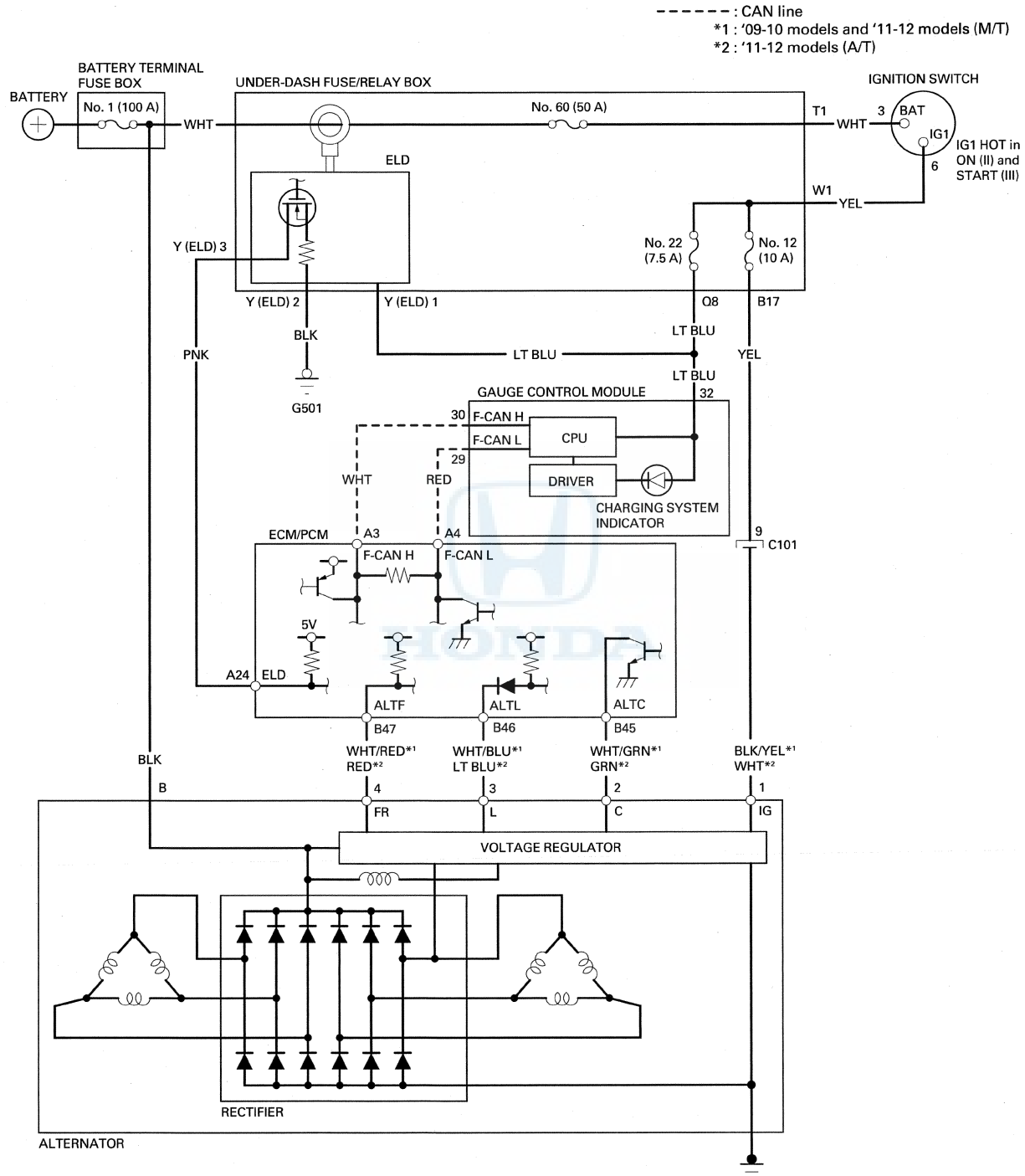
Symptom Troubleshooting Index

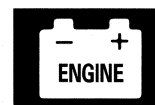
Symptom	Diagnostic procedure	Also check for
Charging system indicator does not come on with the ignition switch in ON (II)	Troubleshoot the charging system indicator circuit (see page 4-25).	
Charging system indicator stays on	<ol style="list-style-type: none">1. Check for a broken drive belt (see page 4-29).2. Troubleshoot the charging system indicator circuit (see page 4-25).3. Check the drive belt auto-tensioner (see page 4-30).4. Check for PGM-FI DTCs (see page 11-3).	
Battery discharged	<ol style="list-style-type: none">1. Check for a poor connection at the battery terminal.2. Test the battery (see page 22-68).3. Troubleshoot the alternator and regulator circuit (see page 4-27).4. Check for a broken drive belt (see page 4-29).5. Check the drive belt auto-tensioner (see page 4-30).6. Check for excessive parasitic electrical current draw (see page 22-71).	
Battery overcharged	<ol style="list-style-type: none">1. Test the battery (see page 22-68).2. Troubleshoot the alternator and regulator circuit (see page 4-27).	
Low or dead battery	Battery symptom troubleshooting (see page 22-74).	



Charging System

Circuit Diagram





Charging System Indicator Circuit Troubleshooting

NOTE:

- Check for stored DTCs in the PGM-FI before troubleshooting the charging system indicator.
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).

Does the charging system indicator come on?

YES—Go to step 2.

NO—Go to step 14.

2. Start the engine. Hold the engine speed at 2,000 rpm for 1 minute.

Does the charging system indicator go off?

YES—Charging system indicator circuit is OK. Go to the alternator and regulator circuit troubleshooting (see page 4-27). ■

NO—Go to step 3.

3. Do the gauge control module self-diagnostic function procedure (see page 22-274).

Does the charging system indicator flash?

YES—Go to step 4.

NO—Replace the gauge control module (see page 22-294). ■

4. Turn the ignition switch to LOCK (0).

5. Disconnect the alternator 4P connector.

6. Turn the ignition switch to ON (II).

Does the charging system indicator go off?

YES—Replace the alternator (see page 4-32), or repair the alternator (see page 4-33). ■

NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).

8. Connect the HDS to the DLC (see step 2 on page 11-3).

9. Turn the ignition switch to ON (II).

10. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).

11. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).

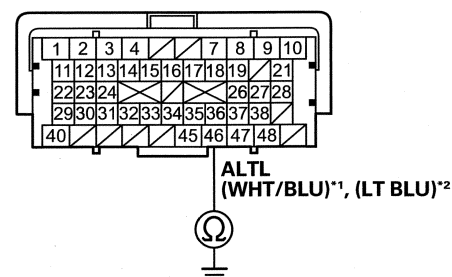
NOTE: This step must be done to protect the ECM/PCM from damage.

12. Disconnect ECM/PCM connector B (49P).

13. Check for continuity between ECM/PCM connector terminal B46 and body ground.

ECM/PCM CONNECTOR B (49P)

Terminal side of female terminals



Is there continuity?

YES—Repair a short to ground in the wire between alternator 4P connector terminal No. 3 and ECM/PCM connector terminal B46. ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

14. Do the gauge control module self-diagnostic function procedure (see page 22-274).

Does the charging system indicator flash?

YES—Go to step 15.

NO—Replace the gauge control module (see page 22-294). ■

15. Turn the ignition switch to LOCK (0).

16. Disconnect the alternator 4P connector.

(cont'd)

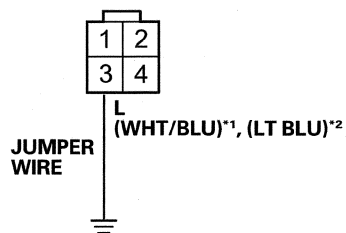
Charging System

Charging System Indicator Circuit Troubleshooting (cont'd)

17. Connect alternator 4P connector terminal No. 3 and body ground with a jumper wire.

ALTERNATOR 4P CONNECTOR

Wire side of female terminals



18. Turn the ignition switch to ON (II).

Does the charging system indicator come on?

YES—Replace the alternator (see page 4-32), or repair the alternator (see page 4-33). ■

NO—Disconnect the jumper wire, then go to step 19.

19. Turn the ignition switch to LOCK (0).
20. Connect the HDS to the DLC (see step 2 on page 11-3).
21. Turn the ignition switch to ON (II).
22. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
23. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).
NOTE: This step must be done to protect the ECM/PCM from damage.
24. Disconnect ECM/PCM connector B (49P).

25. Check for continuity between ECM/PCM connector terminal B46 and alternator 4P connector terminal No. 3.

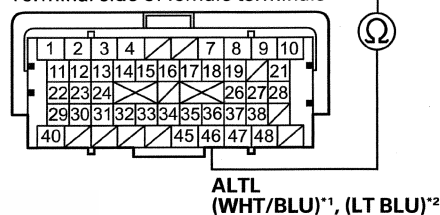
ALTERNATOR 4P CONNECTOR

Wire side of female terminals



ECM/PCM CONNECTOR B (49P)

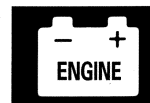
Terminal side of female terminals



Is there continuity?

YES—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

NO—Repair an open in the wire between alternator 4P connector terminal No. 3 and ECM/PCM connector terminal B46. ■



Alternator and Regulator Circuit Troubleshooting

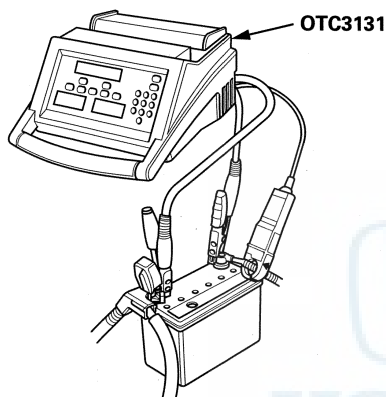
Special Tools Required

Alternator, Regulator, Battery, and Starter Tester OTC3131*

*: Available through the Honda Tool and Equipment Program 888-424-6857

1. Make sure the battery connections are good and the battery is sufficiently charged.
2. Connect the alternator, regulator, battery, and starter tester (OTC3131) to the battery as shown.

NOTE: The probe is used for alternator testing.



3. Start the engine. Hold the engine speed at 3,000 rpm with no load (M/T in neutral, A/T in P or N) until the radiator fan comes on, then let it idle.
4. Do the CHARGING SYSTEM TEST.

Does the display indicate the voltage is within 13.2–15.3 V and the amperage is 60 A or more?

YES—Go to step 5.

NO—If the voltage is less than 13.2 V, go to alternator control circuit troubleshooting (see page 4-27). If the voltage is over 15.3 V and amperage is less than 60 A, replace the alternator (see page 4-32) or repair the alternator (see page 4-33).

5. Check the diode condition on the display.

Does the display indicate GOOD?

YES—The diode is OK. Troubleshooting is complete. ■

NO—If the display indicates BAD, replace the alternator (see page 4-32) or repair the alternator (see page 4-33), then retest. ■

NOTE: If the display indicates N/A, the diode pattern could not be diagnosed. Repeat the test again. If N/A appears repeatedly, replace the alternator (see page 4-32).

Alternator Control Circuit Troubleshooting

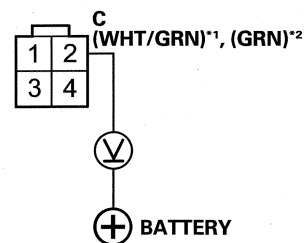
NOTE:

- Do this troubleshooting if, in step 4 of the alternator and regulator circuit troubleshooting (see page 4-27), the battery voltage is less than 13.2 V.
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Connect the HDS to the DLC (see step 2 on page 11-3).
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
4. Check for DTCs (see page 11-3). If a DTC is present, diagnose and repair the cause before continuing with this test.
5. Disconnect the alternator 4P connector.
6. Start the engine, and turn on the headlights to high beam.
7. Measure the voltage between alternator 4P connector terminal No. 2 and the positive terminal of the battery.

ALTERNATOR 4P CONNECTOR

Wire side of female terminals



Is there less than 1 V?

YES—Go to step 11.

NO—Go to step 8.

8. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).

NOTE: This step must be done to protect the ECM/PCM from damage.

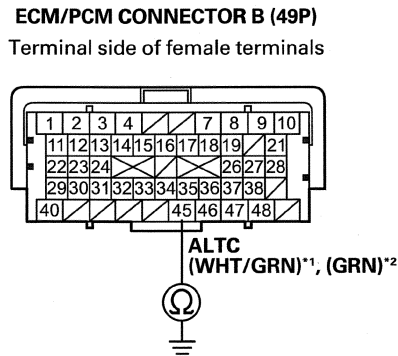
9. Disconnect ECM/PCM connector B (49P).

(cont'd)

Charging System

Alternator Control Circuit Troubleshooting (cont'd)

10. Check for continuity between ECM/PCM connector terminal B45 and body ground.



Is there continuity?

YES—Repair a short to ground in the wire between alternator 4P connector terminal No. 2 and ECM/PCM connector terminal B45. ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

11. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).

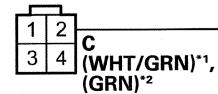
NOTE: This step must be done to protect the ECM/PCM from damage.

12. Disconnect ECM/PCM connector B (49P).

13. Check for loose terminals and connectors, then check for continuity between ECM/PCM connector terminal B45 and alternator 4P connector terminal No. 2.

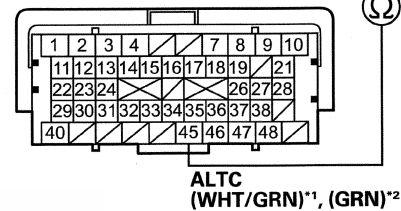
ALTERNATOR 4P CONNECTOR

Wire side of female terminals



ECM/PCM CONNECTOR B (49P)

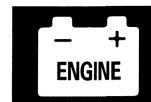
Terminal side of female terminals



Is there continuity?

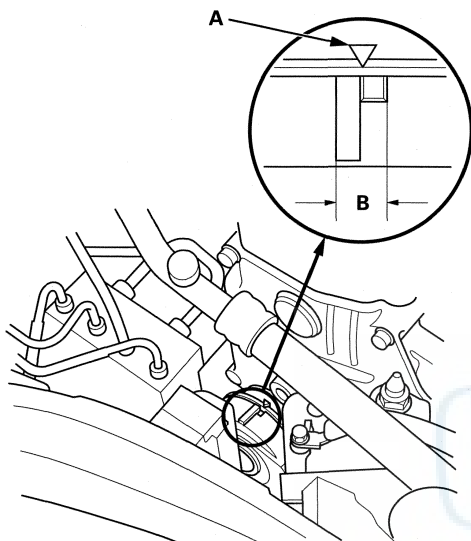
YES—Replace the alternator (see page 4-32), or repair the alternator (see page 4-33). ■

NO—Repair an open in the wire between alternator 4P connector terminal No. 2 and ECM/PCM connector terminal B45. ■



Drive Belt Inspection

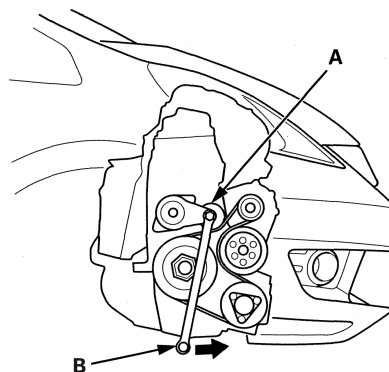
1. Inspect the belt for cracks or damage. If the belt is cracked or damaged, replace it (see page 4-29).
2. Check that the position of the auto-tensioner indicator (A) is within the standard range (B) as shown. If it is out of the standard range, replace the drive belt (see page 4-29).



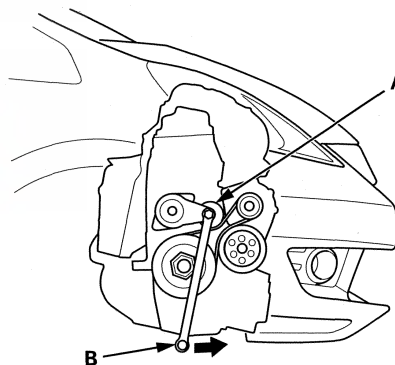
Drive Belt Removal/Installation

1. Remove the splash shield (see step 23 on page 5-5).
2. Move the auto-tensioner (A) using a wrench (B) in the direction shown to relieve tension from the drive belt, then remove the drive belt.

With A/C



Without A/C

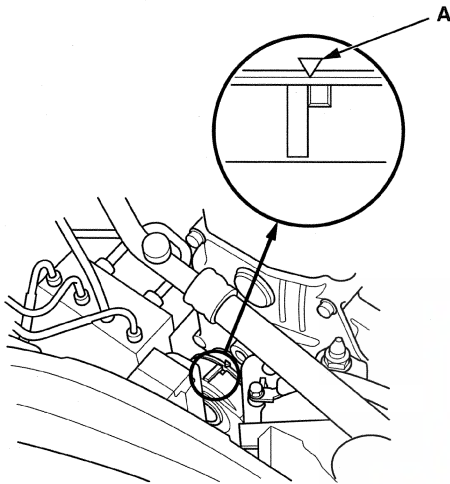


3. Install a new drive belt in the reverse order of removal.

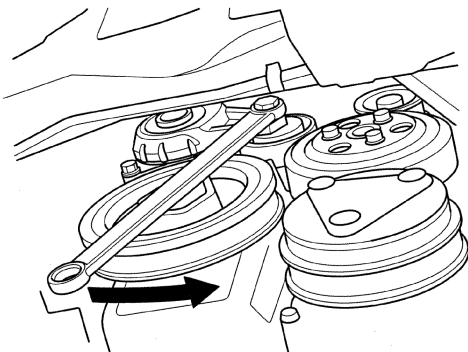
Charging System

Drive Belt Auto-Tensioner Inspection

1. Turn the ignition switch to ON (II), and make sure to turn the A/C switch OFF, then turn the ignition switch to LOCK (0).
2. Check the position of the auto-tensioner indicator (A). Start the engine, then check the position again with the engine idling. If the position of the indicator moves or fluctuates a lot, replace the auto-tensioner (see page 4-31).

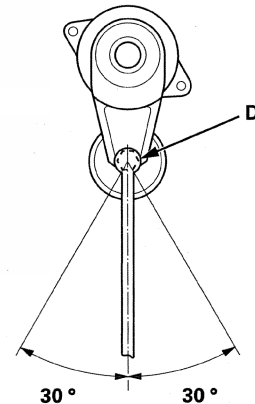
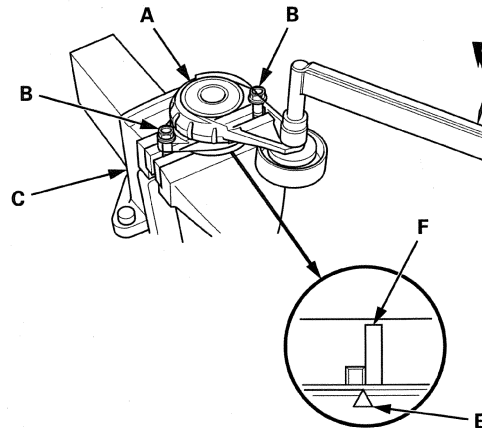


3. Check for abnormal noise from the tensioner pulley. If you hear abnormal noise, replace the auto-tensioner pulley (see page 4-31).
4. Remove the drive belt (see page 4-29).
5. Move the auto-tensioner within its limit with a wrench in the direction shown. Check that the auto-tensioner moves smoothly and without any abnormal noise. If the tensioner does not move smoothly, or you hear abnormal noise, replace the auto-tensioner (see page 4-31).



6. Remove the auto-tensioner (see page 4-31).

7. Clamp the auto-tensioner (A) by using two 8 mm bolts (B) and a vise (C) as shown. Do not clamp the auto-tensioner itself.



8. Attach the torque wrench (D) on the pulley bolt, and align it as shown.
9. Align the indicator (E) on the tensioner base with belt position mark (F) on the tensioner arm by using the torque wrench, and measure the torque. If the torque value is out of specification, replace the auto-tensioner (see page 4-31).

NOTE: If the indicator exceeds the belt position mark, recheck the torque.

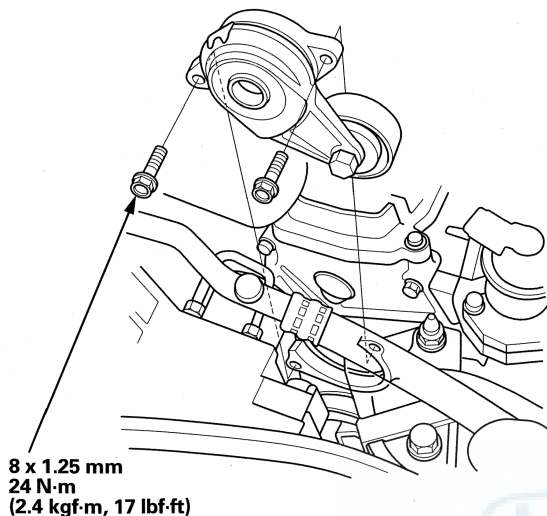
Auto-tensioner Spring Torque
20.6–25.2 N·m (2.10–2.25 kgf·m, 15.2–18.6 lbf·ft)

10. Install the auto-tensioner (see page 4-31).
11. Install the drive belt (see page 4-29).



Drive Belt Auto-Tensioner Removal/Installation

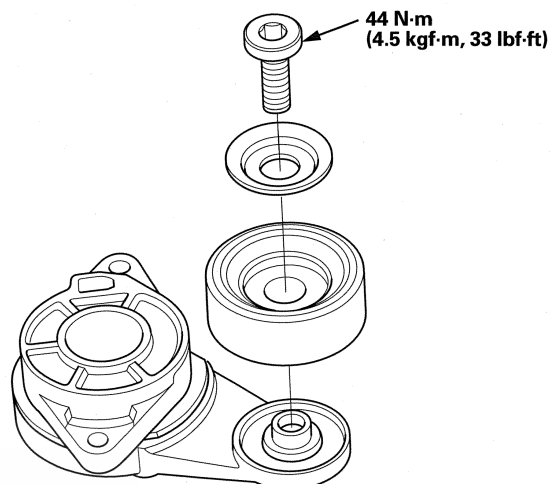
1. Remove the drive belt (see page 4-29).
2. Remove the auto-tensioner.



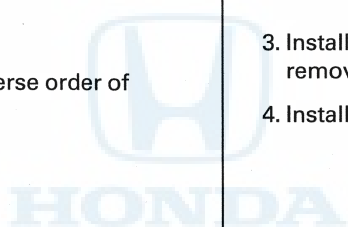
3. Install the auto-tensioner in the reverse order of removal.

Tensioner Pulley Replacement

1. Remove the auto-tensioner (see page 4-31).
2. Remove the tensioner pulley.



3. Install the tensioner pulley in the reverse order of removal.
4. Install the auto-tensioner (see page 4-31).

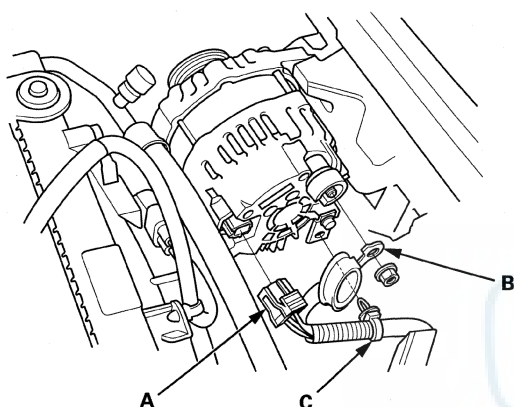


Charging System

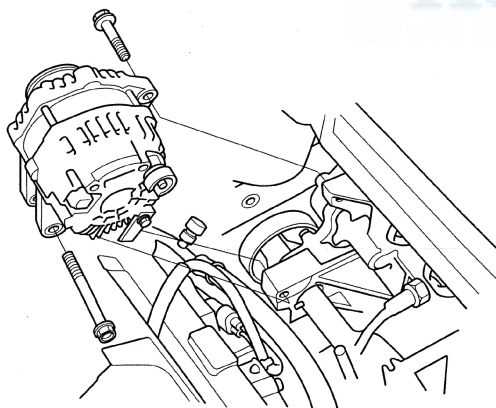
Alternator Removal and Installation

Removal

1. Do the battery terminal disconnection procedure (see page 22-69).
2. Remove the drive belt (see page 4-29).
3. Remove the intake manifold (see page 9-7).
4. Disconnect the alternator connector (A) and the positive alternator cable (B), then remove the harness clamp (C) from the alternator.

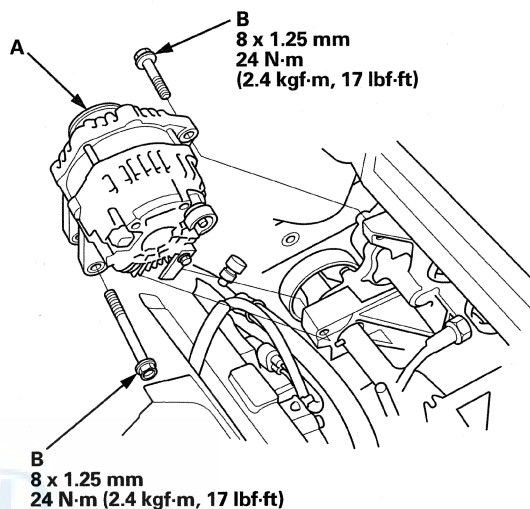


5. Remove the alternator.

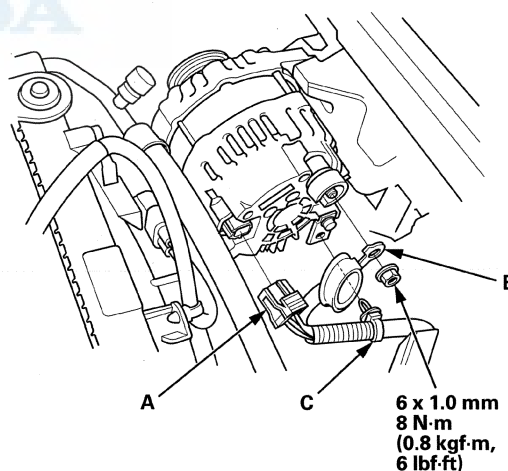


Installation

1. Install the alternator (A), then tighten the alternator mounting bolts (B).



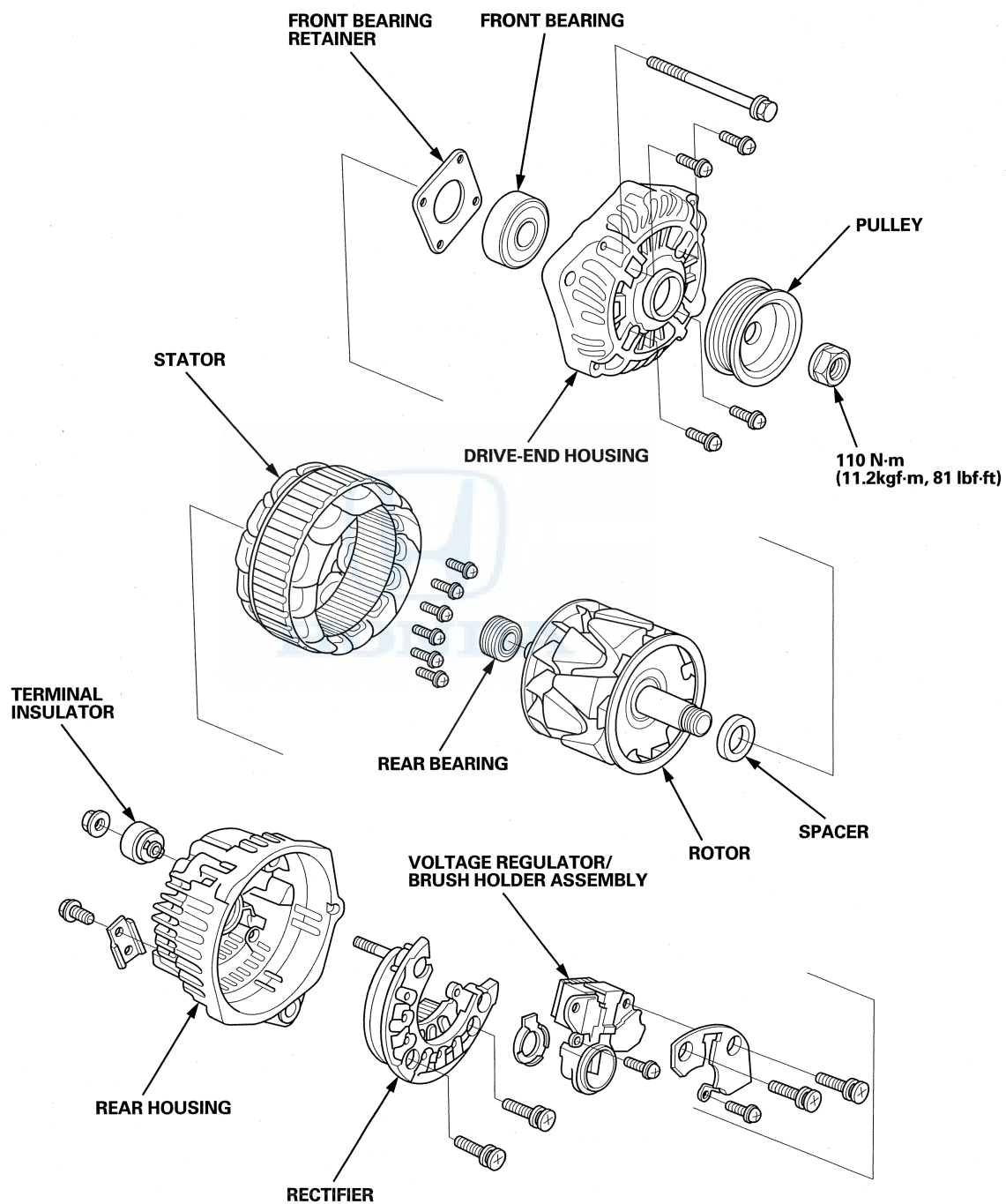
2. Connect the alternator connector (A) and the positive alternator cable (B). Make sure the crimped side of the ring terminal faces away from the alternator when you connect it.



3. Install the harness clamp (C) to the alternator.
4. Install the intake manifold (see page 9-7).
5. Install the drive belt (see page 4-29).
6. Do the battery terminal reconnection procedure (see page 22-70).

Alternator Overhaul

Exploded View



(cont'd)

Charging System

Alternator Overhaul (cont'd)

Special Tools Required

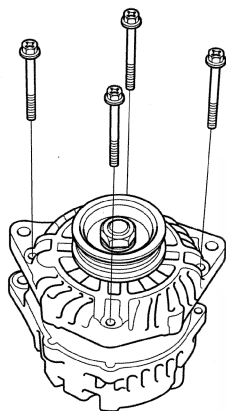
- Bearing Driver Attachment, 42 x 47 mm 07746-0010300
- Driver Handle, 15 x 135L 07749-0010000

NOTE: Refer to the Exploded View if needed during this procedure.

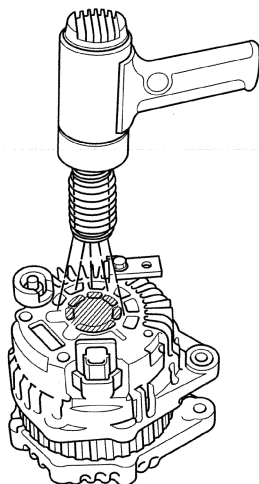
1. Test the alternator and regulator before you remove them (see page 4-27).
2. Remove the alternator (see page 4-32).

Alternator Disassembly

3. Remove the four through bolts.

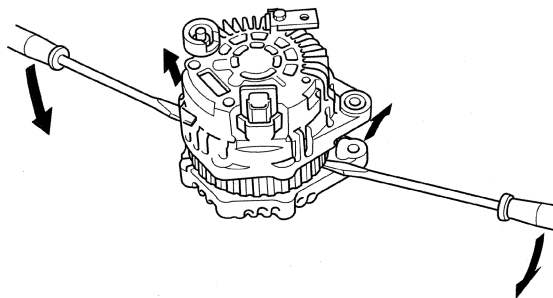


4. Heat the rear bearing seat with a heat gun until the rear housing reaches (129–140 °F (50–60 °C)).

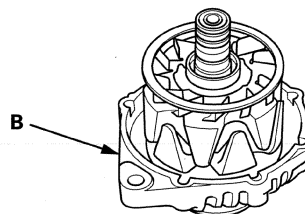
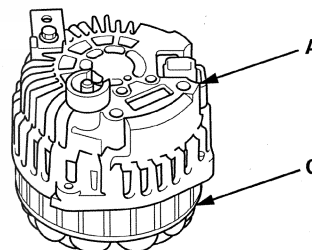


5. Separate the rear housing from the drive-end housing by inserting a flat-blade screwdriver into the openings, and prying them apart.

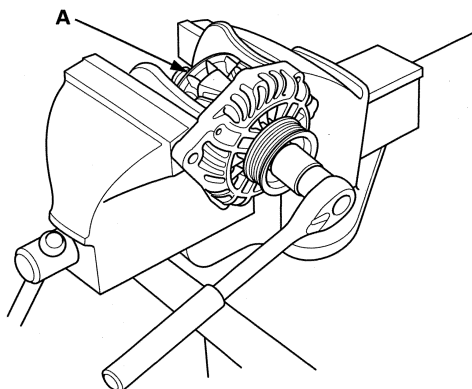
NOTE: Be careful not to damage the stator with the tip of the screwdriver.



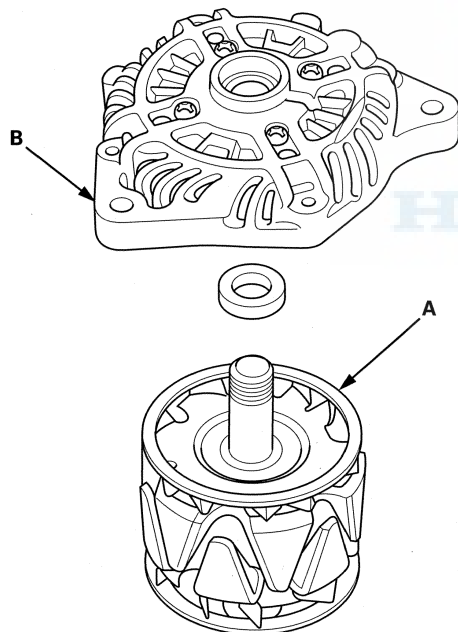
6. Separate the rear housing (A) and the drive-end housing (B) with the stator (C) attached to the rear housing.



7. If you are not replacing the front bearing and/or the rear bearing, go to step 15. Clamp the rotor (A) in a soft-jawed vise, then remove the pulley locknut.

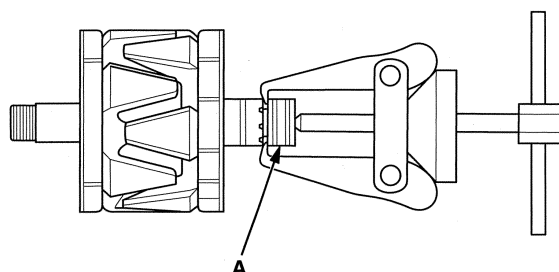


8. Remove the rotor (A).

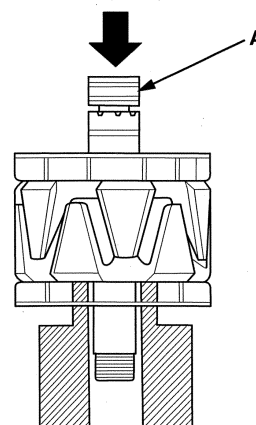


9. Inspect the rotor shaft for scoring, and inspect the bearing journal surface in the drive-end housing (B) for seizure marks:
- If either the rotor or the drive-end housing is damaged, replace the alternator.
 - If both the rotor and the drive-end housing are OK, go to step 10.

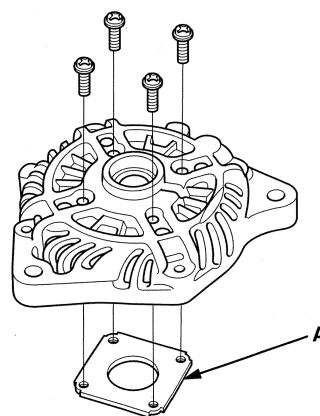
10. Remove the rear bearing (A) using the puller as shown.



11. Use a hand press to install a new rear bearing (A). Apply pressure only on the inner race to avoid damaging the bearing.



12. Remove the front bearing retainer plate (A).

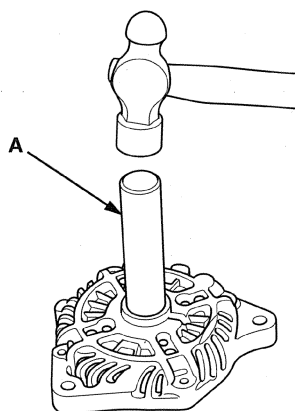


(cont'd)

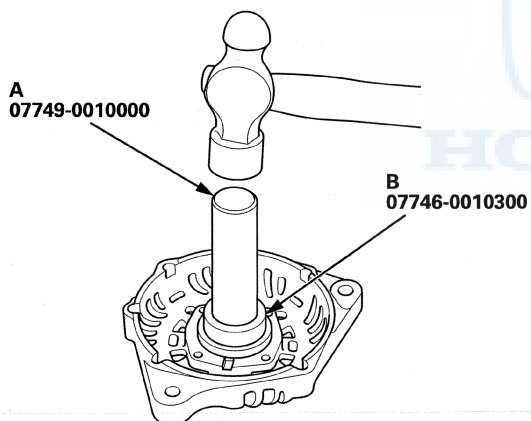
Charging System

Alternator Overhaul (cont'd)

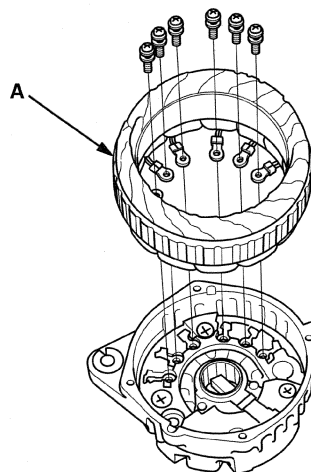
13. Drive out the front bearing with a brass drift (A) and a hammer.



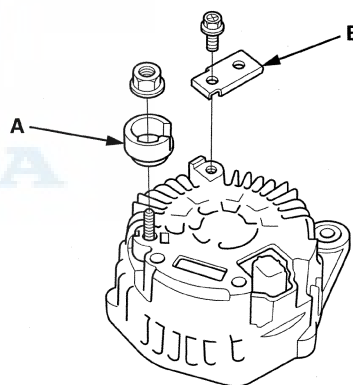
14. Install a new front bearing in the drive-end housing with a hammer, the driver handle, 15 x 135L (A), and the bearing driver attachment, 42 x 47 mm (B).



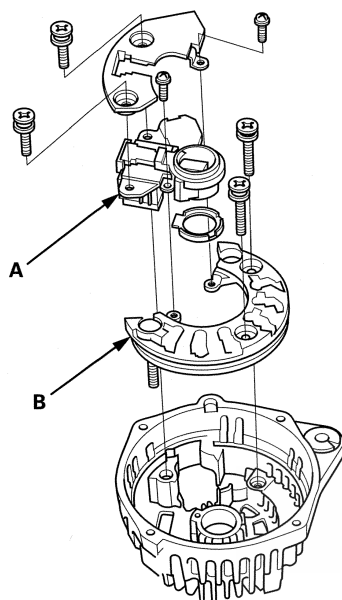
15. Remove the stator (A).



16. Remove the terminal insulator (A) and the harness bracket (B).



17. Remove the voltage regulator/brush holder assembly (A) and the rectifier (B).

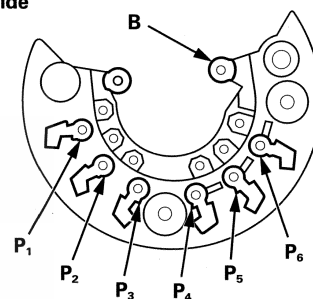


Rectifier Test

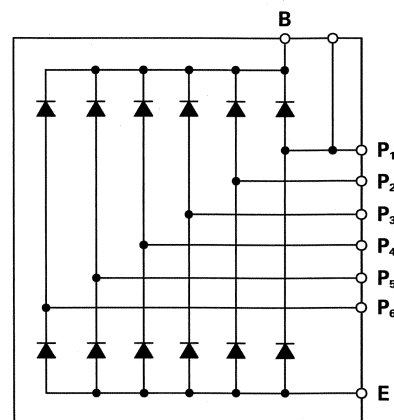
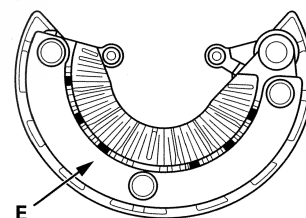
18. Check for continuity in each direction, between the B terminal and P terminals, and between the E terminal and P terminals of each diode pair. All diodes should have continuity in only one direction. Because the rectifier diodes are designed to allow current to pass in one direction, and the rectifier is made up of six diodes (six pairs), you must test each diode in both directions for continuity with an ohmmeter that has diode checking capability: a total of 24 checks:

- If any diode failed, replace the rectifier assembly. (Diodes are not available separately.)
- If all the diodes are OK, go to step 19.

Stator side



Rear housing side



(cont'd)

Charging System

Alternator Overhaul (cont'd)

Alternator Brush Inspection

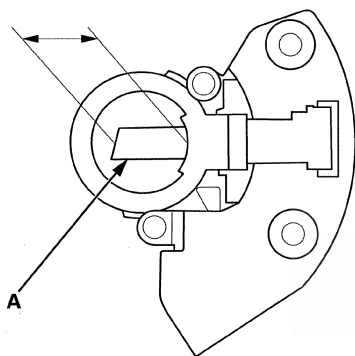
19. Measure the length of both brushes (A) with a vernier caliper:

- If either brush is shorter than the service limit, replace the brushes, go to step 20.
- If brush length is OK, go to step 21.

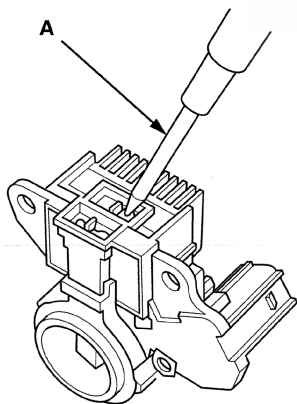
Alternator Brush Length

Standard (New): 23 mm (0.91 in)

Service Limit: 18 mm (0.71 in)



20. Unsolder the brush leads from the voltage regulator/brush holder assembly with a 100 W soldering iron (A), then replace the brushes.



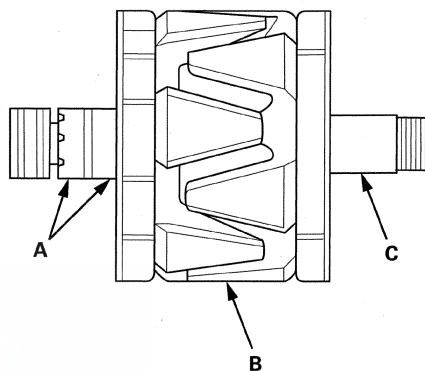
Rotor Slip Ring Test

21. Measure the resistance between the slip rings (A):

- If the resistance is within the standard, go to step 22.
- If the resistance is not within the standard, replace the rotor assembly.

Coil (rotor) resistance

Standard: 2.1–2.3 Ω at 68 °F (20 °C)



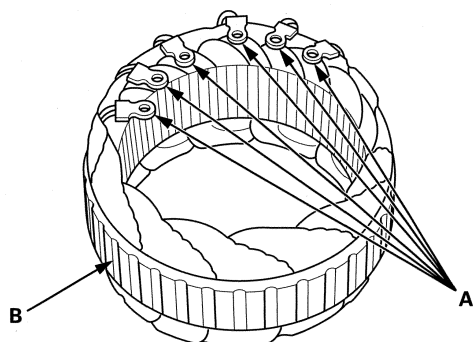
22. Check for continuity between each slip ring and the rotor (B) and the rotor shaft (C):

- If there is no continuity, replace the rear housing assembly, go to step 23.
- If there is continuity, replace the rotor assembly.

Stator Test

23. Check that there is continuity between each lead (A):

- If there is continuity, go to step 24.
- If there is no continuity, replace the stator.



24. Check for continuity between each lead and the coil core (B):

- If there is no continuity, go to step 25.
- If there is continuity, replace the stator.

Alternator Reassembly

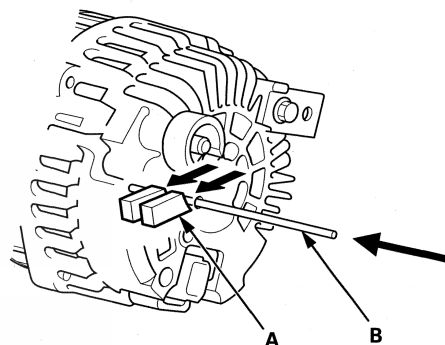
25. If you removed the pulley, put the rotor in the drive-end housing, then torque its locknut to 110 N·m (11.2 kgf·m, 81 lbf·ft).

26. Remove any grease or any oil from the slip rings.

27. Install the voltage regulator/brush holder assembly and the rectifier on the rear housing.

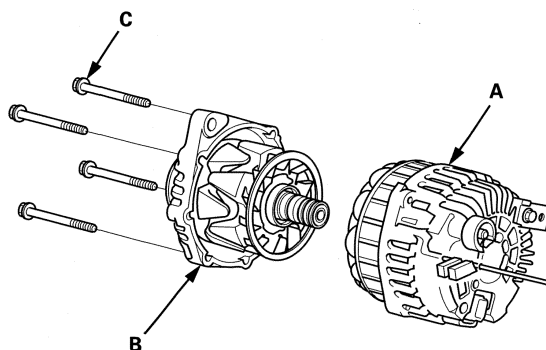
28. Install the stator on the rear housing.

29. Push the brushes (A) in, then insert a pin or drill bit (B) (about 1.8 mm (5/64 in) diameter) to hold them there.



30. Heat the rear bearing seat with a heat gun until the rear housing reaches (129–140 °F (50–60 °C)).

31. Put the rear housing assembly (A) and the drive-end housing/rotor assembly (B) together, tighten the four through bolts (C).

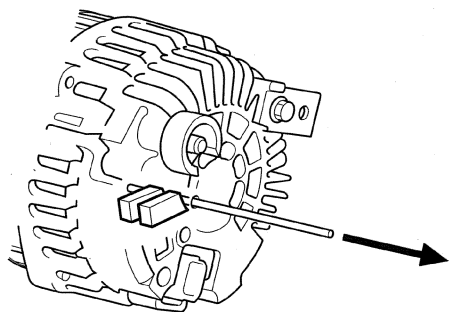


(cont'd)

Charging System

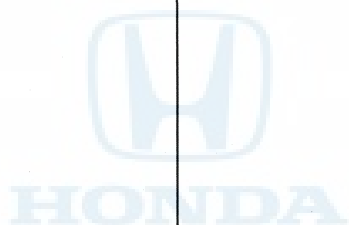
Alternator Overhaul (cont'd)

32. Pull out the pin.

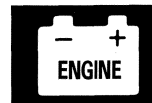


33. After assembling the alternator, turn the pulley by hand to make sure the rotor turns smoothly and without noise.

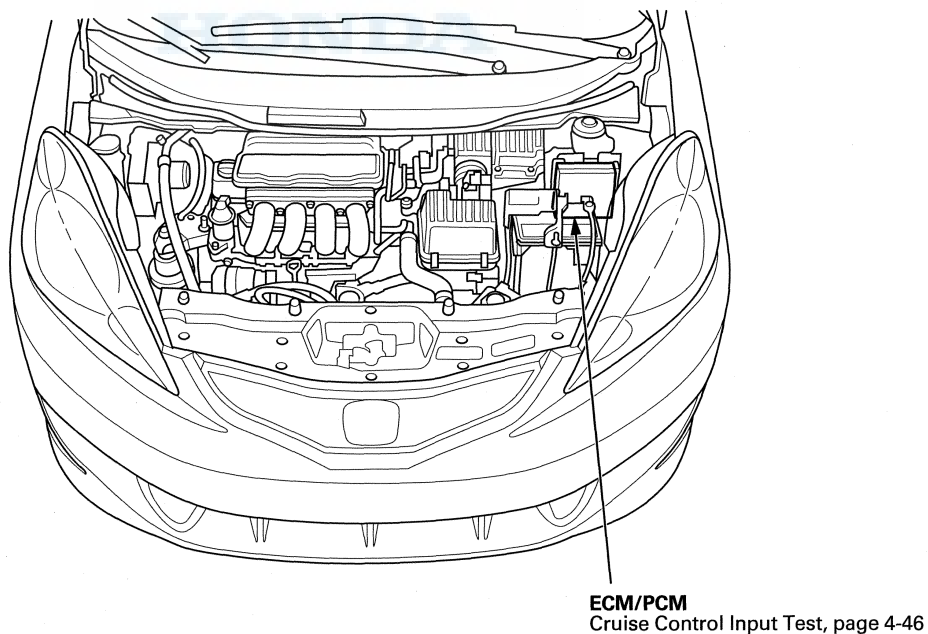
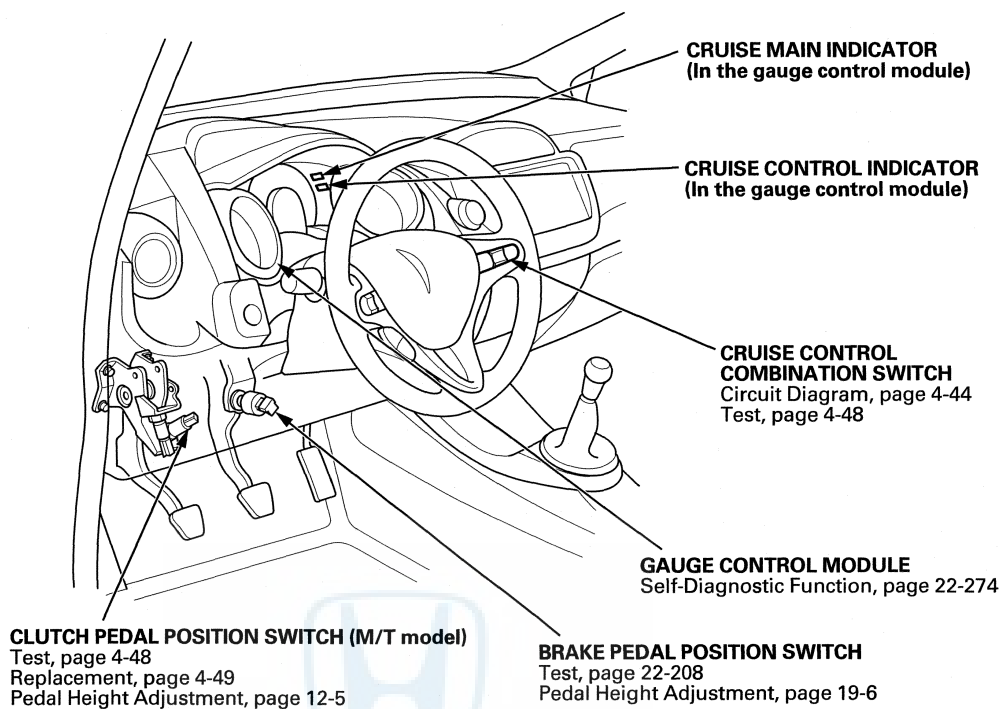
34. Install the alternator (see page 4-32).



Cruise Control



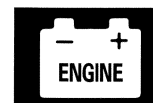
Component Location Index



Cruise Control

Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Cruise control cannot be set	<ol style="list-style-type: none"> 1. Check for PGM-FI DTCs (see page 11-3). 2. Check the No. 12 (10 A) fuse and the No. 24 (10 A) fuse in the under-dash fuse/relay box. 3. Do the cruise control combination switch test (see page 4-48). 4. Do the cruise control input test (see page 4-46). 	Poor ground G501
Cruise control can be set, but the cruise main indicator does not come on	<ol style="list-style-type: none"> 1. Do the gauge control module self-diagnostic function procedure (see page 22-274). 2. Do the cruise control input test (see page 4-46). Test the cruise control main switch signal input. 3. Check for PGM-FI DTCs (see page 11-3). 	Faulty gauge control module
Cruise control can be set, but the cruise control indicator does not come on	<ol style="list-style-type: none"> 1. Do the gauge control module self-diagnostic function procedure (see page 22-274). 2. Do the cruise control input test (see page 4-46). Test the cruise control indicator signal input. 3. Check for PGM-FI DTCs (see page 11-3). 	Faulty gauge control module
Vehicle does not accelerate accordingly when the resume/accel button is pressed	<ol style="list-style-type: none"> 1. Do the cruise control combination switch test (see page 4-48). 2. Do the cruise control input test (see page 4-46). Test the resume/accel switch signal input. 3. Check for PGM-FI DTCs (see page 11-3). 	Open circuit, loose or disconnected terminals: LT GRN/BLK or BLU wire
Set speed does not cancel when the brake pedal is pressed	<ol style="list-style-type: none"> 1. Do the brake pedal position switch test (see page 22-208). 2. Do the cruise control input test (see page 4-46). Test the brake pedal position switch signal input. 3. Check for PGM-FI DTCs (see page 11-3). 	<ul style="list-style-type: none"> • Short to power on the BRN wire • Faulty brake pedal position switch
Set speed does not cancel (engine rpm stays high) when the clutch pedal is pressed (M/T model)	<ol style="list-style-type: none"> 1. Do the clutch pedal position switch test (see page 4-48). 2. Do the cruise control input test (see page 4-46). Test the clutch pedal position switch signal input. 3. Check for PGM-FI DTCs (see page 11-3). 	<ul style="list-style-type: none"> • Short to ground on the PUR wire • Faulty clutch pedal position switch
Set speed does not cancel when the cruise control main button is pressed	<ol style="list-style-type: none"> 1. Do the cruise control combination switch test (see page 4-48). 2. Do the cruise control input test (see page 4-46). Test the cruise control main switch signal input. 3. Check for PGM-FI DTCs (see page 11-3). 	Short to power on the PNK or LT GRN wire
Set speed does not cancel when the cancel button is pressed	<ol style="list-style-type: none"> 1. Do the cruise control combination switch test (see page 4-48). 2. Do the cruise control input test (see page 4-46). Test the cancel switch signal input. 3. Check for PGM-FI DTCs (see page 11-3). 	Open circuit, loose or disconnected terminals: YEL/RED, RED, LT GRN/BLK or BLU wire
Set speed does not resume when the resume/accel button is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the brake pedal)	<ol style="list-style-type: none"> 1. Do the cruise control combination switch test (see page 4-48). 2. Do the cruise control input test (see page 4-46). Test the cruise control resume/accel switch signal input. 3. Check for PGM-FI DTCs (see page 11-3). 	Open circuit, loose or disconnected terminals: LT GRN/BLK or BLU wire
Set speed does not resume when the resume/accel button is pressed (with the cruise control main switch turned on, and set speed temporarily canceled by pressing the clutch pedal) (M/T model)	<ol style="list-style-type: none"> 1. Do the cruise control combination switch test (see page 4-48). 2. Do the cruise control input test (see page 4-46). Test the cruise control resume/accel switch signal input. 3. Check for PGM-FI DTCs (see page 11-3). 	Open circuit, loose or disconnected terminals: LT GRN/BLK or BLU wire



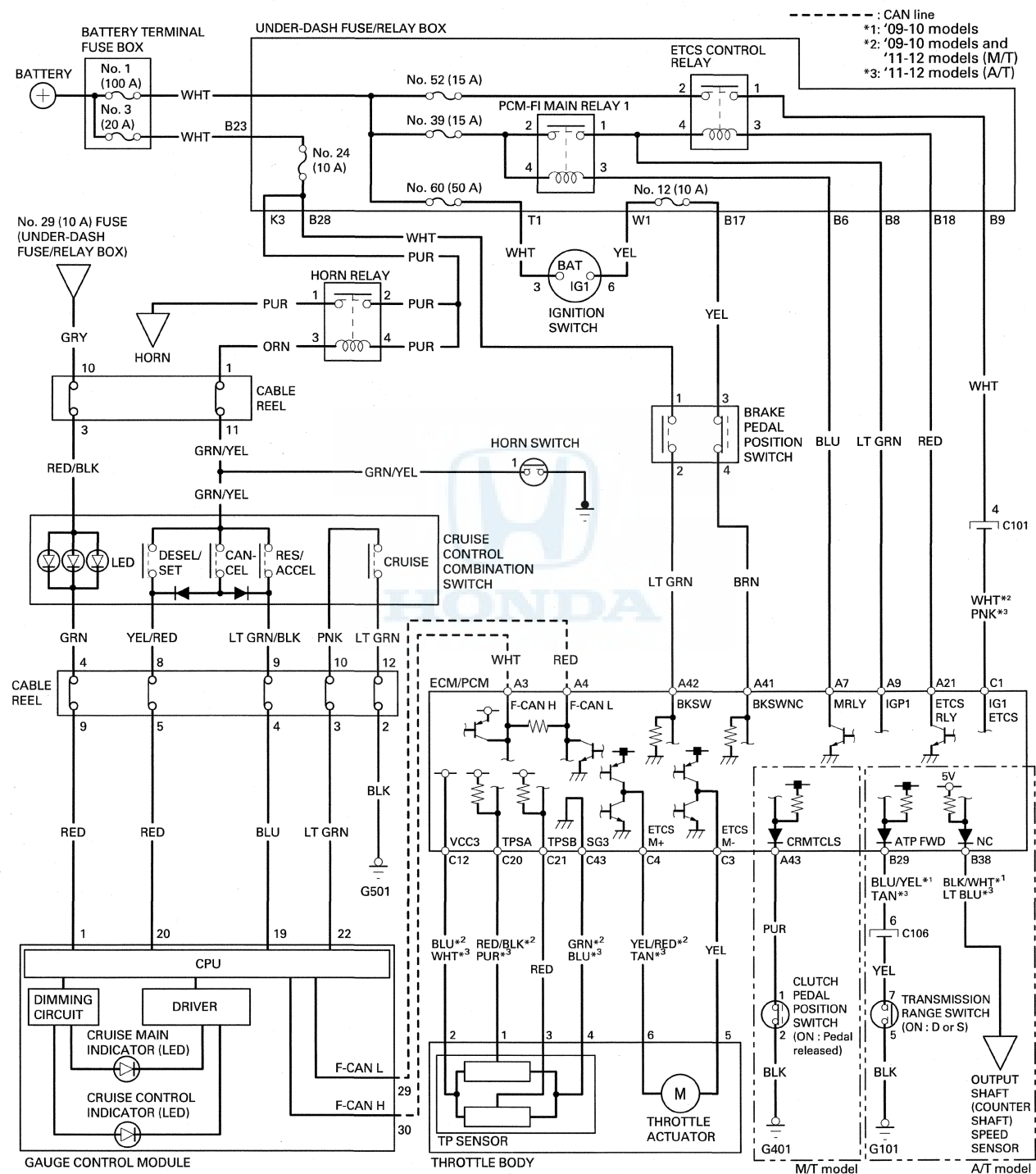
Symptom	Diagnostic procedure	Also check for
Light switch turned on, the cruise control combination switch illumination does not come on	<ol style="list-style-type: none">1. Check the No.29 (10 A) fuse in the under-dash fuse/relay box.2. Do the cruise control combination switch test (see page 4-48).	Open circuit, loose or disconnected terminals: GRY, RED/BLK, GRN, and RED wire

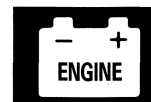


Cruise Control

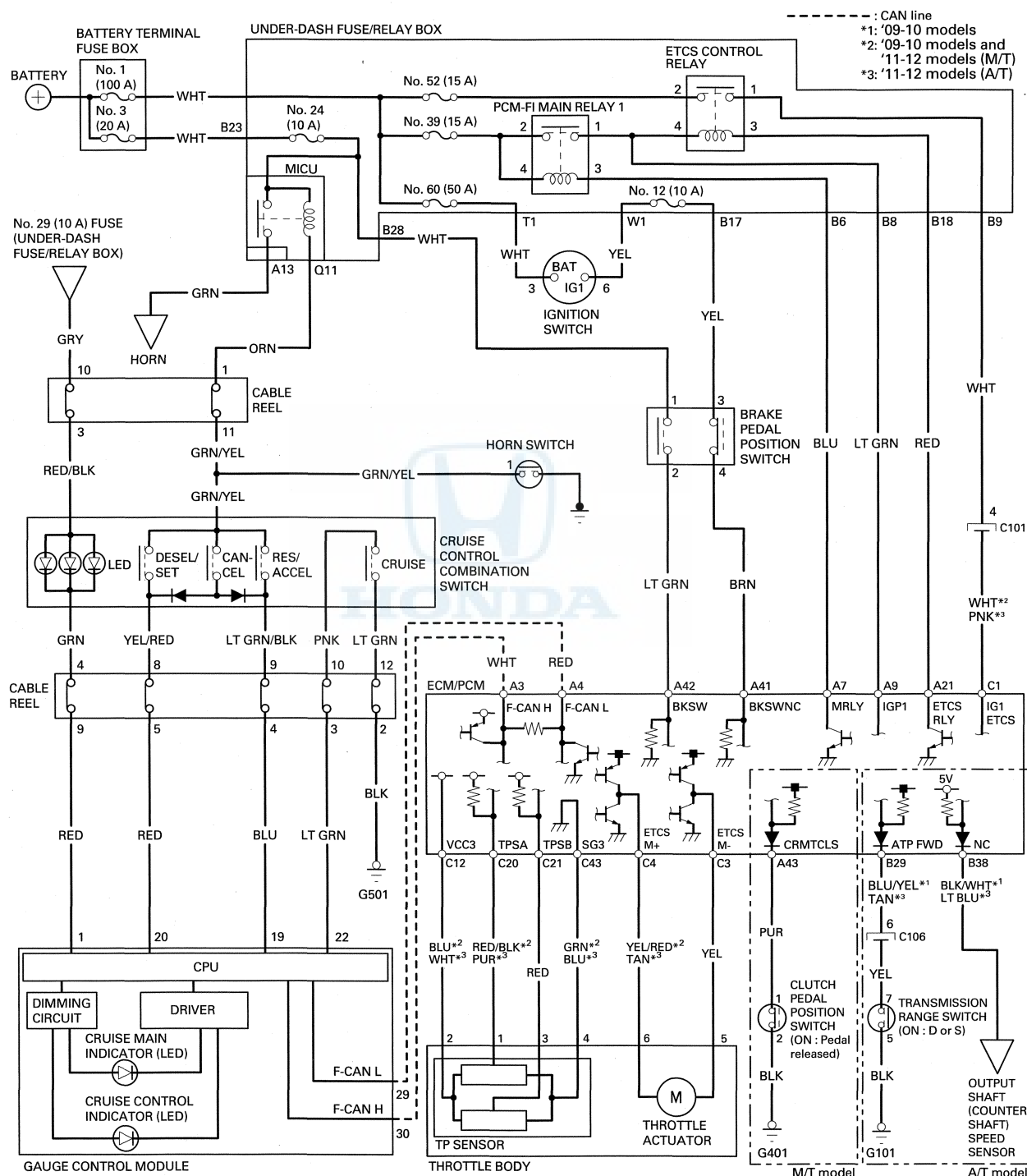
Circuit Diagram

With Security System





Without Security System



Cruise Control

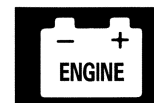
Cruise Control Input Test

NOTE: Always make sure that you have the latest HDS software.

1. Connect the HDS to the DLC (see step 2 on page 11-3).
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
4. Check for and troubleshoot any DTCs (see page 11-3).
5. Do the following tests while monitoring parameters in the PGM-FI DATA LIST with the HDS.
6. If the input tests prove OK, replace the ECM/PCM (see page 11-215).

NOTE: Intermittent failures are often caused by loose circuit connections. While monitoring cruise control inputs, flex their circuit wires, and note if any of the test results change.

Signal to be tested	Test condition	Parameter: Desired result	Possible cause if result is not obtained
Brake pedal position switch signal	Brake pedal pressed, then released	CRUISE BRAKE SW/IDLE STOP SW should indicate OPEN when the brake pedal is pressed and CLOSE when the brake pedal is released.	<ul style="list-style-type: none"> Faulty brake pedal position switch Blown No. 12 (10 A) fuse in the under-dash fuse/relay box An open in the wire between the ECM/PCM and the brake pedal position switch A wire shorted to ground between the ECM/PCM and the brake pedal position switch
Clutch pedal position switch signal (M/T model)	Clutch pedal pressed, then released	SHIFT/CLUTCH SW should indicate OFF when the clutch pedal is pressed and ON when the clutch pedal is released.	<ul style="list-style-type: none"> Faulty clutch pedal position switch An open in the wire between the ECM and the clutch pedal position switch A wire shorted to ground between the ECM and the clutch pedal position switch Poor ground G401
Cruise control main switch signal	Cruise control main switch ON and OFF	CRUISE MASTER (MAIN) SW should indicate ON when the cruise control main switch is turned ON and OFF when the cruise control main switch is turned OFF.	<ul style="list-style-type: none"> Faulty cruise control combination switch An open in the wire between the gauge control module and the cruise control combination switch A wire shorted to ground between the gauge control module and the cruise control combination switch An open in the wire between the cruise control combination switch and ground
Set switch signal	Set/decel button pressed and released	CRUISE SET SW should indicate ON when the set/decel button is pressed and OFF when the set/decel button is released.	<ul style="list-style-type: none"> Faulty cruise control combination switch An open in the wire between the gauge control module and the cruise control combination switch A wire shorted to ground between the gauge control module and the cruise control combination switch
Resume switch signal	Resume/accel button pressed and released	CRUISE RESUME SW should indicate ON when the resume/accel button is pressed and OFF when the resume/accel button is released.	<ul style="list-style-type: none"> Faulty cruise control combination switch An open in the wire between the gauge control module and the cruise control combination switch A wire shorted to ground between the gauge control module and the cruise control combination switch



Signal to be tested	Test condition	Parameter: Desired result	Possible cause if result is not obtained
Cancel switch signal	Cancel button pressed and released	CRUISE CANCEL SW should indicate ON when the cancel button is pressed and OFF when the cancel button is released.	<ul style="list-style-type: none">• Faulty cruise control combination switch• An open in the wire between the gauge control module and the cruise control combination switch• A wire shorted to ground between the gauge control module and the cruise control combination switch
Cruise control indicator signal	Start the engine, turn the cruise control main switch on, and drive the vehicle above 25 mph (40 km/h) with the cruise control set and cancel the cruise control	CRUISE INDICATOR should indicate ON when the cruise control is set and OFF when the cruise control is canceled.	<ul style="list-style-type: none">• Faulty gauge control module• Faulty cruise control combination switch• An open in the wire between the gauge control module and the cruise control combination switch• A wire shorted to ground between the gauge control module and the cruise control combination switch

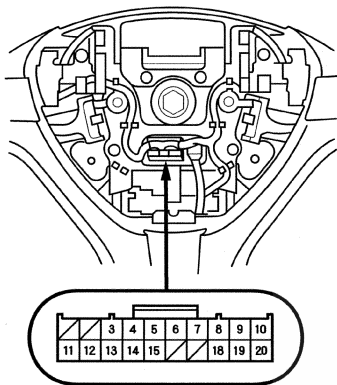


Cruise Control

Cruise Control Combination Switch Test

SRS components located in this area. Review the SRS component locations (see page 24-13), and the precautions and procedures (see page 24-15), in the SRS before doing repairs or service.

1. Remove the driver's airbag (see page 24-171).
2. Disconnect the 20P connector from the cable reel.



Wire side of female terminals

3. Check for continuity between the terminals in each cruise control combination switch position according to the table:
 - If there is continuity, and it matches the table, but the cruise control combination switch failure occurred on the cruise control input test, check and repair the wire harness on the switch circuit.
 - If there is no continuity in one or more positions, replace the cruise control combination switch (see page 17-7).

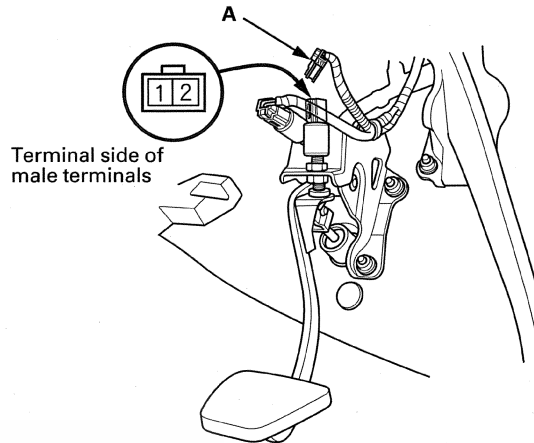
Terminal Position	3	4	8	9	10	11	12
Cruise control main (ON)					○	○	○
Cruise control main (OFF)							
Decel/set (PRESSED)			○	○	○	○	○
Resume/accel (PRESSED)				○	○	○	○
Cancel (PRESSED)			○	○	○	○	○
Combination light switch (ON)	○	○	○	○			

4. Install the cruise control combination switch in the reverse order of removal.

Clutch Pedal Position Switch Test

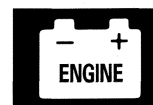
M/T model

1. Disconnect the 2P connector (A) from the clutch pedal position switch.



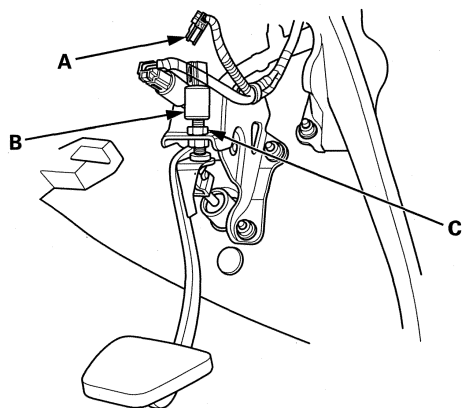
2. Check for continuity between the terminals according to the table:
 - If the continuity is not as specified, replace the clutch pedal position switch (see page 4-49), and adjust the pedal height (see page 12-5).
 - If OK, connect the clutch pedal position switch 2P connector.

Terminal	1	2
Clutch Pedal		
PRESSED		
RELEASED	○	○



Clutch Pedal Position Switch Replacement

1. Disconnect the 2P connector (A) from the clutch pedal position switch (B).



2. Loosen the locknut (C), then remove the clutch pedal position switch.
3. Install the clutch pedal position switch, and adjust the pedal height (see page 12-5).





Engine Mechanical

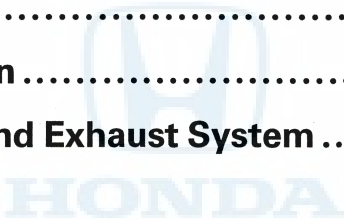
Engine Assembly5-1

Cylinder Head6-1

Engine Block7-1

Engine Lubrication8-1

Intake Manifold and Exhaust System 9-1





Engine Mechanical

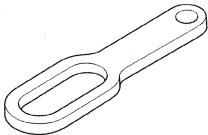
Engine Assembly

Special Tools	5-2
Engine Removal	5-3
Engine Installation	5-10
Side Engine Mount Replacement	5-19
Transmission Mount Replacement	5-22
Torque Rod Replacement	5-26
Transmission Mount Bracket Replacement	5-27
Torque Rod Bracket Replacement	5-30

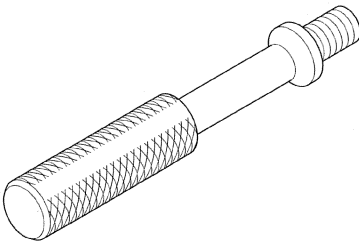
Engine Assembly

Special Tools

Ref.No.	Tool Number	Description	Qty
①	07AAK-SNAA120	Universal Lifting Eyelet	2
②	07AAK-SNAA500	1.8 Support Bolt	1



①



②





Engine Removal

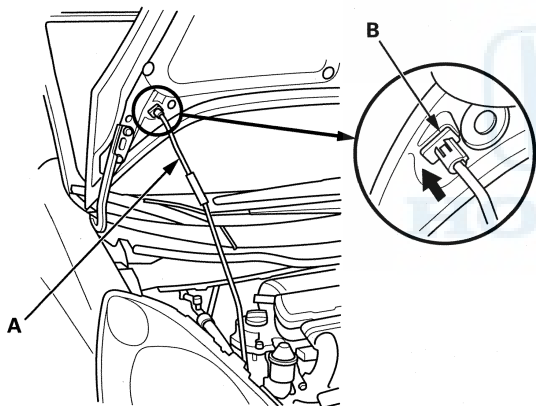
Special Tools Required

- Universal Lifting Eyelet 07AAK-SNAA120
 - 1.8 Support Bolt 07AAK-SNAA500
 - Engine Support Hanger, A and Reds AAR-T1256*
- *: Available through the Honda Tool and Equipment Program, 888-424-6857

NOTE:

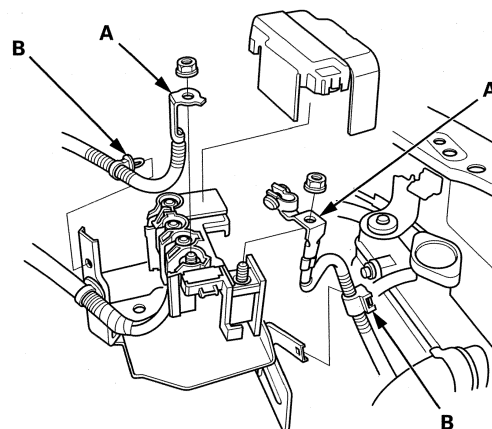
- Use fender covers to avoid damaging painted surfaces.
- To avoid damaging the wiring and terminals, unplug the wiring connectors carefully while holding the connector portion.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.

1. Open the hood, and secure it with the hood support rod (A) in the wide-open position (B).



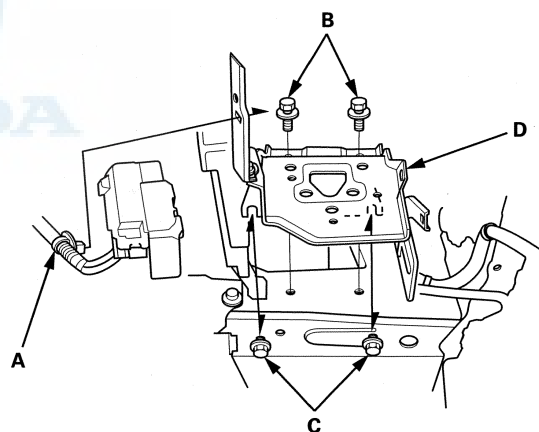
2. Relieve fuel pressure (see page 11-279).
3. Do the battery removal procedure (see page 22-70).
4. Remove the windshield wiper motor (see page 22-262).
5. Remove the under-cowl panel (see page 20-185).
6. Remove the air cleaner (see page 11-307).

7. Remove the battery cables (A) from the battery terminal fuse box.



8. Remove the harness clamps (B).

9. M/T model: Remove the harness clamp (A). Remove the two bolts (B) and loosen the two bolts (C), then remove the battery base (D).

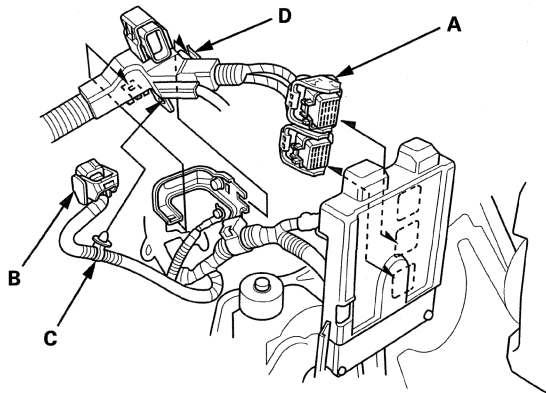


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Engine Assembly

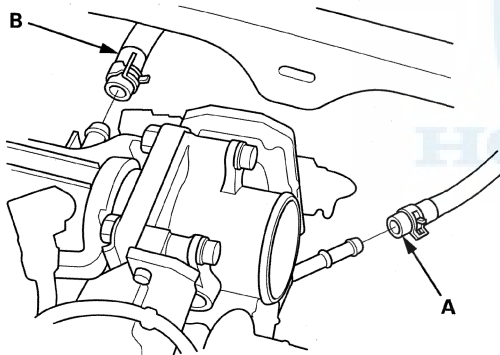
Engine Removal (cont'd)

10. Disconnect the ECM/PCM connectors (A) and the engine wire harness connector (B).

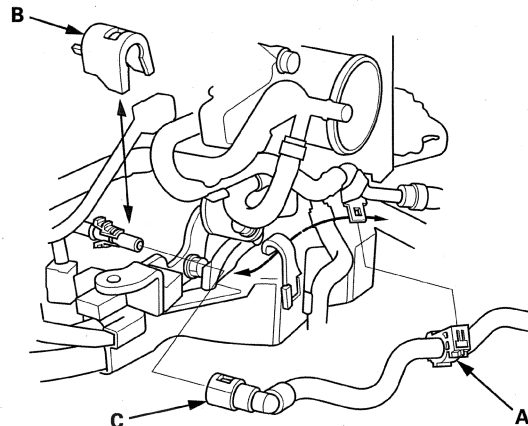


11. Remove the harness clamp (C) and the harness holder (D).

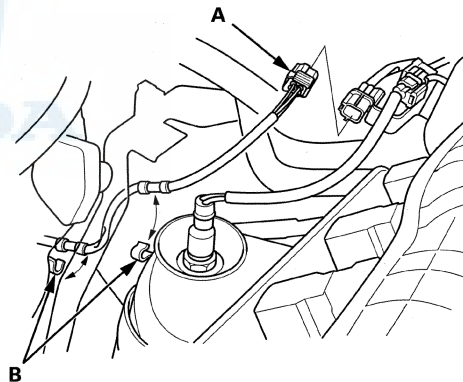
12. Disconnect the EVAP canister hose (A) and brake booster vacuum hose (B).



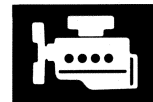
13. Remove the fuel feed hose clamp (A) and the quick-connect fitting cover (B), then disconnect the fuel feed hose (C) (see page 11-289).



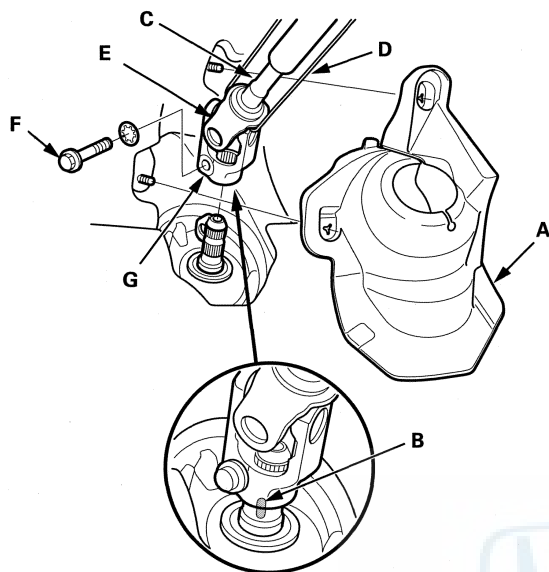
14. Disconnect the secondary HO2S connector (A), then remove the secondary HO2S harness from the clamps (B).



15. Center the steering wheel spokes, and install a commercially available steering wheel holder tool (see step 8 on page 17-64).



16. Remove the steering joint cover (A).



17. Make a reference mark (B) across the steering joint and the steering gearbox pinion shaft. Hold the slider shaft (C) on the column with a piece of wire (D) between the joint yoke (E) on the slider shaft to the joint yoke on the upper shaft (see step 6 on page 17-63). Remove the steering joint bolt (F), and disconnect the steering joint (G) by removing the steering joint toward the steering column.

18. M/T model: Remove the shift cable (see step 12 on page 13-8).

19. M/T model: Remove the clutch slave cylinder, and clutch line bracket mounting bolt (see step 10 on page 13-7).

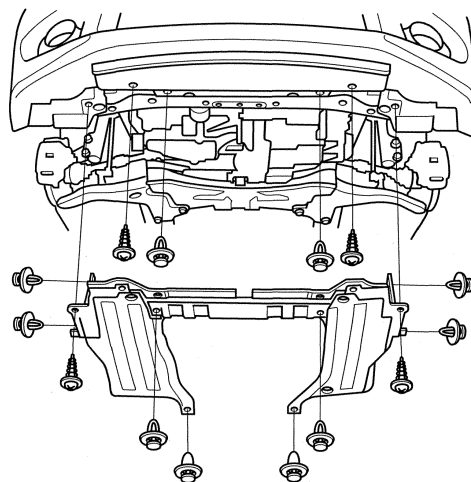
20. Remove the radiator cap.

NOTE: Wait until the engine is cool, then carefully remove the radiator cap.

21. Raise the vehicle on the lift.

22. Remove the front wheels.

23. Remove the splash shields.



24. With A/C: Remove the drive belt (see page 4-29).

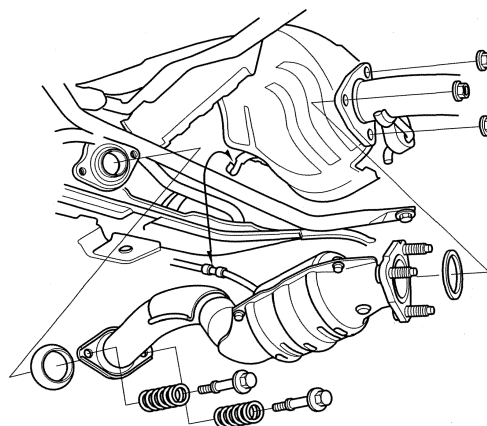
25. Loosen the drain plug in the radiator, and drain the engine coolant (see page 10-8).

26. Drain the engine oil (see page 8-10).

27. Drain the transmission fluid.

- M/T model (see page 13-5)
- A/T model (see page 14-191)

28. Remove the under-floor TWC.



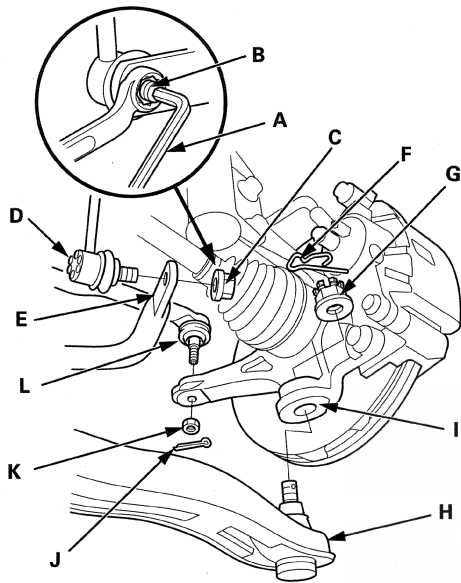
29. A/T model: Remove the shift cable (see step 41 on page 14-198).

(cont'd)

Engine Assembly

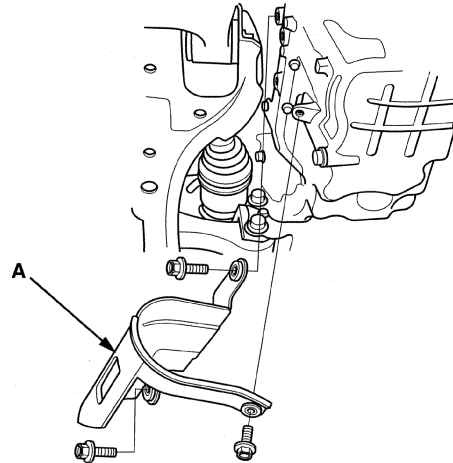
Engine Removal (cont'd)

30. Insert a 5 mm Allen wrench (A) in the top of the ball joint pin (B), and remove the self-locking nuts (C), then separate the stabilizer link (D) from the stabilizer ends (E).



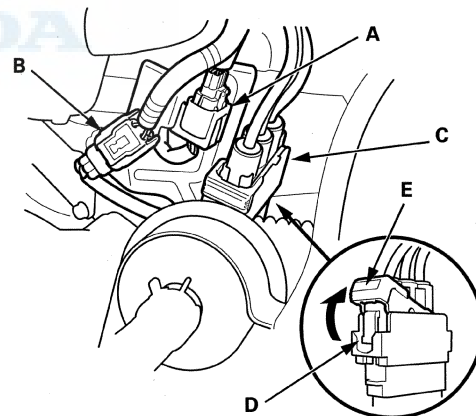
31. Remove the spring clips (F) and castle nuts (G), and separate the lower arms (H) from the knuckles (I) (see page 18-22).
32. Remove the cotter pins (J) and the nuts (K), and separate the tie-rod end ball joint (L) from the knuckles (see step 9 on page 18-18).

33. M/T model: Remove the driveshaft heat shield (A).



34. Remove the driveshafts (see page 16-4). Coat all precision-finished surfaces with clean engine oil. Tie a plastic bags over the driveshaft ends.

35. Disconnect the EPS motor angle sensor 8P connector (A) and torque sensor 6P connector (B) from the steering gearbox.

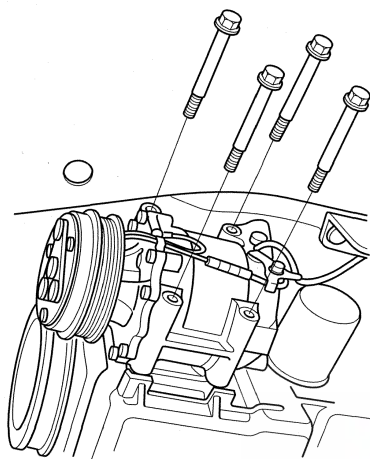


36. Disconnect the EPS motor 3P connector (C) by pushing the lock (D) and pulling up the lever (E).



37. With A/C: Remove the A/C compressor without disconnecting the A/C hoses. Do not bend the A/C hoses excessively.

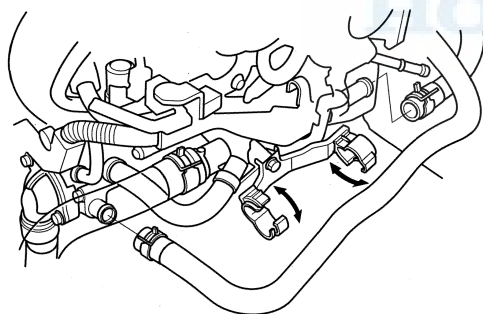
NOTE: Hang the A/C compressor with a wire tie.



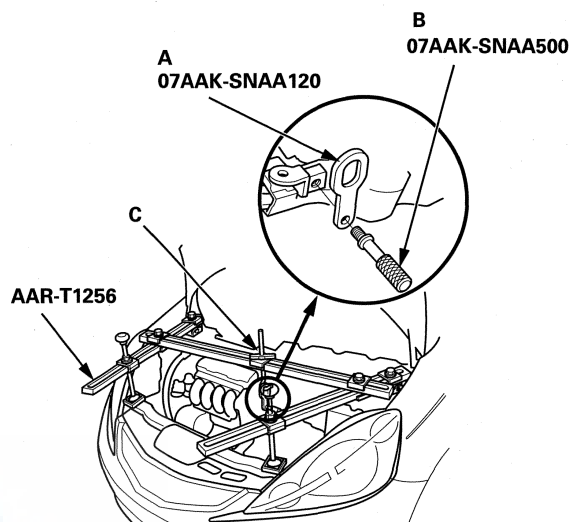
38. Lower the vehicle on the lift.

39. Remove the radiator (see page 10-18).

40. Disconnect the heater hoses.



41. Attach the first universal lifting eyelet (A) to the air cleaner housing bracket with the 1.8 support bolt (B). Tighten the bolt by hand.



42. Install the engine support hanger (AAR-T1256), then attach the hook to the slotted hole in the first universal lifting eyelet. Tighten the wing nut (C) by hand to lift and support the engine/transmission.

NOTE: Be careful when working around the windshield.

43. Raise the vehicle on the lift.

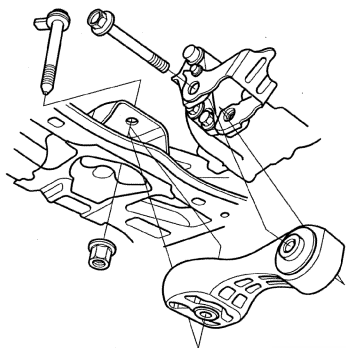
(cont'd)

Engine Assembly

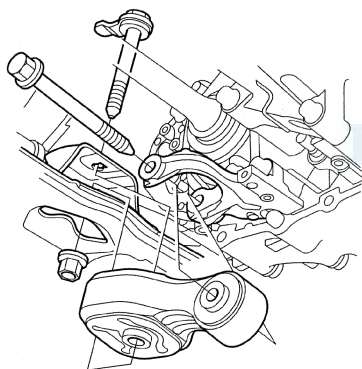
Engine Removal (cont'd)

44. Support the transmission with a transmission jack and a wood block under the transmission and raise it just enough to free the torque rod, then remove the torque rod.

M/T model

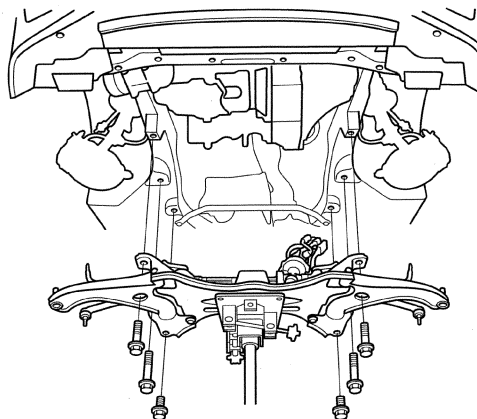


A/T model



45. Remove the transmission jack and the wood block from under the transmission.
46. Support the front subframe with a transmission jack and a wood block under the front subframe.

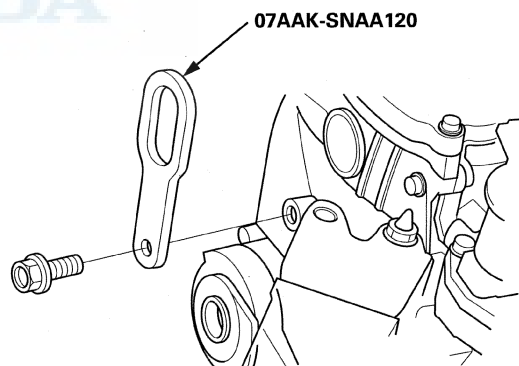
47. Remove the front subframe mounting bolts.



48. Lower the front subframe and the steering gearbox as an assembly by lowering the transmission jack slowly, then remove the assembly from under the vehicle.

49. Lower the vehicle on the lift.

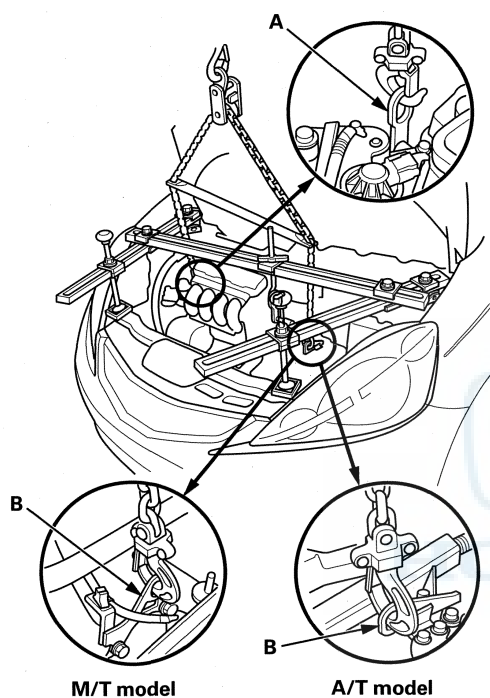
50. Attach the second universal lifting eyelet to the cam chain case.





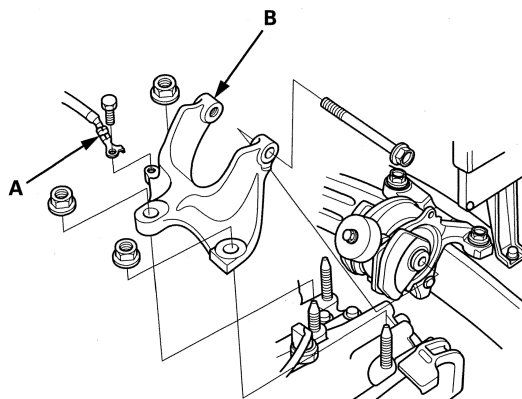
51. Attach the chain hoist to the second universal lifting eyelet (A) and the transmission hook (B). Lift the engine/transmission until it is securely supported by the chain hoist, then remove the engine support hanger.

NOTE: Wrap the ABS modulator-control unit with a clean shop towel.

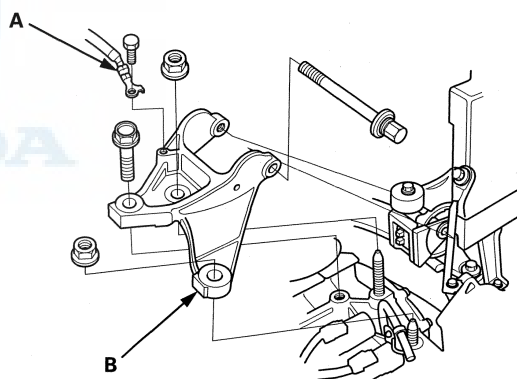


52. Remove the ground cable (A), then remove the transmission mount bracket (B).

M/T model



A/T model

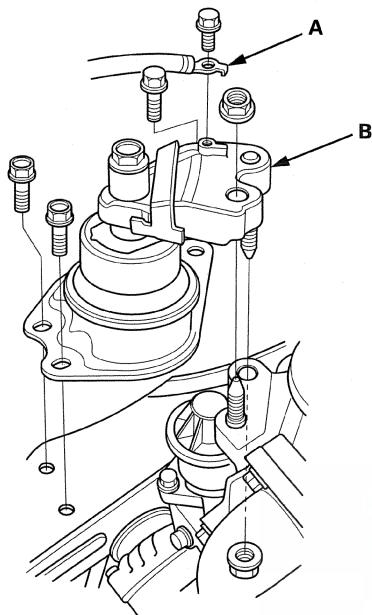


(cont'd)

Engine Assembly

Engine Removal (cont'd)

53. Remove the ground cable (A), then remove the side engine mount/bracket assembly (B).



54. Check that the engine/transmission is completely free of the vacuum hoses, the fuel hoses, the coolant hoses, and the electrical wiring.
55. Slowly lower the engine/transmission about 150 mm (5.91 in). Check once again that all the hoses and the electrical wiring are disconnected and free from the engine/transmission, then lower it all the way.
56. Disconnect the chain hoist from the engine/transmission.
57. Raise the vehicle, and remove the engine/transmission from under the vehicle.

Engine Installation

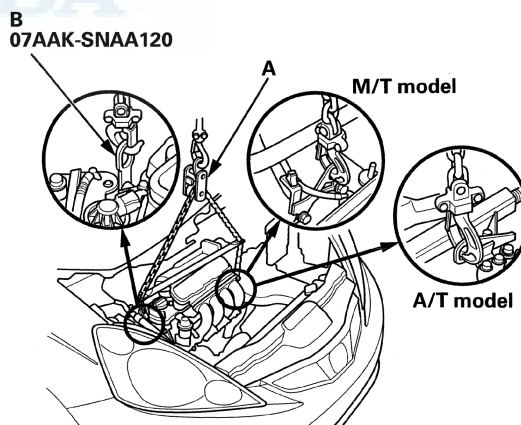
Special Tools Required

- Universal Lifting Eyelet 07AAK-SNAA120
 - 1.8 Support Bolt 07AAK-SNAA500
 - Engine Support Hanger, A and Reds AAR-T1256*
- *: Available through the Honda Tool and Equipment Program, 888-424-6857

1. Raise the vehicle on the lift, and position the engine/transmission under the vehicle. Be sure that they are properly aligned. Carefully lower the vehicle until the engine/transmission are properly positioned in the engine compartment. Make sure the vehicle is not resting on any part of the engine/transmission. Support the engine/transmission with a chain hoist (A) and the first universal lifting eyelet (B) and carefully raise the engine/transmission into place.

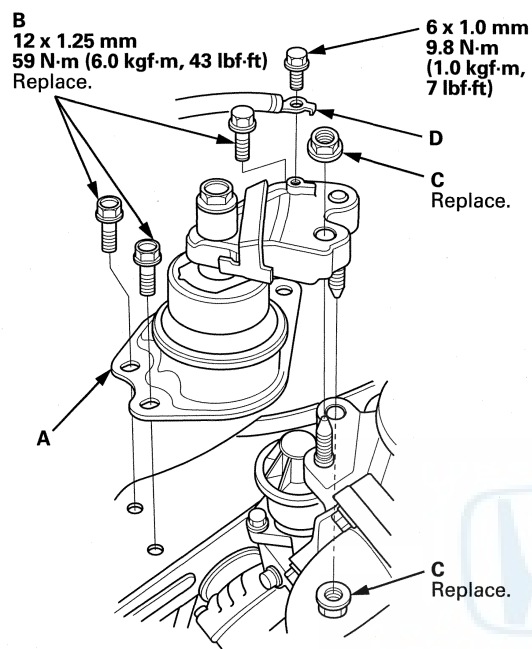
NOTE:

- Attach the first universal lifting eyelet to the cam chain case (see step 50 on page 5-8).
- Reinstall the mounting bolts and support nuts in the sequence given in the following steps. Failure to follow this sequence may cause excessive noise and vibration, and reduce engine mount life.
- Wrap the ABS modulator-control unit with a clean shop towel.





2. Install the side engine mount/bracket assembly (A), then tighten new side engine mount/bracket assembly mounting bolts (B).

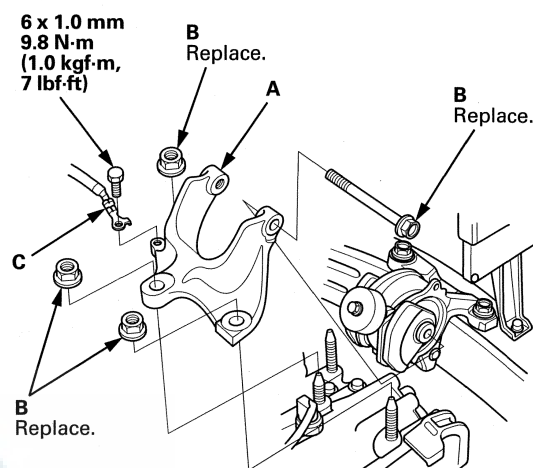


3. Loosely install the new side engine mount/bracket assembly mounting nuts (C).

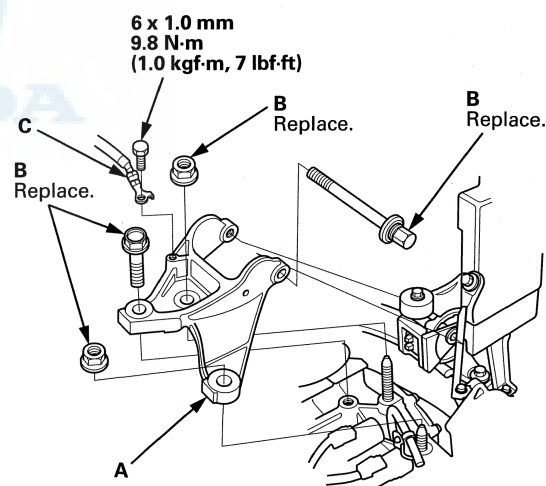
4. Install the ground cable (D).

5. Install the transmission mount bracket (A), and loosely install new transmission mount bracket mounting bolts and nuts (B).

M/T model



A/T model



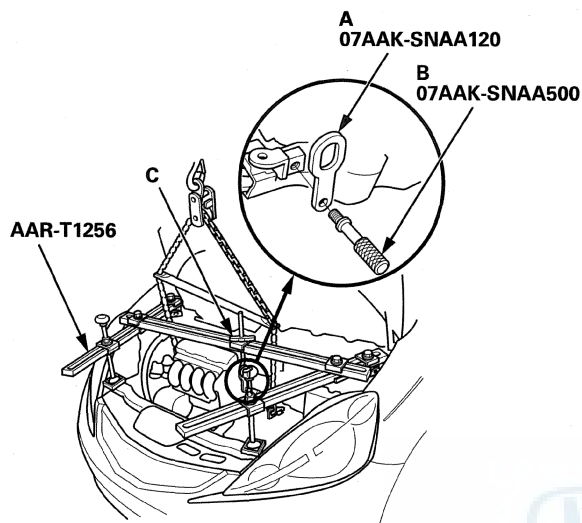
6. Install the ground cable (C).

(cont'd)

Engine Assembly

Engine Installation (cont'd)

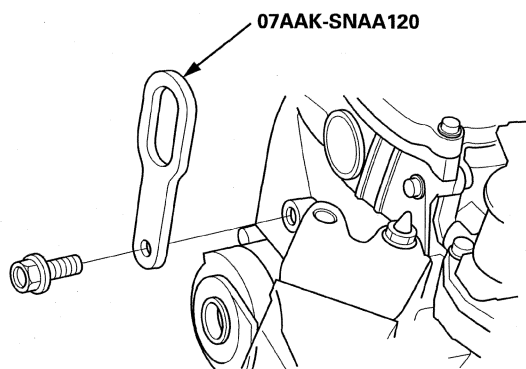
7. Attach the second universal lifting eyelet (A) to the air cleaner housing bracket with the 1.8 support bolt (B). Tighten the bolt by hand.



8. Install the engine support hanger (AAR-T1256), then attach the hook to the slotted hole in the second universal lifting eyelet. Tighten the wing nut (C) by hand to lift and support the engine/transmission.

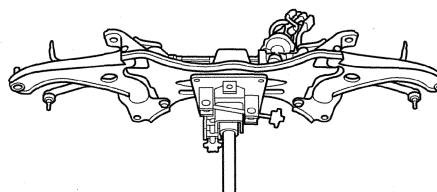
NOTE: Be careful when working around the windshield.

9. Remove the chain hoist from the engine/transmission.
10. Remove the first universal lifting eyelet from the cam chain case.



11. Raise the vehicle on the lift.

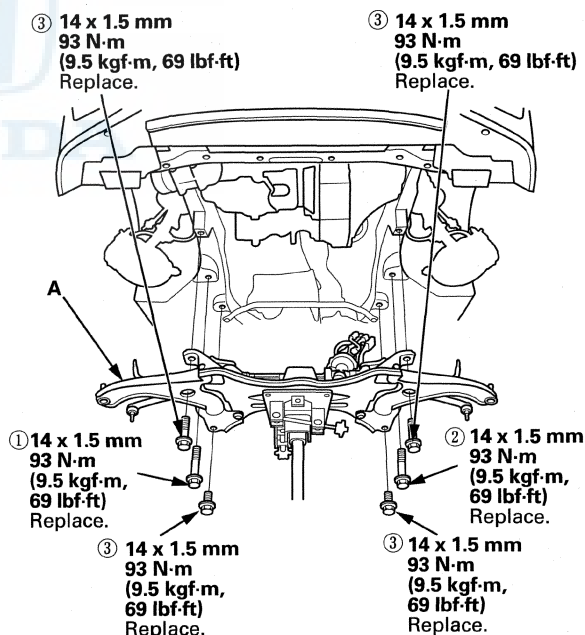
12. Support the front subframe with a transmission jack and a wood block.



13. Install the front subframe (A), then loosely install the new front subframe mounting bolts.

NOTE:

- Be sure that the pinion shaft grommet is in place securely. Make sure the pinion shaft grommet is not turned up. Incorrect installation can cause leakage of water or mud, and noise.
- Take care not to damage the lower arm ball joint boot with the edge of the knuckle, etc.



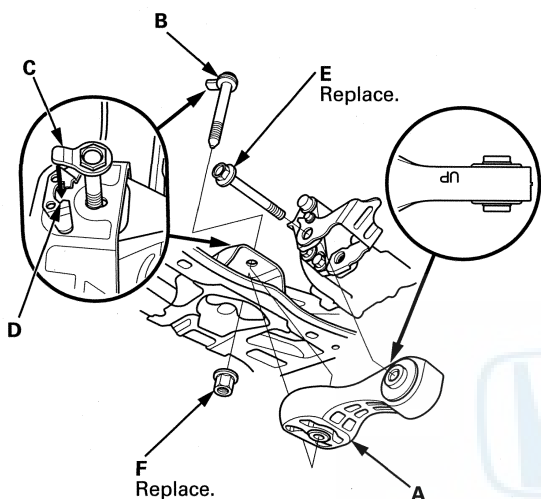
14. Tighten the front subframe mounting bolts in the numbered sequence shown.
15. Remove the transmission jack and the wood block from under the front subframe.
16. Support the transmission with a transmission jack and a wood block under the transmission.



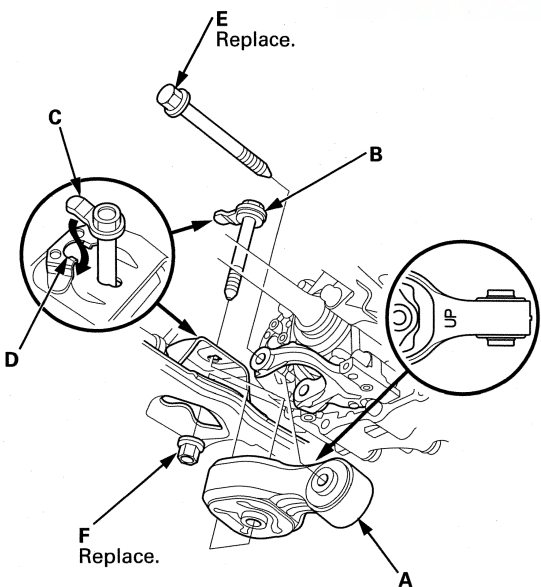
17. Install the torque rod (A). Install the bolt (B) with the tab (C) on the bolt head aligned with the guide (D) on the front subframe, then loosely install a new torque rod mounting bolt (E) and nut (F).

NOTE: Be sure to install the torque rod with the "UP" mark facing up.

M/T model



A/T model

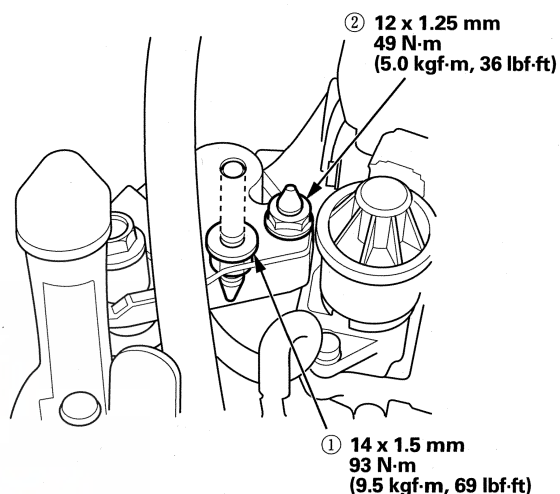


18. Remove the transmission jack and the wood block from under the transmission.

19. Lower the vehicle on the lift.

20. Remove the engine support hanger and the second universal lifting eyelet.

21. Tighten the side engine mount/bracket assembly mounting nuts in the numbered sequence shown.



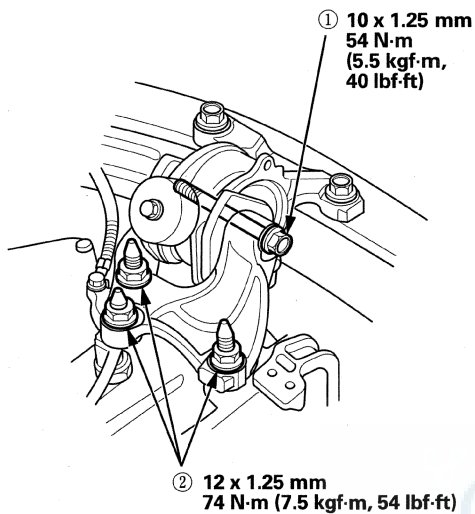
(cont'd)

Engine Assembly

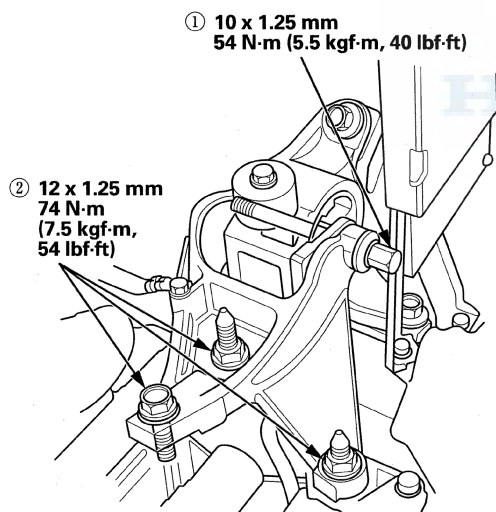
Engine Installation (cont'd)

22. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.

M/T model



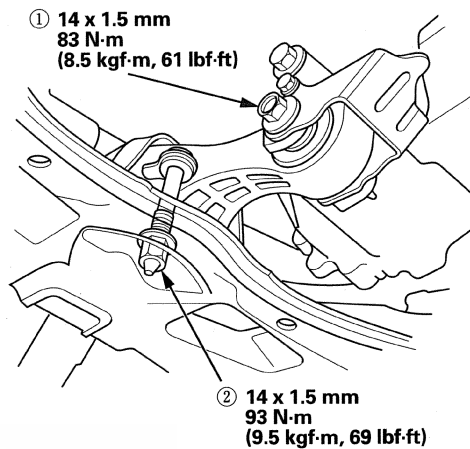
A/T model



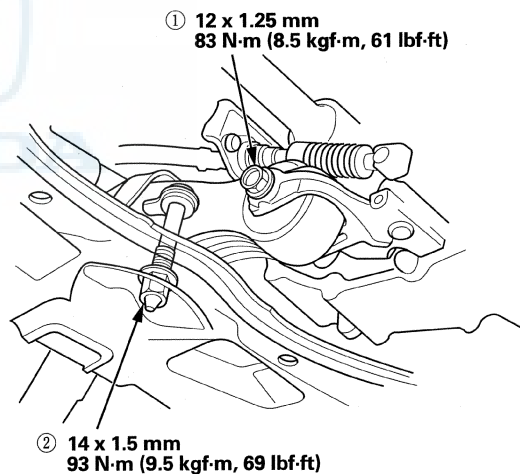
23. Raise the vehicle on the lift.

24. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.

M/T model

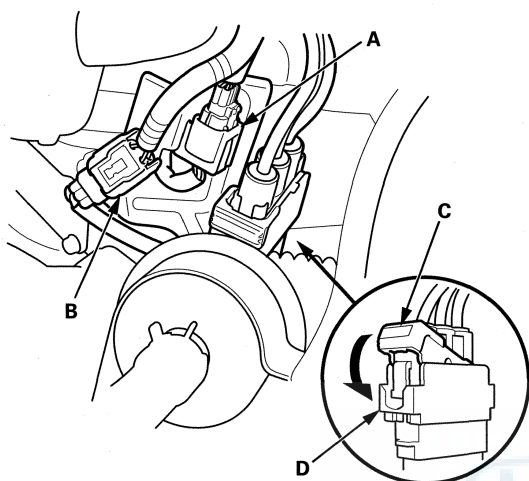


A/T model

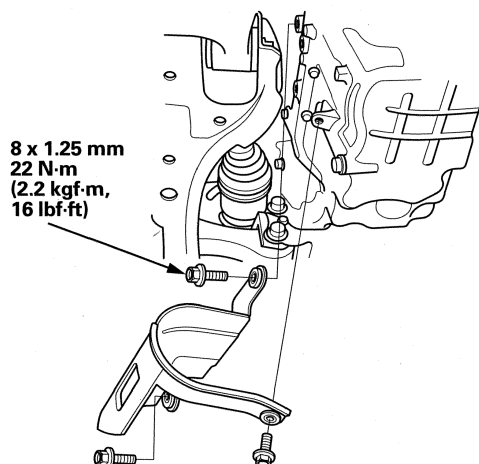




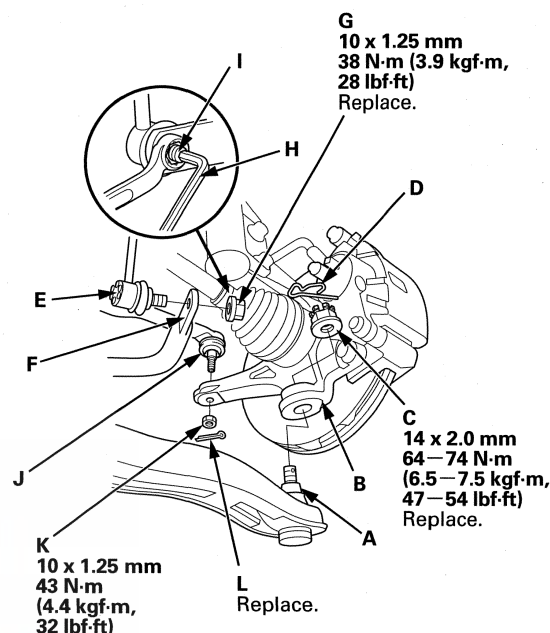
25. Connect the EPS motor angle sensor 8P connector (A) and the torque sensor 6P connector (B) to the steering gearbox.



26. Pull down the lever (C) of the EPS motor 3P connector (D), then confirm the connector is fully seated.
27. Wipe the driveshaft clean. Install a new set ring on the end of each driveshaft, then install the driveshafts (see page 16-20). Make sure each ring clicks into place in the differential and the intermediate shaft.
28. M/T model: Install the driveshaft heat shield.



29. Connect the ball joints (A) to both knuckles (B), and install new castel nuts (C). Tighten the nuts, then secure the nuts with the spring clips (D).



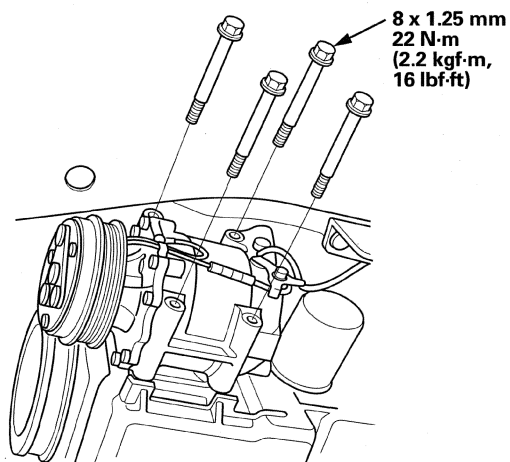
30. Connect the stabilizer links (E) to the stabilizer ends (F), and install new self-locking nuts (G). Insert a 5 mm Allen wrench (H) in the top of the ball joint pins (I), and tighten the self-locking nuts.
31. Install the tie-rod end ball joint (J) to the each knuckle with the nuts (K) and new cotter pins (L) (see step 9 on page 18-18).
32. A/Tmodel: Install the shift cable (see step 23 on page 14-204).

(cont'd)

Engine Assembly

Engine Installation (cont'd)

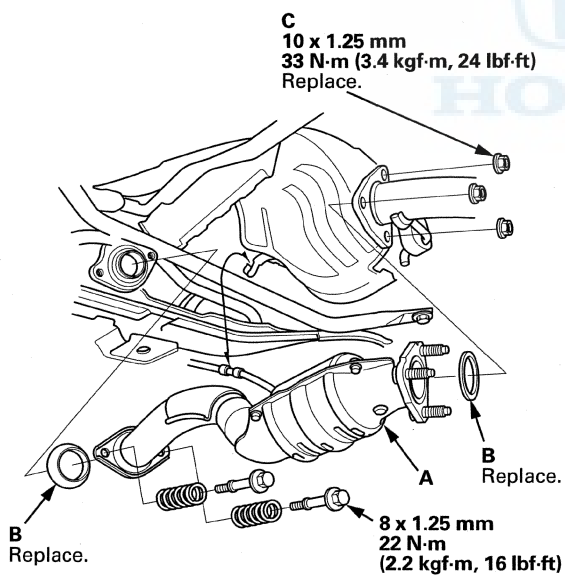
33. With A/C: Install the A/C compressor.



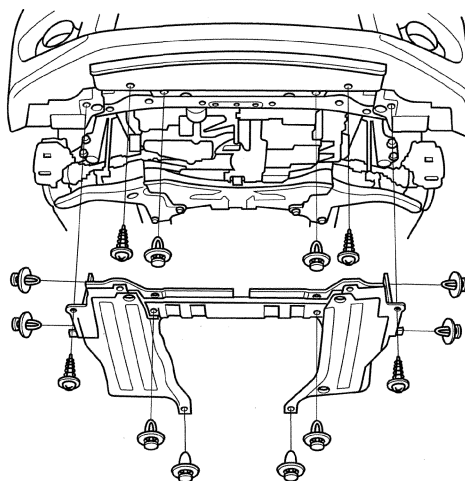
34. With A/C: Install the drive belt (see page 4-29).

35. Install the under-floor TWC (A).

NOTE: Use new gaskets (B) and new self-locking nuts (C).

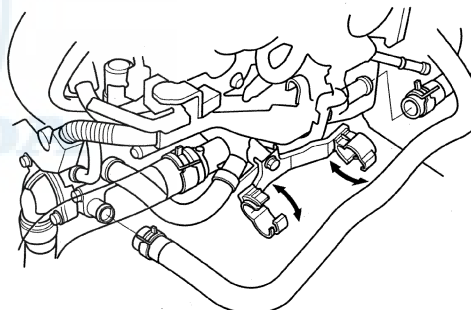


36. Install the splash shields.



37. Lower the vehicle on the lift.

38. Connect the heater hoses.



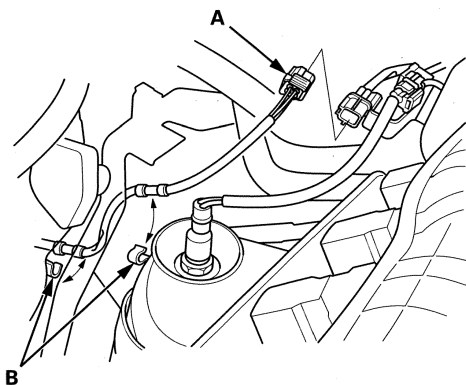
39. Install the radiator (see page 10-18).

40. M/T model: Install the clutch slave cylinder, and clutch line bracket mounting bolt (see step 19 on page 13-14).

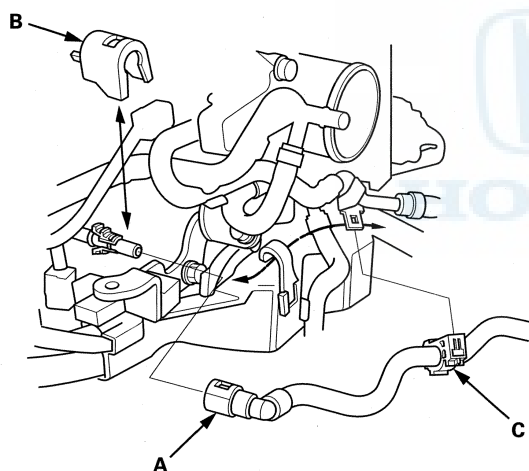
41. M/T model: Install the shift cable (see step 17 on page 13-14).



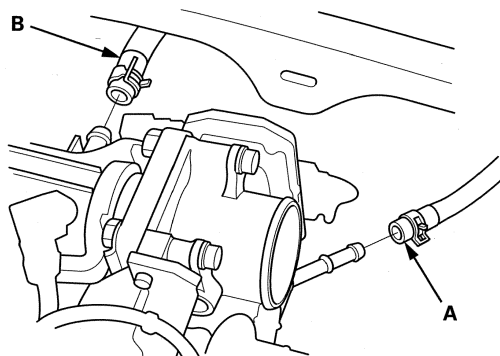
42. Connect the secondary HO2S connector (A), then install the secondary HO2S harness to the clamps (B).



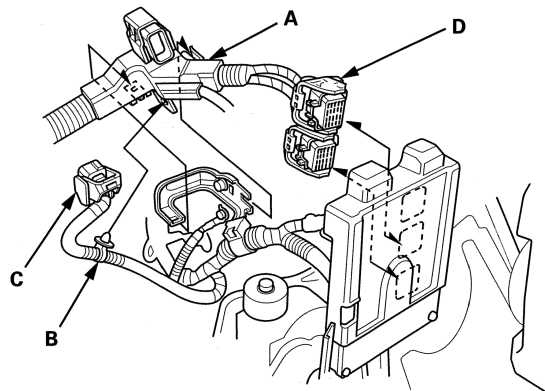
43. Connect the fuel feed hose (A) (see page 11-292), then install the quick-connect fitting cover (B) and the fuel feed hose clamp (C).



44. Connect the EVAP canister hose (A) and the brake booster vacuum hose (B).

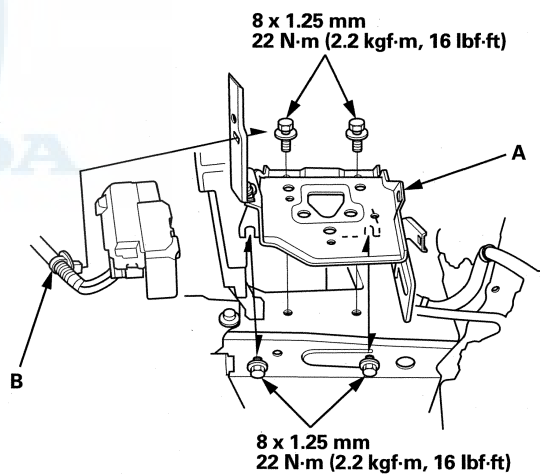


45. Install the harness holder (A), then install the harness clamp (B).



46. Connect the engine wire harness connector (C) and the ECM/PCM connectors (D).

47. M/T model: Install the battery base (A), then install the harness clamp (B).

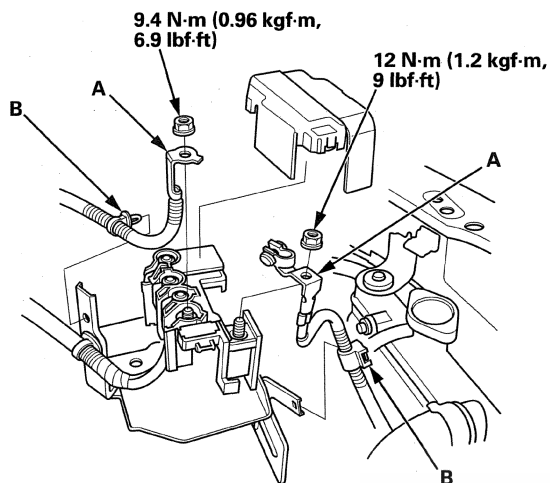


(cont'd)

Engine Assembly

Engine Installation (cont'd)

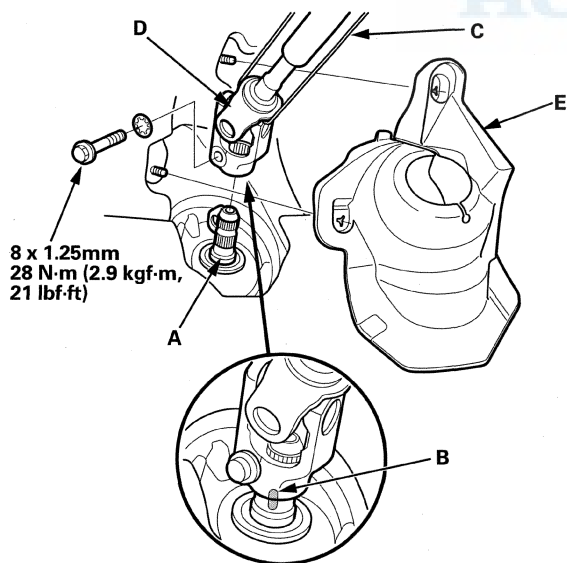
48. Install the battery cables (A) to the battery terminal fuse box.



49. Install the harness clamps (B).

50. Install the front wheels.

51. Connect the steering joint to the steering gearbox pinion shaft (A) by aligning the reference mark (B), then remove the wire (C) from the joint yoke (D).



52. Install the steering joint cover (E).

53. Remove the steering wheel holder tool (see step 31 on page 17-72).

54. Install the under-cowl panel (see page 20-185).

55. Install the windshield wiper motor (see page 22-262).

56. Do the battery installation procedure (see page 22-71).

57. Refill the transmission with fluid:

- M/T model (see page 13-5)
- A/T model (see page 14-191)

58. Install the air cleaner (see page 11-307).

59. A/T model: Move the shift lever to each gear, and verify that the A/T gear position indicator follows the transmission range switch.

60. M/T model: Check that the transmission shifts into all gears smoothly.

61. Inspect for fuel leaks. Turn the ignition switch to ON (II) (do not operate the starter) so the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation three times, then check for fuel leakage at any point in the fuel line.

62. Refill the radiator with engine coolant, and bleed the air from the cooling system (see step 8 on page 10-8).

63. Refill the engine with engine oil (see step 4 on page 8-10).

64. Check and adjust the front wheel alignment (see page 18-6).

65. Do the ECM/PCM reset procedure (see page 11-4).

66. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-5).

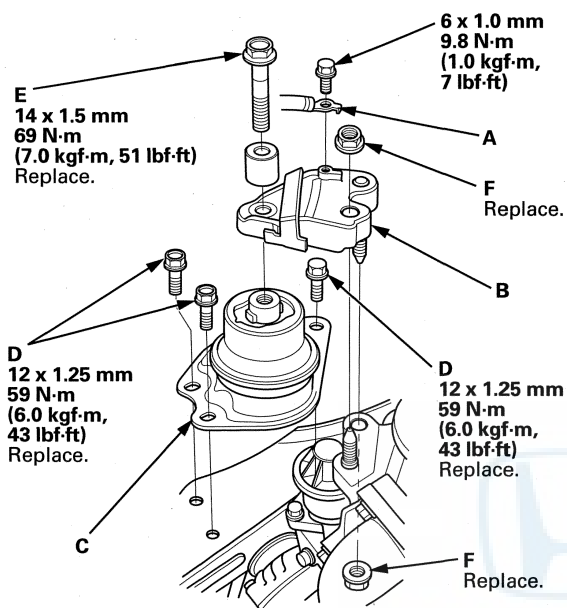
67. Inspect the idle speed (see page 11-267).

68. Inspect the ignition timing (see page 4-19).



Side Engine Mount Replacement

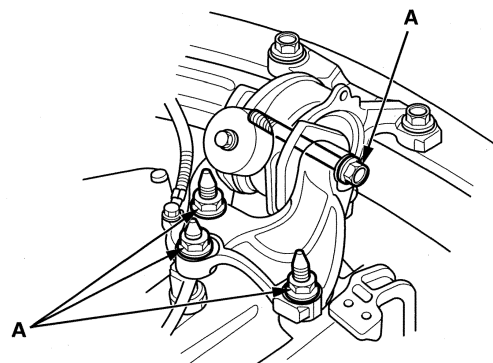
1. Support the engine with a jack and a wood block under the oil pan.
2. Remove the ground cable (A), then remove the side engine mount bracket (B).



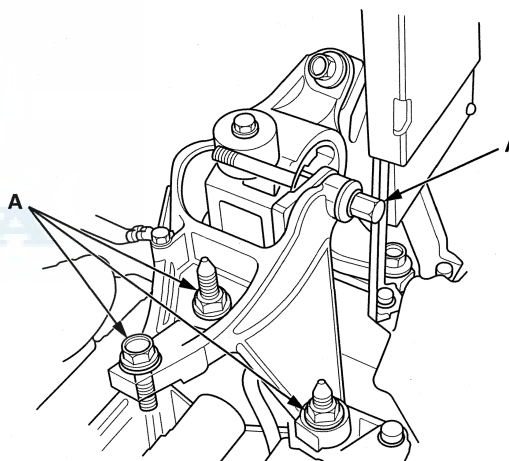
3. Remove the side engine mount (C).
4. Install the side engine mount, then tighten new side engine mount mounting bolts (D).
5. Install the side engine mount bracket, then tighten a new side engine mount bracket mounting bolt (E).
6. Loosely install new side engine mount bracket mounting nuts (F), then install the ground cable.
7. Remove the jack and the wood block from under the oil pan.
8. Remove the air cleaner (see page 11-307).

9. Loosen the transmission mount bracket mounting bolts and nuts (A).

M/T model



A/T model



10. Raise the vehicle on the lift.

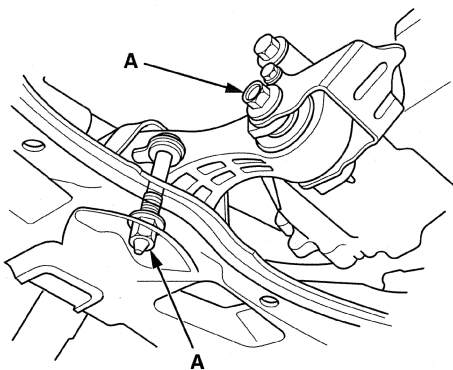
(cont'd)

Engine Assembly

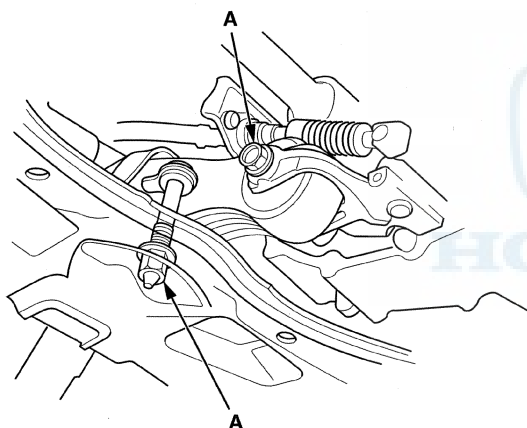
Side Engine Mount Replacement (cont'd)

11. Loosen the torque rod mounting bolt and nut (A).

M/T model

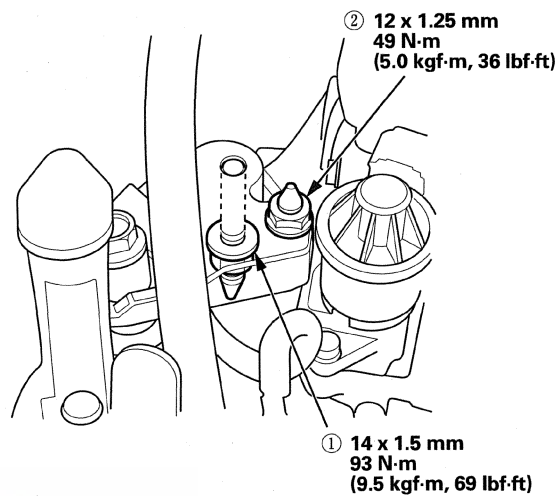


A/T model



12. Lower the vehicle on the lift.

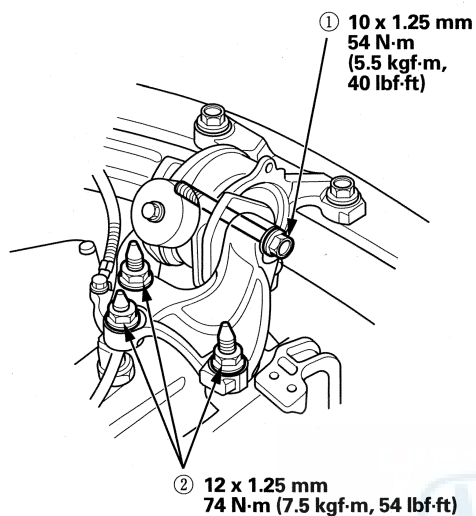
13. Tighten the side engine mount/bracket assembly mounting nuts in the numbered sequence shown.



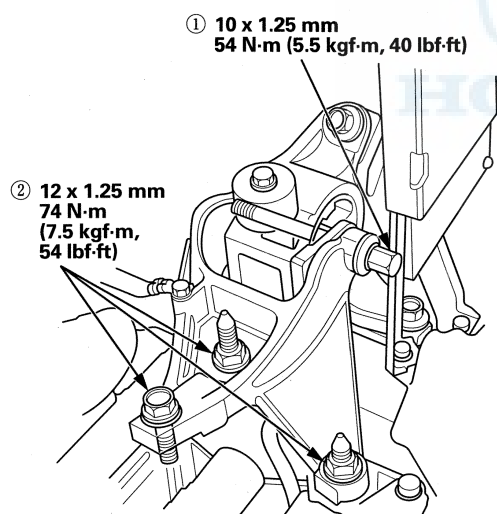


14. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.

M/T model



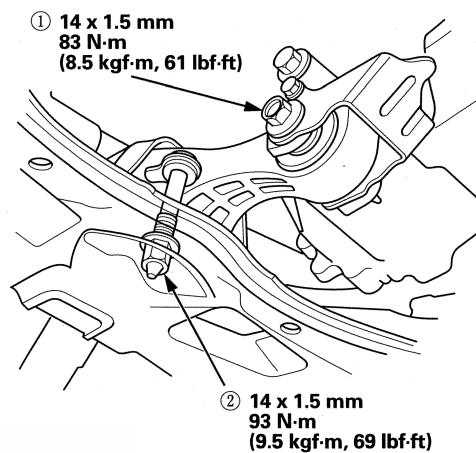
A/T model



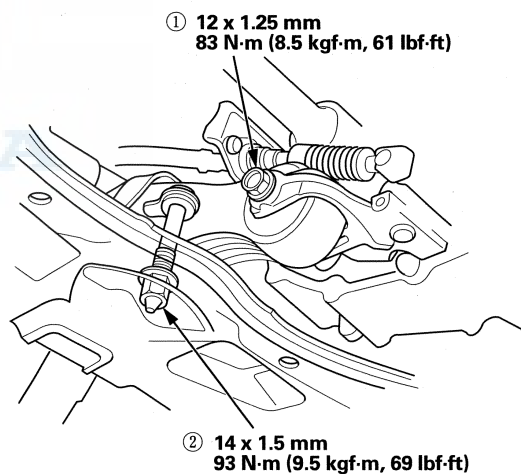
15. Raise the vehicle on the lift.

16. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.

M/T model



A/T model



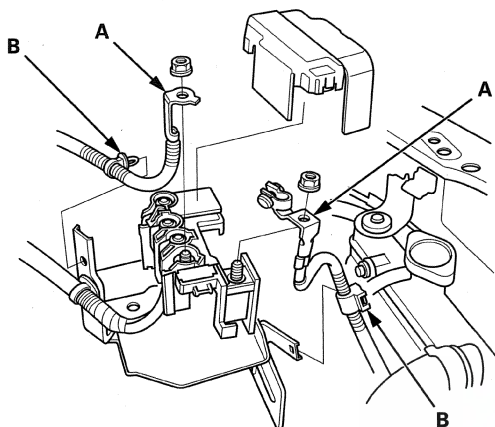
17. Lower the vehicle on the lift.

18. Install the air cleaner (see page 11-307).

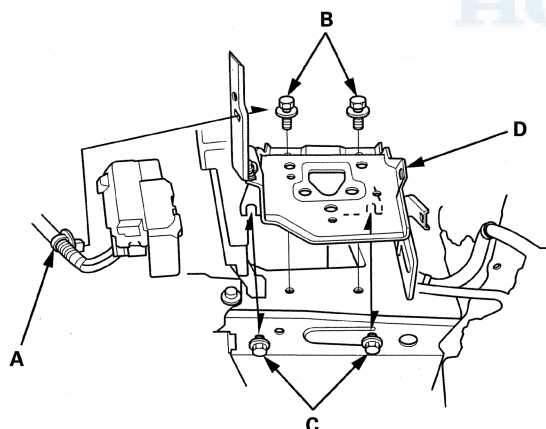
Engine Assembly

Transmission Mount Replacement

1. Do the battery removal procedure (see page 22-70).
2. Remove the air cleaner (see page 11-307).
3. M/T model: Remove the battery cables (A) from the battery terminal fuse box.



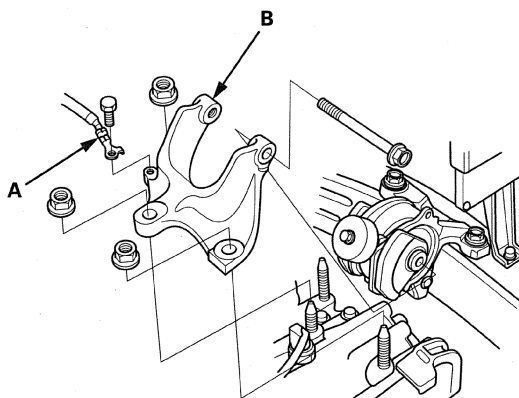
4. M/T model: Remove the harness clamps (B).
5. M/T model: Remove the harness clamp (A). Remove the two bolts (B) and loosen the two bolts (C), then remove the battery base (D).



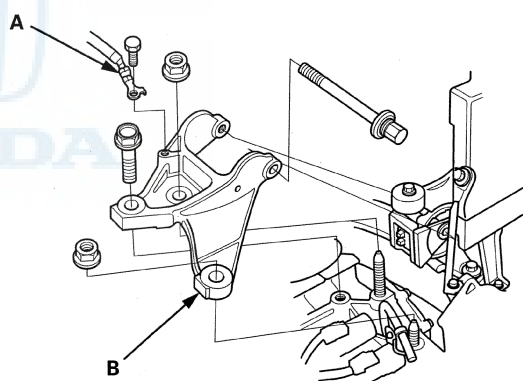
6. Support the transmission with a jack and a wood block under the transmission.

7. Remove the ground cable (A), then remove the transmission mount bracket (B).

M/T model



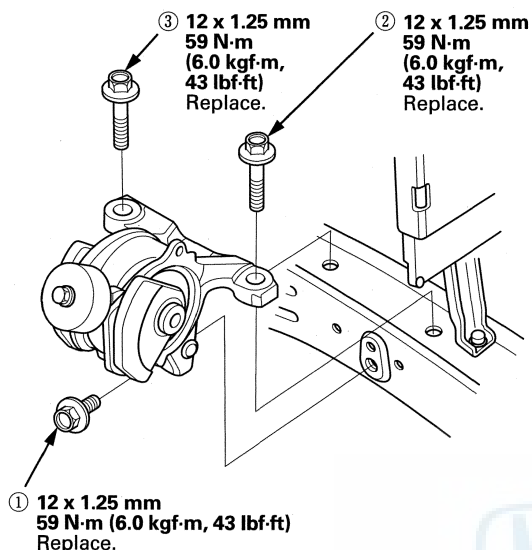
A/T model



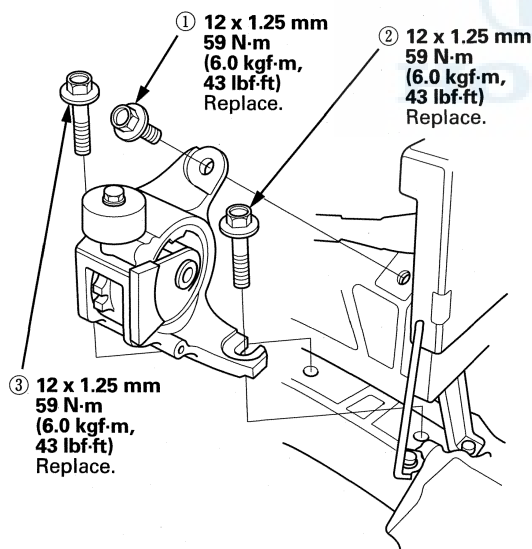


8. Remove the transmission mount.

M/T model



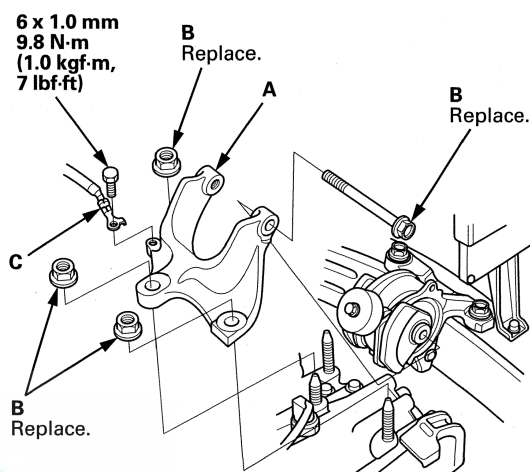
A/T model



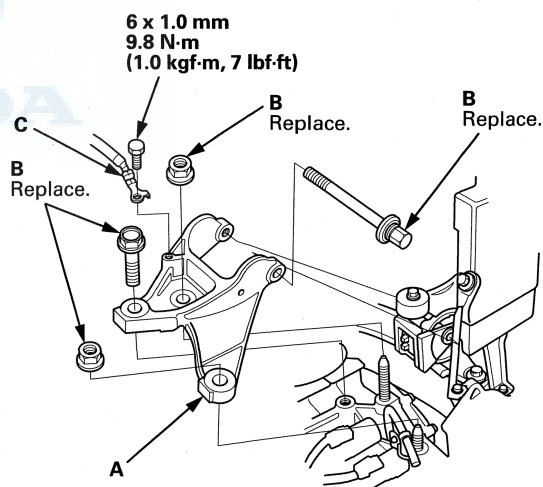
9. Install the transmission mount and loosely install new transmission mount mounting bolts, then tighten the transmission mount mounting bolts in the numbered sequence shown.

10. Install the transmission mount bracket (A), and loosely install new transmission mount bracket mounting bolts and nuts (B).

M/T model



A/T model



11. Install the ground cable (C).

12. Remove the jack and the wood block from under the transmission.

13. Raise the vehicle on the lift.

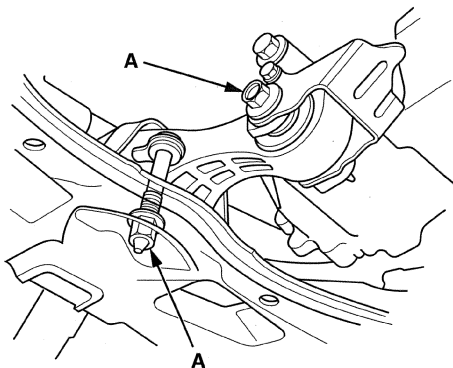
(cont'd)

Engine Assembly

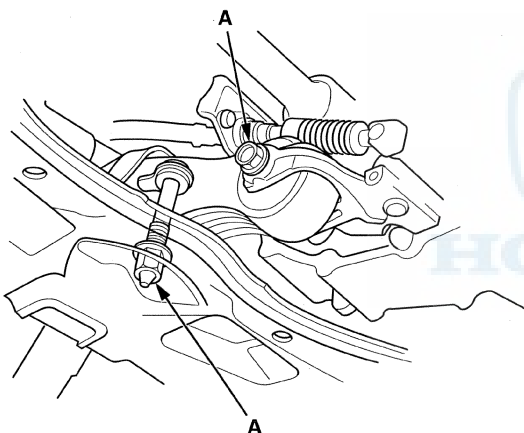
Transmission Mount Replacement (cont'd)

14. Loosen the torque rod mounting bolt and nut (A).

M/T model



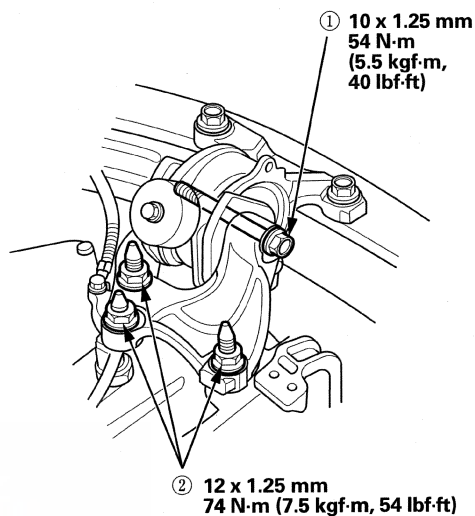
A/T model



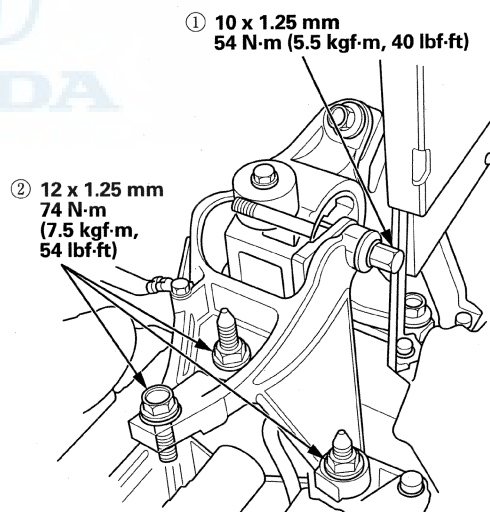
15. Lower the vehicle on the lift.

16. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.

M/T model



A/T model

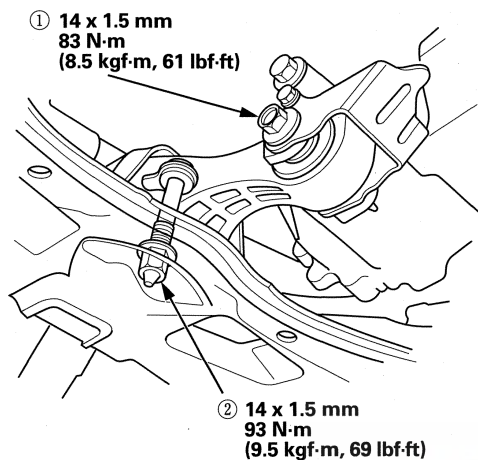


17. Raise the vehicle on the lift.

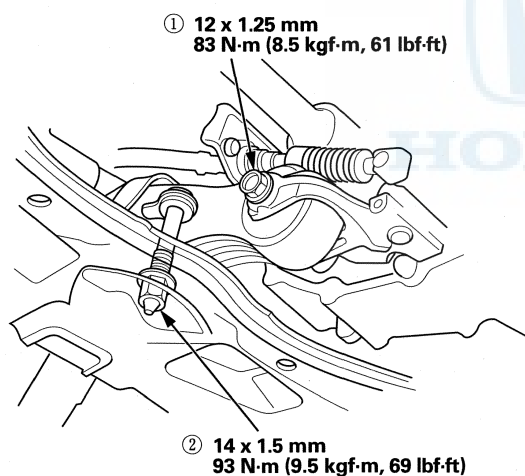


18. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.

M/T model

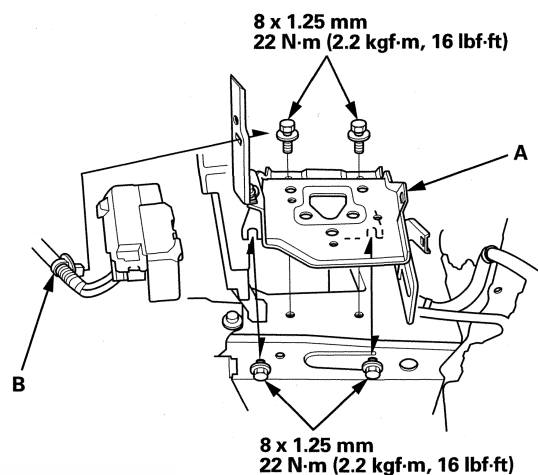


A/T model

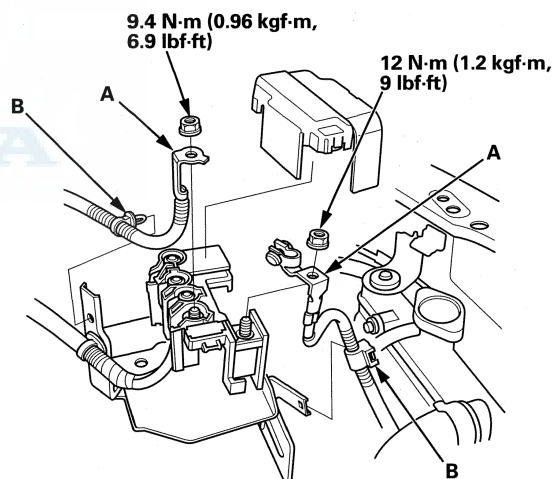


19. Lower the vehicle on the lift.

20. M/T model: Install the battery base (A), then install the harness clamp (B).



21. M/T model: Install the battery cables (A) to the battery terminal fuse box.



22. M/T model: Install the harness clamps (B).

23. Do the battery installation procedure (see page 22-71).

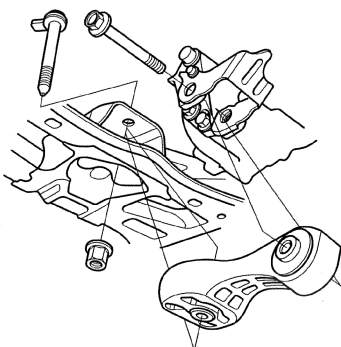
24. Install the air cleaner (see page 11-307).

Engine Assembly

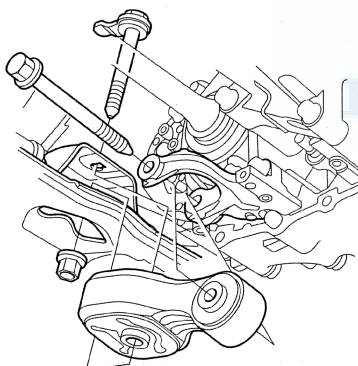
Torque Rod Replacement

1. Raise the vehicle on the lift.
2. Support the transmission with a transmission jack and a wood block under the transmission and raise it just enough to free the torque rod, then remove the torque rod.

M/T model



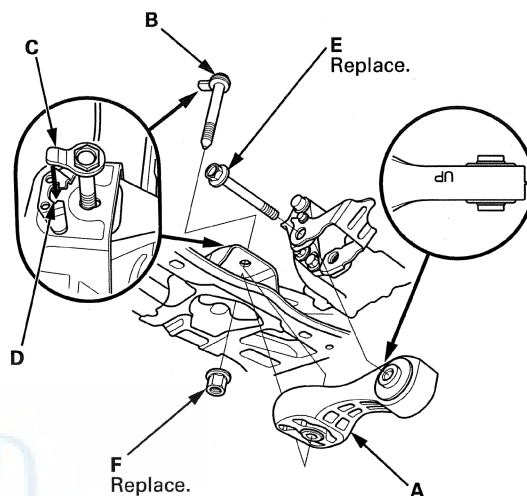
A/T model



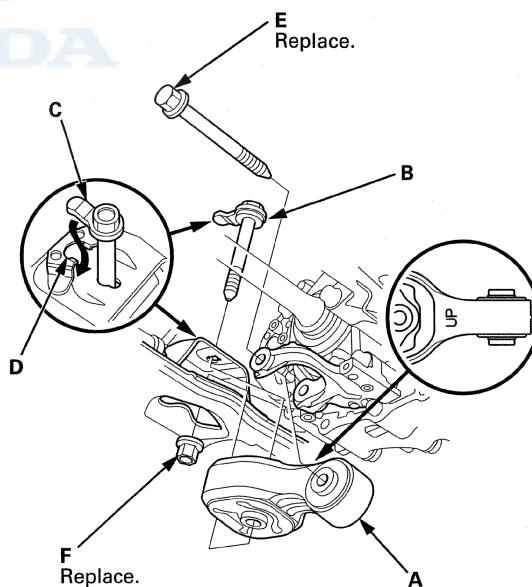
3. Install the torque rod (A).

NOTE: Be sure to install the torque rod with the "UP" mark facing up.

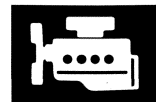
M/T model



A/T model



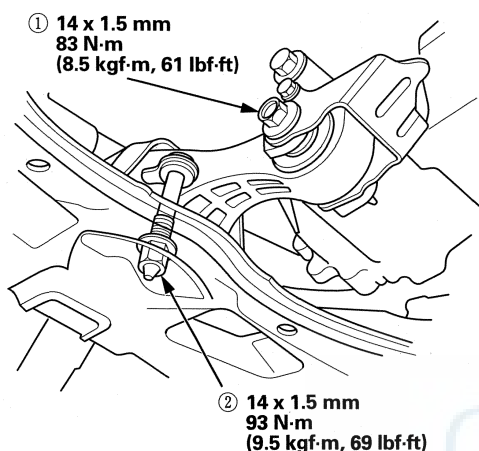
4. Install the bolt (B) with the tab (C) on the bolt head aligned with the guide (D) on the front subframe, then loosely install a new torque rod mounting bolt (E) and nut (F).



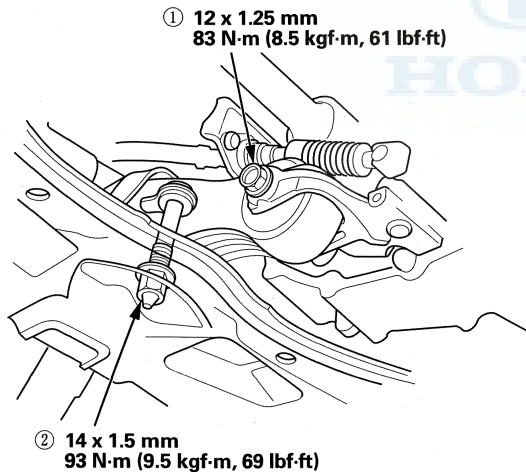
Transmission Mount Bracket Replacement

5. Remove the transmission jack and the wood block from under the transmission.
6. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.

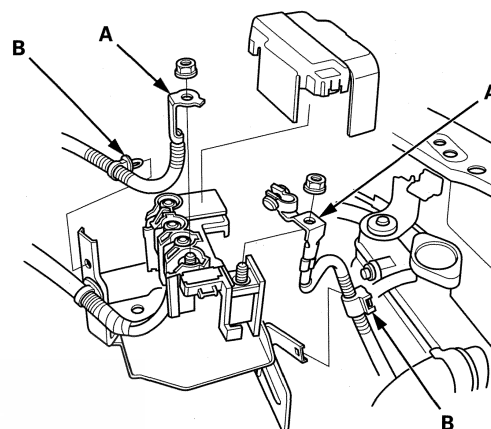
M/T model



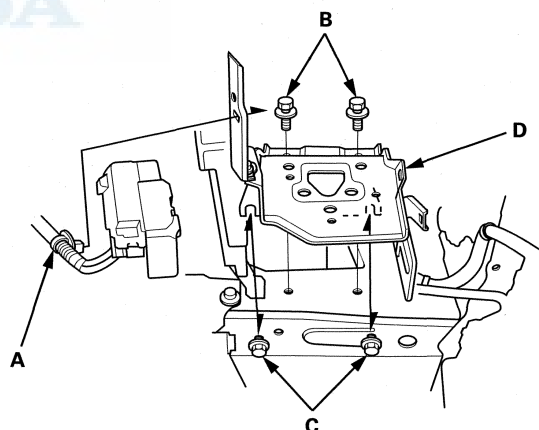
A/T model



1. Do the battery removal procedure (see page 22-70).
2. Remove the air cleaner (see page 11-307).
3. M/T model: Remove the battery cables (A) from the battery terminal fuse box.



4. M/T model: Remove the harness clamps (B).
5. M/T model: Remove the harness clamp (A). Remove the two bolts (B) and loosen the two bolts (C), then remove the battery base (D).



6. Support the transmission with a jack and a wood block under the transmission.

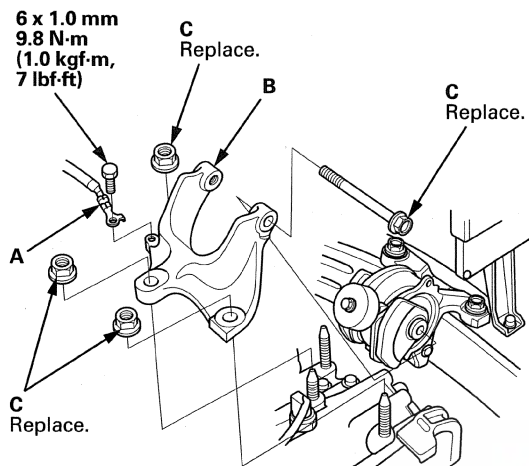
(cont'd)

Engine Assembly

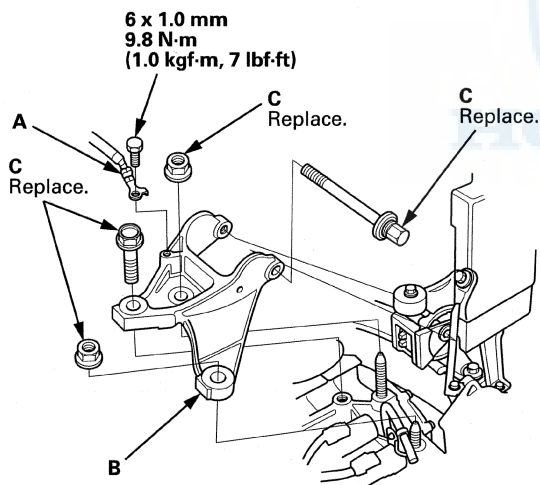
Transmission Mount Bracket Replacement (cont'd)

7. Remove the ground cable (A), then remove the transmission mount bracket (B).

M/T model



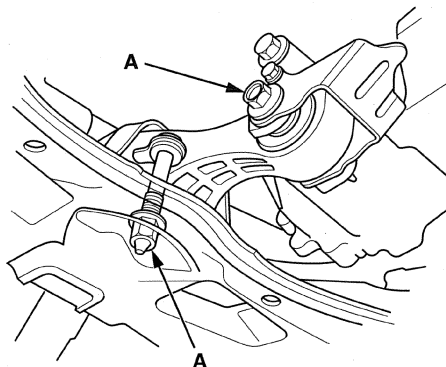
A/T model



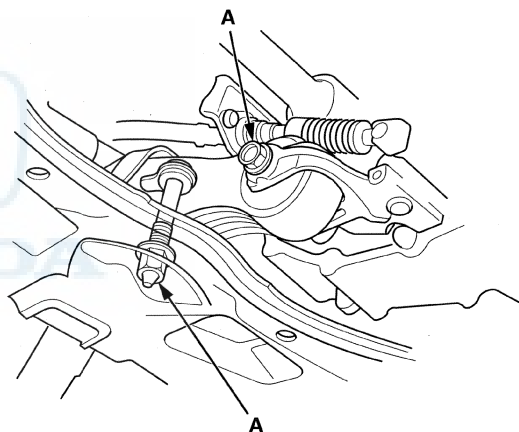
8. Install the transmission mount bracket, and loosely install new transmission mount bracket mounting bolts and nuts (C).
9. Install the ground cable.
10. Remove the jack and the wood block from under the transmission.
11. Raise the vehicle on the lift.

12. Loosen the torque rod mounting bolt and nut (A).

M/T model



A/T model

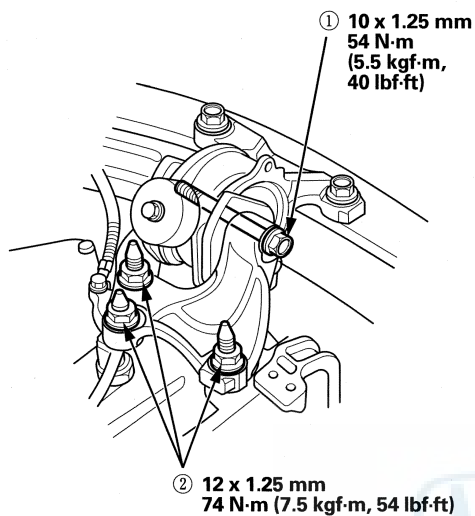


13. Lower the vehicle on the lift.

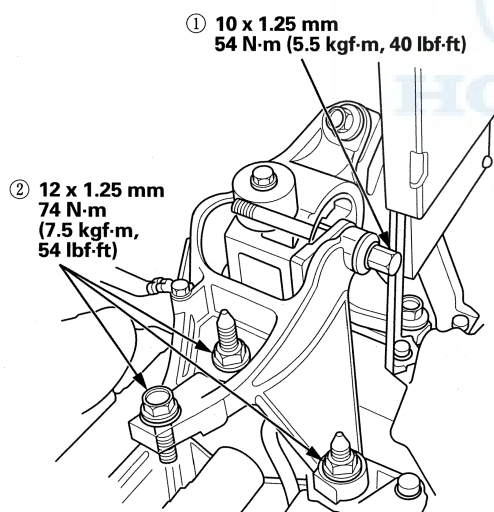


14. Tighten the transmission mount mounting bolts and nuts in the numbered sequence shown.

M/T model



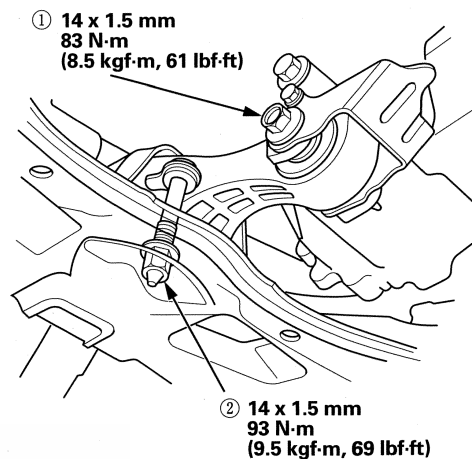
A/T model



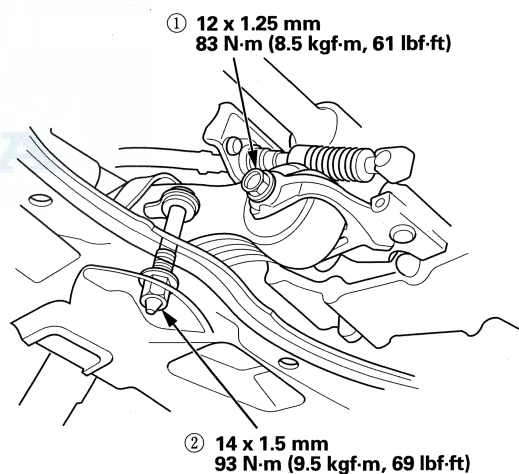
15. Raise the vehicle on the lift.

16. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.

M/T model



A/T model



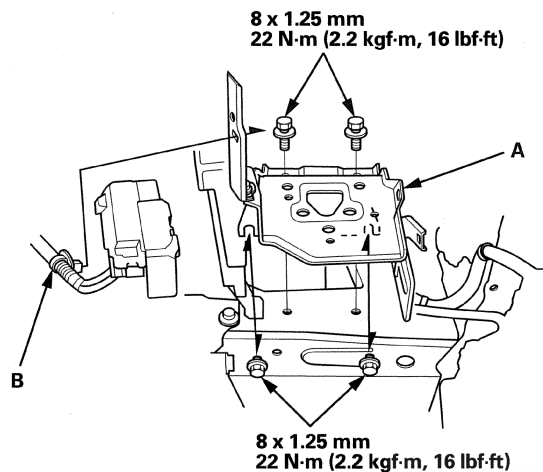
17. Lower the vehicle on the lift.

(cont'd)

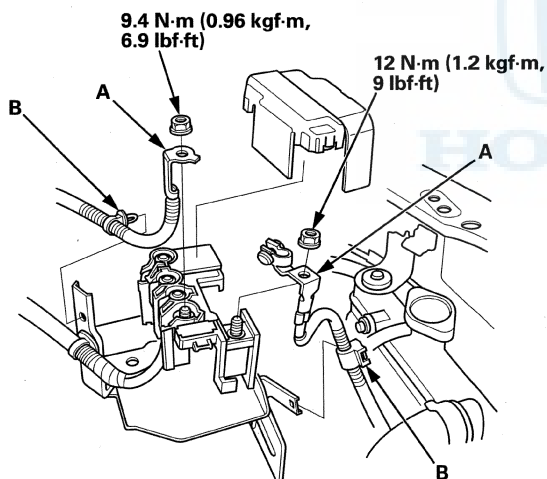
Engine Assembly

Transmission Mount Bracket Replacement (cont'd)

18. M/T model: Install the battery base (A), then install the harness clamp (B).



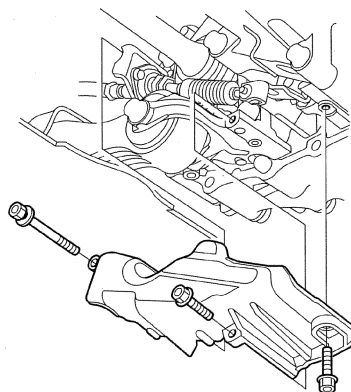
19. M/T model: Install the battery cables (A) to the battery terminal fuse box.



20. M/T model: Install the harness clamps (B).
21. Do the battery installation procedure (see page 22-71).
22. Install the air cleaner (see page 11-307).

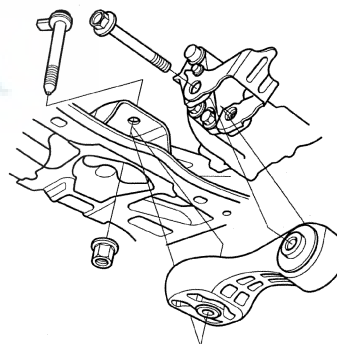
Torque Rod Bracket Replacement

1. Raise the vehicle on the lift.
2. A/T model: Remove the shift cable cover.

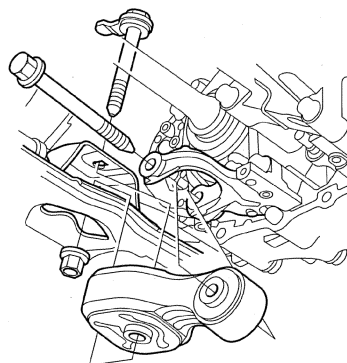


3. Support the transmission with a transmission jack and a wood block under the transmission and raise it just enough to free the torque rod, then remove the torque rod.

M/T model



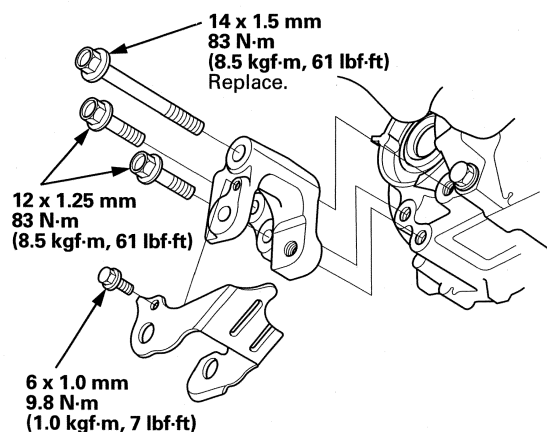
A/T model



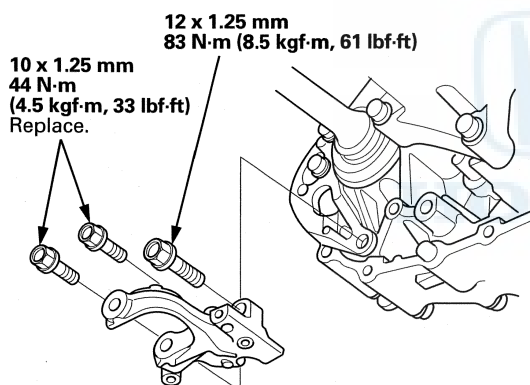


4. Remove the torque rod bracket.

M/T model



A/T model

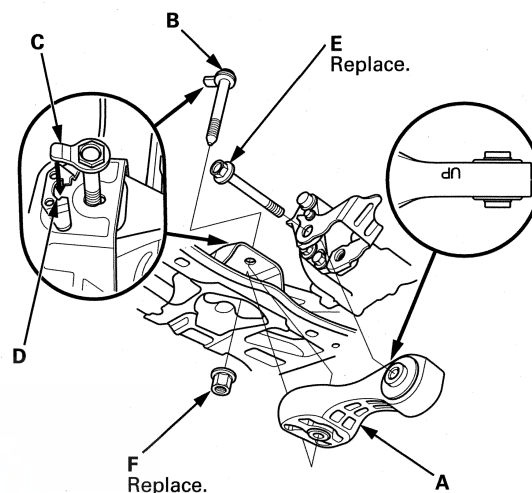


5. Install the torque rod bracket.

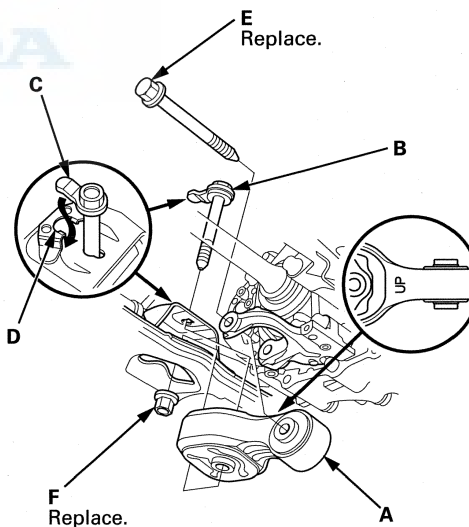
6. Install the torque rod (A).

NOTE: Be sure to install the torque rod with the "UP" mark facing up.

M/T model



A/T model



7. Install the bolt (B) with the tab (C) on the bolt head aligned with the guide (D) on the front subframe, then loosely install a new torque rod mounting bolt (E) and nut (F).

8. Remove the transmission jack and the wood block from under the transmission.

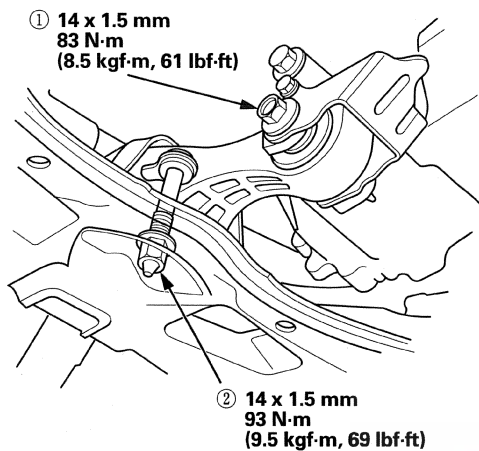
(cont'd)

Engine Assembly

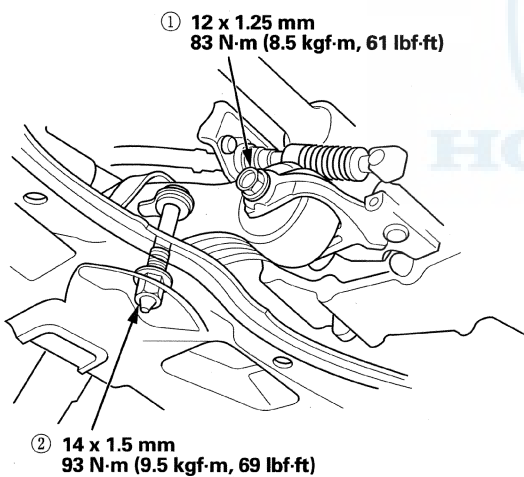
Torque Rod Bracket Replacement (cont'd)

9. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.

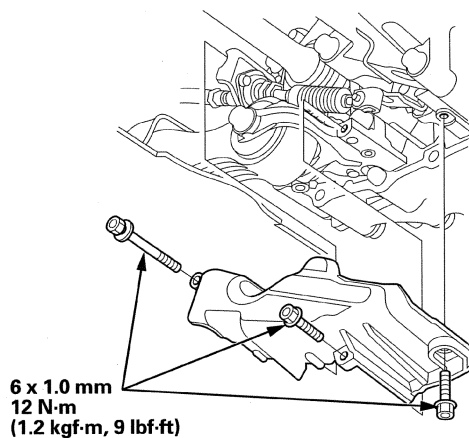
M/T model



A/T model



10. A/T model: Install the shift cable cover.



Engine Mechanical

Cylinder Head

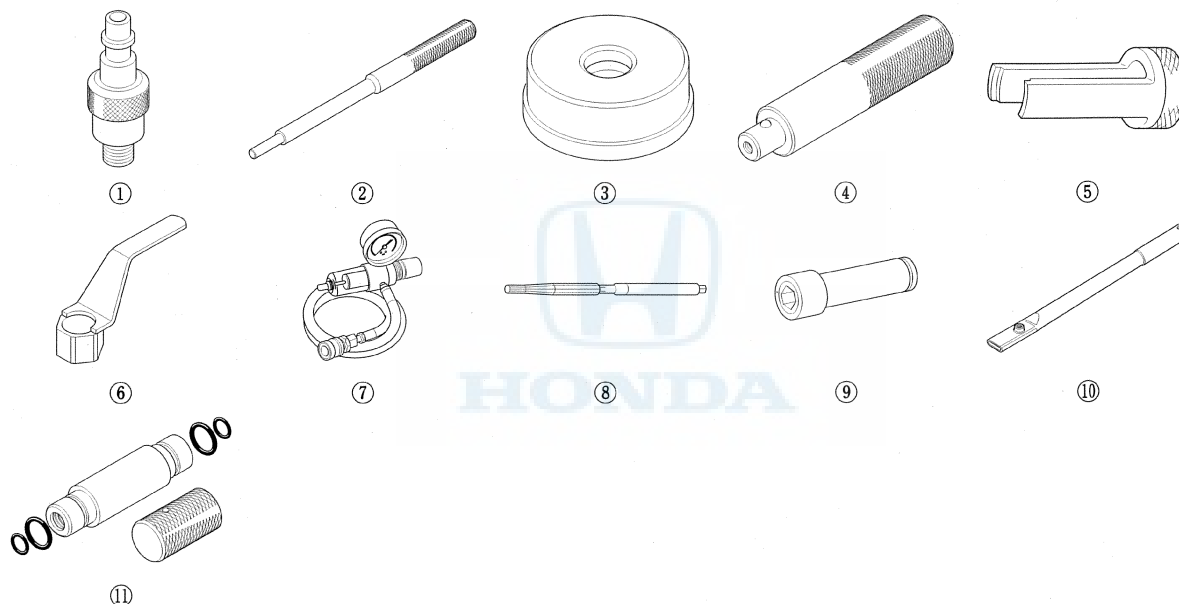
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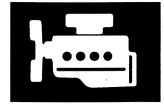


Cylinder Head

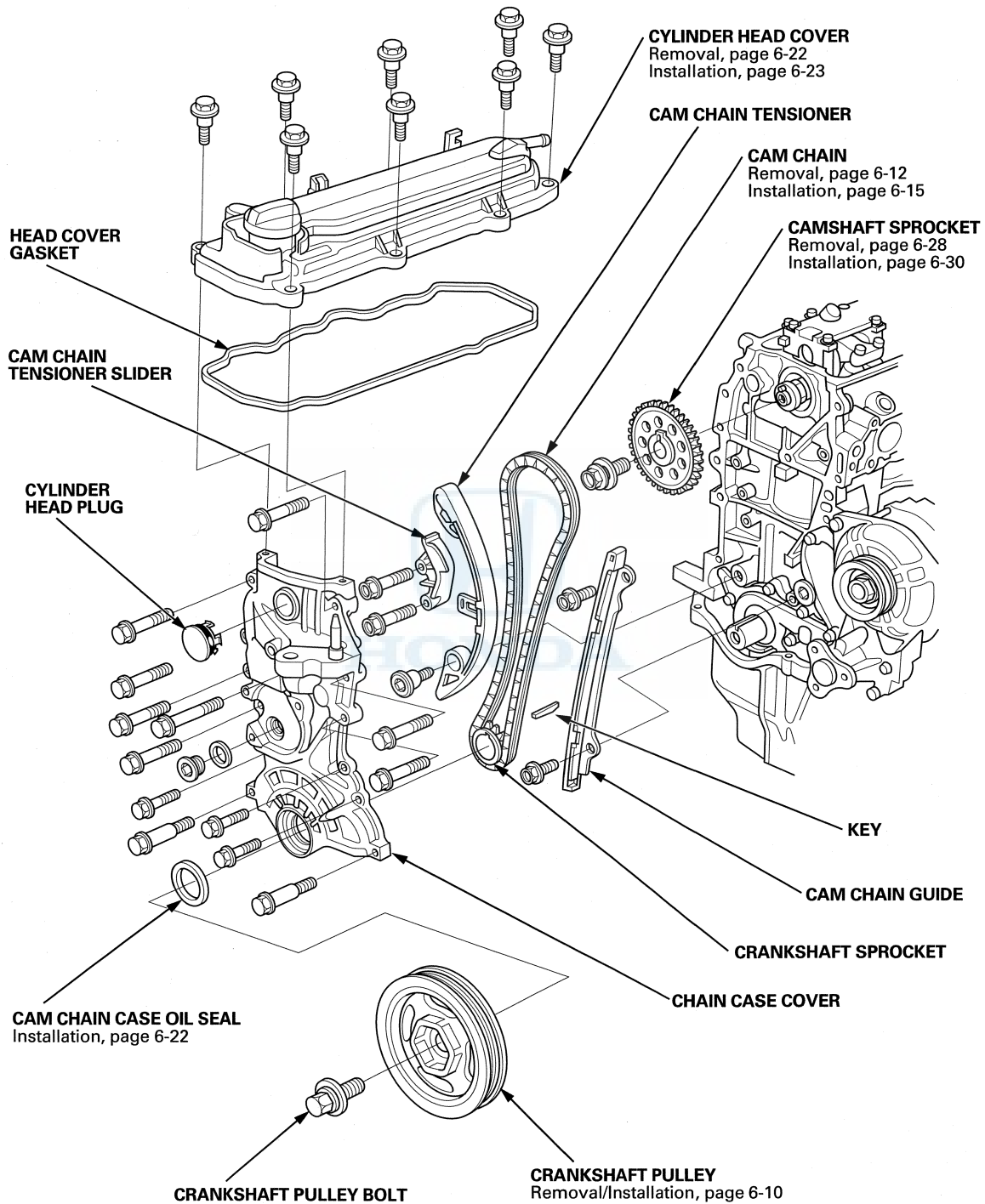
Special Tools

Ref.No.	Tool Number	Description	Qty
①	070AJ-001A101	VCM Air Adapter	1
②	07742-0010100	Valve Guide Driver, 5.35 x 9.7 mm	1
③	07746-0010400	Bearing Driver Attachment, 52 x 55 mm	1
④	07749-0010000	Driver Handle, 15 x 135L	1
⑤	07757-PJ1010A	Valve Spring Compressor Attachment	1
⑥	07AAB-RJAA100	Crankshaft Pulley Holder	1
⑦	07AAJ-PNAA101	Air Pressure Regulator	1
⑧	07HAH-PJ7A100	Valve Guide Reamer, 5.5 mm	1
⑨	07JAA-001020A	Socket, 19 mm	1
⑩	07JAB-001020B	Holder Handle	1
⑪	07PAD-0010000	Stem Seal Driver	1





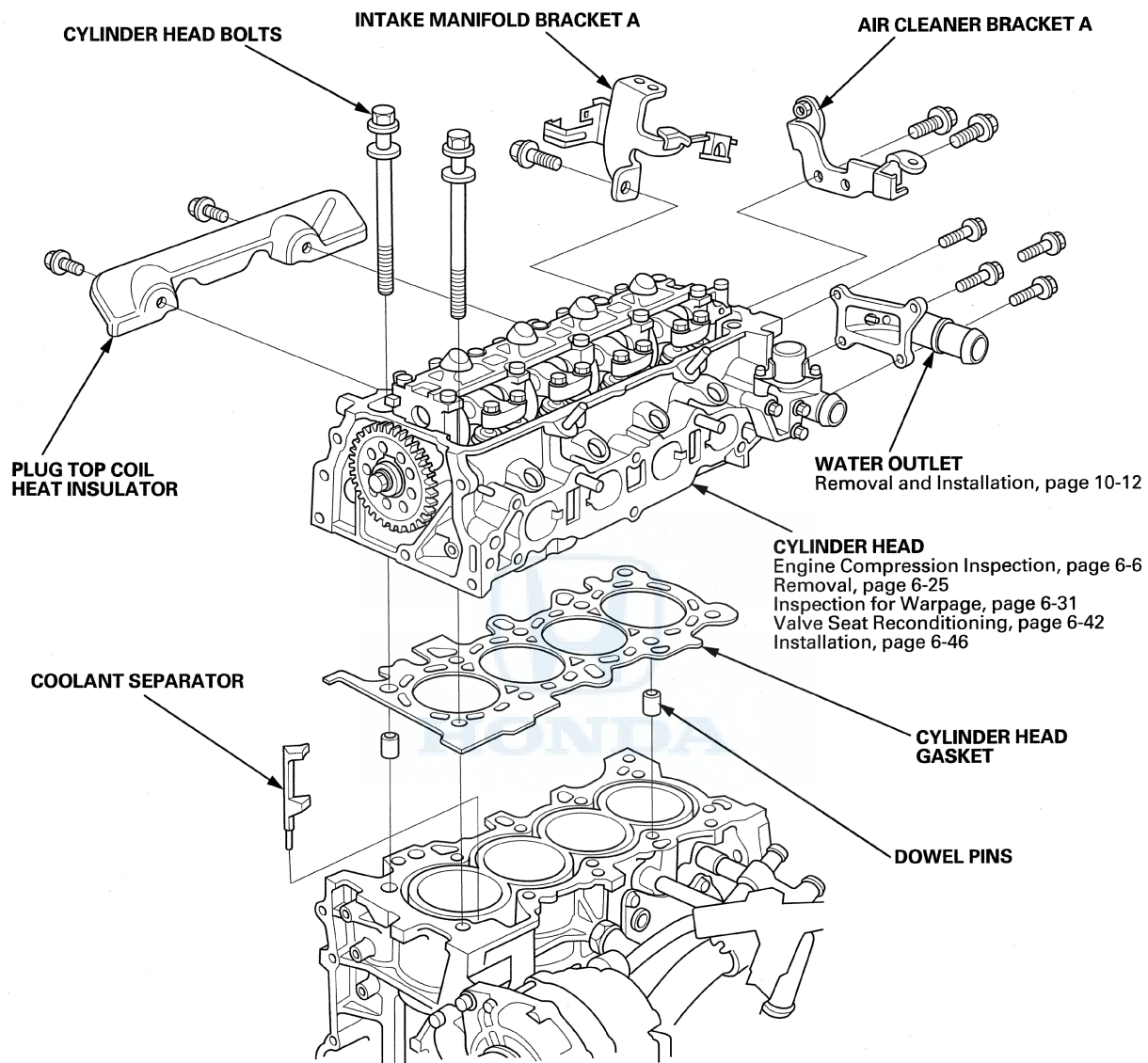
Component Location Index

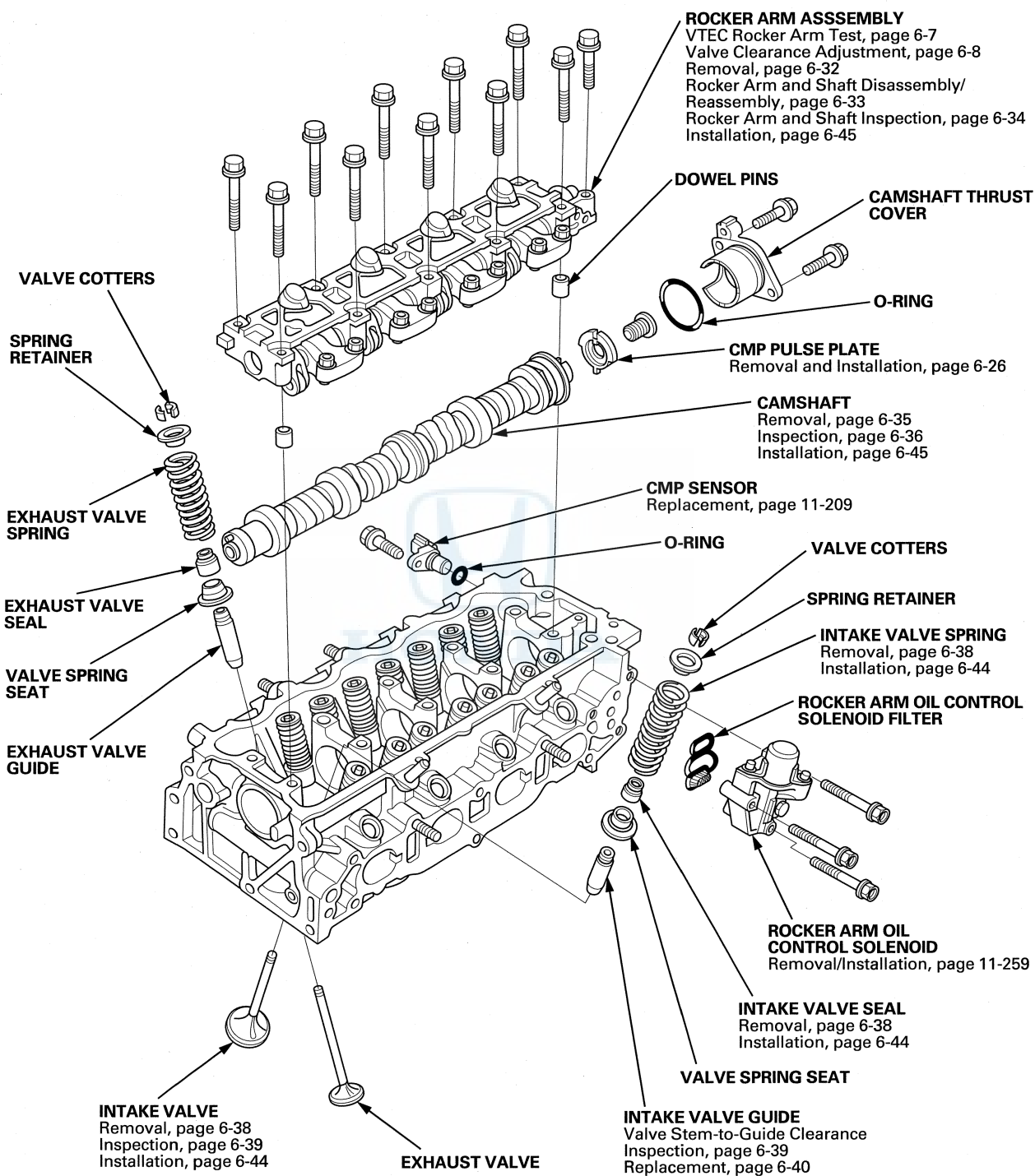


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Cylinder Head

Component Location Index (cont'd)



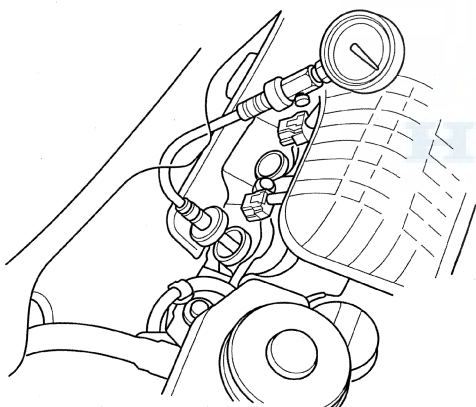


Cylinder Head

Engine Compression Inspection

NOTE: After the inspection, you must reset the ECM/PCM (see page 11-4). Otherwise, the ECM/PCM will continue to stop the injectors from operating.

1. Allow the engine to reach operating temperature (fan comes on at least twice).
2. Turn the ignition switch to LOCK (0).
3. Connect the HDS to the DLC (see step 2 on page 11-3).
4. Turn the ignition switch to ON (II).
5. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
6. Select ALL INJECTORS STOP in the PGM-FI INSPECTION menu with the HDS.
7. Turn the ignition switch to LOCK (0).
8. Remove the four ignition coils and the four spark plugs (see page 4-20).
9. Attach the compression gauge to the spark plug hole.



10. Step on the accelerator pedal to open the throttle fully, then crank the engine with the starter motor, and measure the compression.

Compression Pressure
Above 981 kPa (10.00 kgf/cm², 142.2 psi)

11. Measure the compression on the remaining cylinders.

Maximum Variation
Within 196 kPa (2.00 kgf/cm², 28.4 psi)

12. If the compression is not within specifications, perform a cylinder leak down test to determine the problem area. Then check the following items, and remeasure the compression:
 - Incorrect valve clearance
 - Confirmation of cam timing
 - Damaged or worn cam lobes
 - Damaged or worn valves and seats
 - Damaged cylinder head gasket
 - Damaged or worn piston rings
 - Damaged or worn piston and cylinder bore
13. Remove the compression gauge from the spark plug hole.
14. Install the four spark plugs and the four ignition coils (see page 4-20).
15. Select ECM/PCM reset (see page 11-4) in the PGM-FI INSPECTION menu to cancel ALL INJECTORS STOP with the HDS.

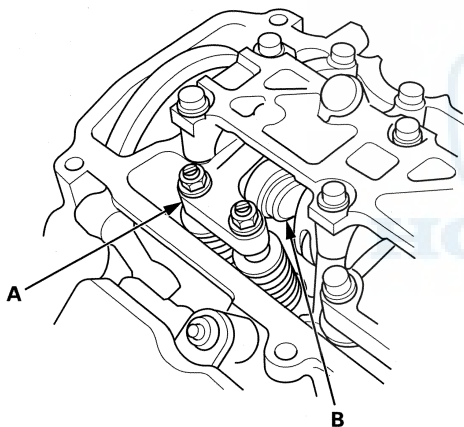


VTEC Rocker Arm Test

Special Tools Required

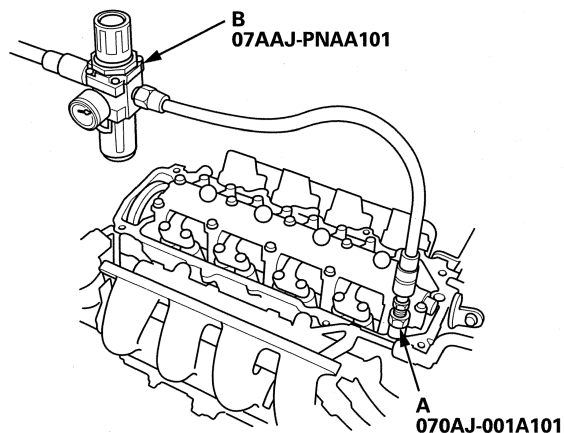
- Air Pressure Regulator 07AAJ-PNAA101
- VCM Air Adapter 070AJ-001A101

1. Remove the cylinder head cover (see page 6-22).
2. Rotate the crankshaft pulley clockwise. Make sure that the primary rocker arm (A) and the secondary rocker arm (B) are separated and that the primary rocker arm should move independently:
 - If the primary rocker arm and the secondary rocker arm move together, remove the primary rocker arm and the secondary rocker arm as an assembly, and check that the pistons in the primary and secondary rocker arms move smoothly (see page 6-35). If any rocker arm needs replacing, replace the rocker arm set, then retest.
 - If all the primary rocker arms and the secondary rocker arms move independently, go to step 3.



3. Check that the air pressure on the shop air compressor gauge indicates over 400 kPa (4.08 kgf/cm², 58.0 psi).
4. Inspect the valve clearance (see page 6-8).

5. Install the VCM air adapter (A) to the inspection hole, then connect the air pressure regulator (B) as shown.



6. Loosen the valve on the regulator, and apply the specified air pressure.

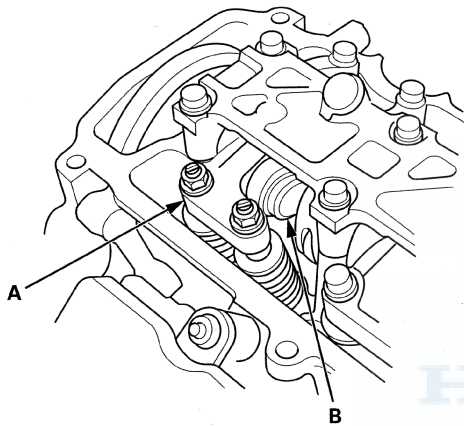
Specified Air Pressure
340 kPa (3.47 kgf/cm², 49.3 psi)

(cont'd)

Cylinder Head

VTEC Rocker Arm Test (cont'd)

7. With the specified air pressure applied, rotate the crankshaft pulley clockwise. The primary rocker arm (A) should move together with the secondary rocker arm (B):
- If the primary rocker arm and the secondary rocker arm move independently of each other, remove the primary rocker arm and the secondary rocker arm as an assembly, and check that the pistons in the primary and secondary rocker arms move smoothly (see page 6-35). If any rocker arm needs replacing, replace the rocker arm set, then retest.
 - If all the primary rocker arms and the secondary rocker arms move together, go to step 8.

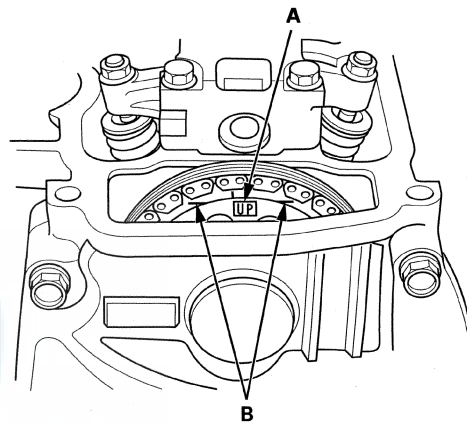


8. Remove the air pressure regulator and the VCM air adapter.
9. Install the cylinder head cover (see page 6-23).

Valve Clearance Adjustment

NOTE: Connect the HDS to the DLC (see step 2 on page 11-3), and monitor ECT SENSOR 1. Adjust the valve clearance only when the engine coolant temperature is less than 100 °F (38 °C).

1. Remove the cylinder head cover (see page 6-22).
2. Set the No. 1 piston at top dead center (TDC). The "UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.

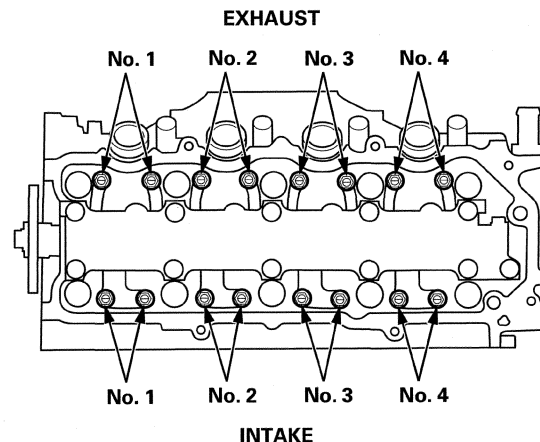


3. Select the correct feeler gauge for the valve clearance you are going to check.

Valve Clearance

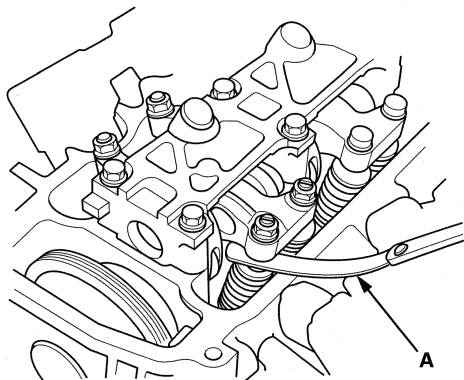
Intake: 0.15—0.19 mm (0.006—0.007 in)

Exhaust: 0.26—0.30 mm (0.011—0.011 in)

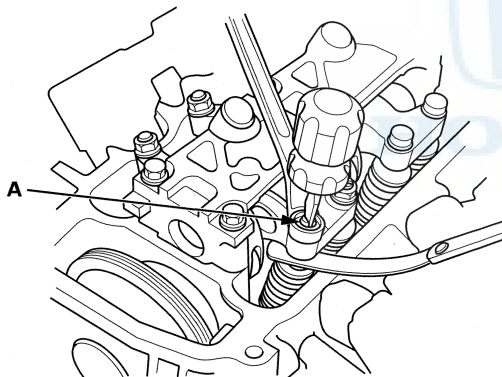




4. Insert the feeler gauge (A) between the adjusting screw and the end of the valve stem on No. 1 cylinder, and slide it back and forth; you should feel a slight amount of drag.



5. If you feel too much or too little drag, loosen the locknut, and turn the adjusting screw (A) until the drag on the feeler gauge is correct.



6. While holding the adjusting screw with the screw driver, tighten the locknut, then recheck the clearance. Repeat the adjustment, if necessary.

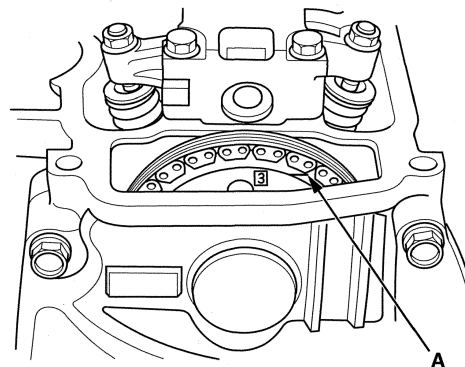
Specified Torque

7 x 0.75 mm

14 N·m (1.4 kgf·m, 10 lbf·ft)

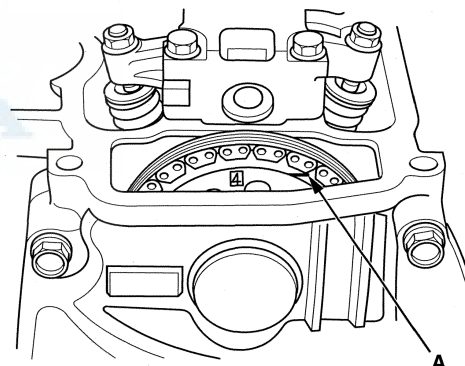
Apply new engine oil to the nut threads.

7. Rotate the crankshaft pulley clockwise. Align the No. 3 piston TDC groove (A) on the camshaft sprocket with the top edge of the head.



8. Check and, if necessary, adjust the valve clearance on the No. 3 cylinder.

9. Rotate the crankshaft pulley clockwise. Align the No. 4 piston TDC groove (A) on the camshaft sprocket with the top edge of the head.



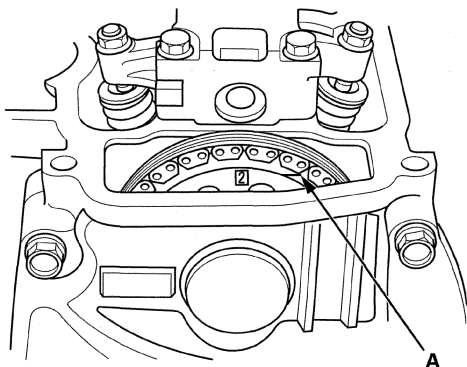
10. Check and, if necessary, adjust the valve clearance on the No. 4 cylinder.

(cont'd)

Cylinder Head

Valve Clearance Adjustment (cont'd)

11. Rotate the crankshaft pulley clockwise. Align the No. 2 piston TDC groove (A) on the camshaft sprocket with the top edge of the head.



12. Check and, if necessary, adjust the valve clearance on the No. 2 cylinder.
13. Install the cylinder head cover (see page 6-23).

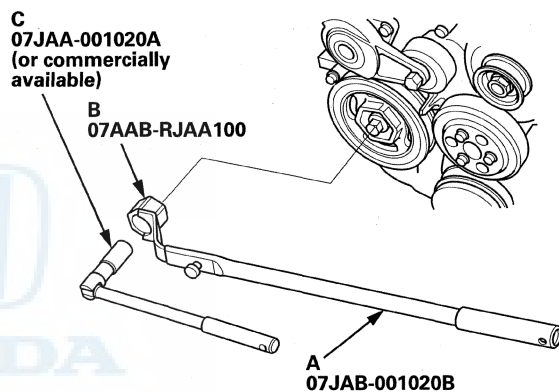
Crankshaft Pulley Removal and Installation

Special Tools Required

- Crankshaft Pulley Holder 07AAB-RJAA100
- Socket, 19 mm 07JAA-001020A or equivalent
- Holder Handle 07JAB-001020B

Removal

1. Raise the vehicle on the lift.
2. Remove the right front wheel.
3. Remove the splash shield (see page 20-180).
4. Remove the drive belt (see page 4-29).
5. Hold the pulley with the holder handle (A) and the crankshaft pulley holder (B).



6. Remove the bolt with a socket, 19 mm (C) and a breaker bar, then remove the crankshaft pulley.

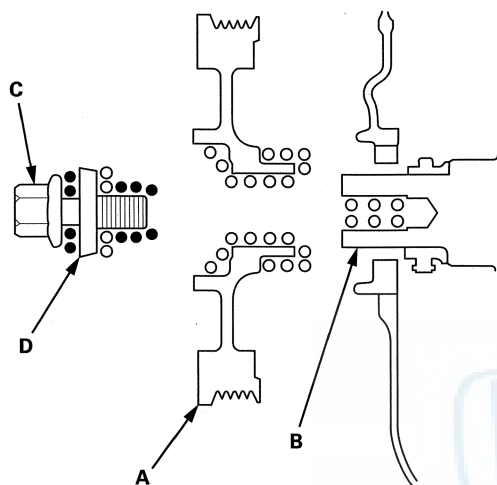


Installation

1. Remove any oil and clean the crankshaft pulley (A), the crankshaft (B), the bolt (C), and the washer (D). Lubricate with new engine oil as shown.

○: Clean

●: Lubricate with new engine oil

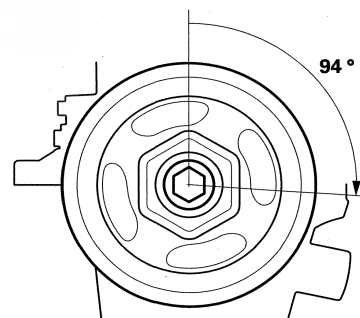
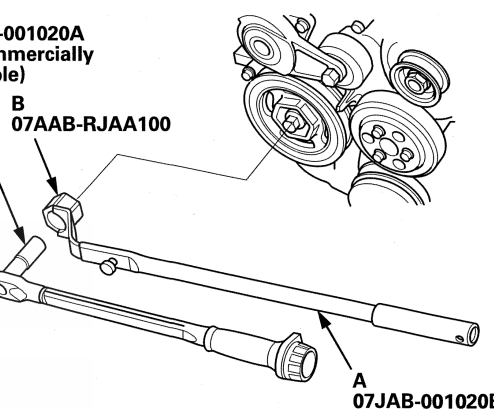


2. Install the crankshaft pulley.

3. When a new crankshaft or a new pulley bolt is installed: Tighten the crankshaft pulley bolt. Do not use an impact wrench.

- 1. Hold the pulley with the holder handle (A) and crankshaft pulley holder (B), tighten the bolt to 177 N·m (18.0 kgf·m, 130 lbf·ft) with a torque wrench and a socket (C), then remove the bolt.
- 2. Tighten the bolt to 39 N·m (4.0 kgf·m, 29 lbf·ft) with a torque wrench and a socket.
- 3. Tighten the bolt an additional 94°.

C
07JAA-001020A
(or commercially available)

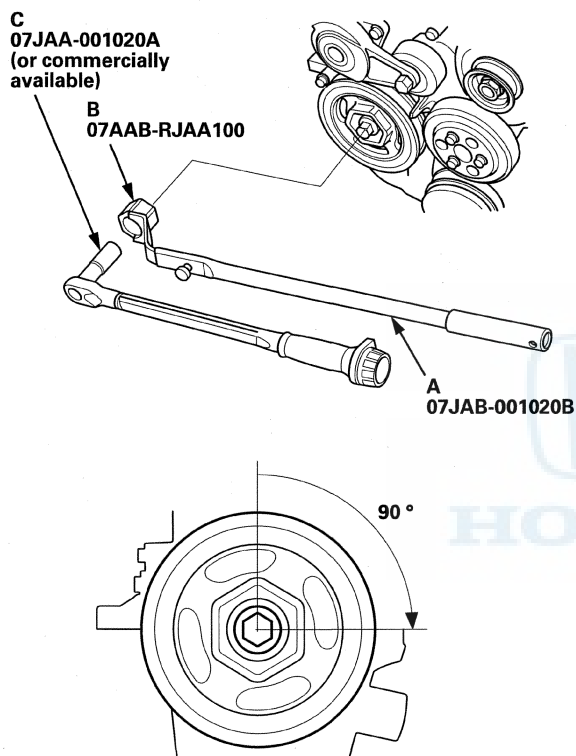


(cont'd)

Cylinder Head

Crankshaft Pulley Removal and Installation (cont'd)

4. When the crankshaft or the pulley bolt is reused:
Tighten the crankshaft pulley bolt. Do not use an impact wrench.
- 1. Hold the pulley with the holder handle (A) and crankshaft pulley holder (B), then tighten the bolt to 37 N·m (3.8 kgf·m, 27 lbf·ft) with a torque wrench and a socket (C).
- 2. Tighten the bolt an additional 90°.

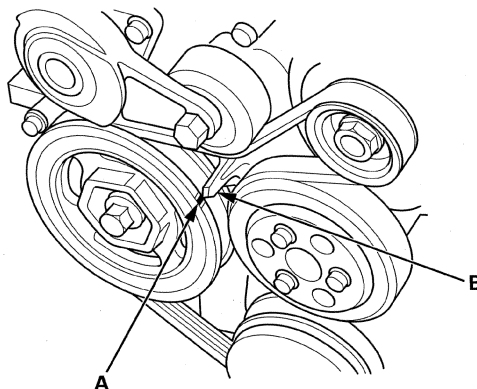


5. Install the drive belt (see page 4-29).
6. Install the splash shield (see page 20-180).
7. Install the right front wheel.

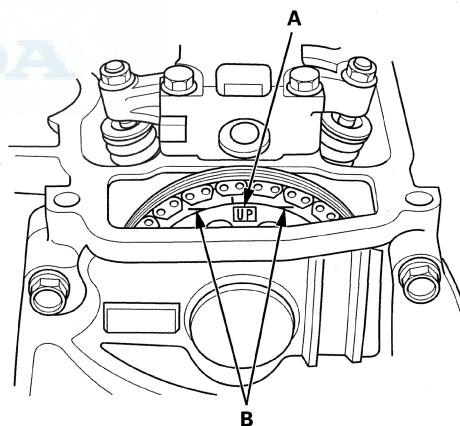
Cam Chain Removal

NOTE: Keep the cam chain away from magnetic fields.

1. Turn the crankshaft pulley so its top dead center (TDC) mark (A) lines up with the pointer (B).



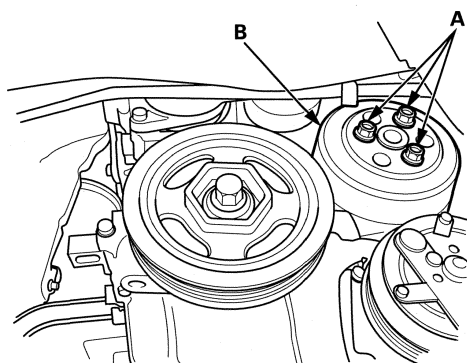
2. Remove the cylinder head cover (see page 6-22).
3. Check the No. 1 piston at TDC. The "UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.



4. Remove the right front wheel.
5. Remove the splash shield (see page 20-180).



6. Loosen the water pump pulley mounting bolts (A).



7. Remove the drive belt (see page 4-29).

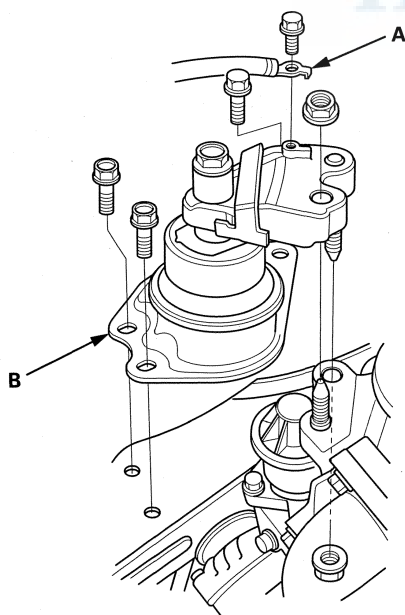
8. Remove the water pump pulley (B).

9. Remove the crankshaft pulley (see page 6-10).

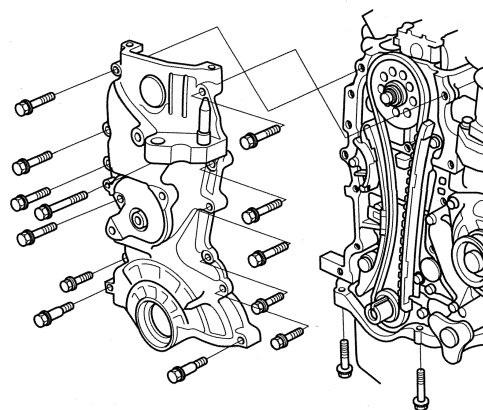
10. Remove the drive belt auto-tensioner (see page 4-31).

11. Support the engine with a jack and a wood block under the oil pan.

12. Remove the ground cable (A), then remove the side engine mount/bracket assembly (B).



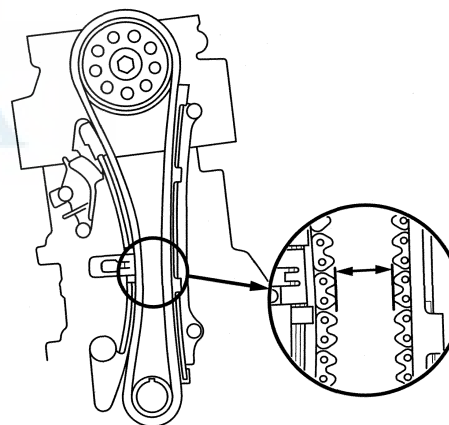
13. Remove the cam chain case.



14. Measure the cam chain separation. If the distance is less than the service limit, replace the cam chain and cam chain tensioner.

Standard Distance: 19 mm (0.75 in)

Service Limit: 15 mm (0.59 in)

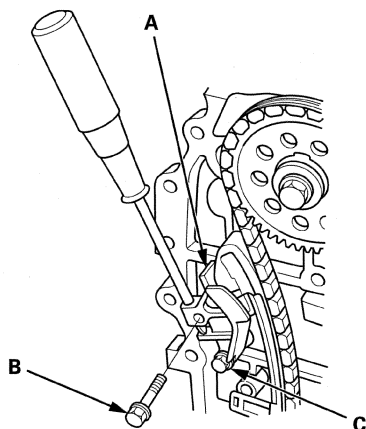


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Cylinder Head

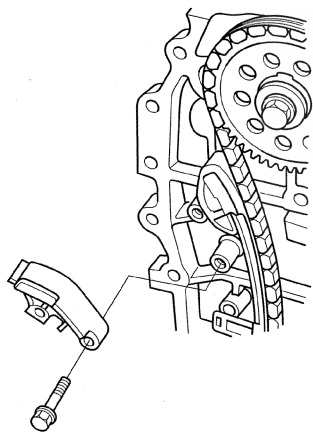
Cam Chain Removal (cont'd)

15. Apply new engine oil to the sliding surface of the cam chain tensioner slider (A).

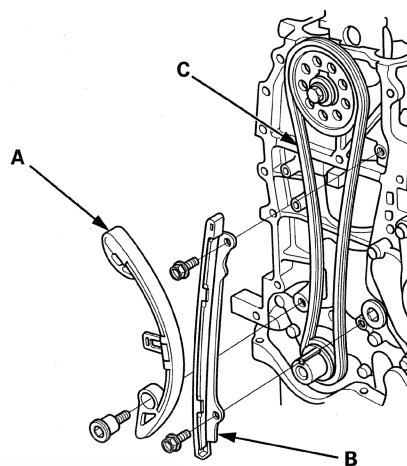


16. Hold the cam chain tensioner slider with a screwdriver, then remove the upper bolt (B), and loosen the lower bolt (C).

17. Remove the cam chain tensioner slider.



18. Remove the cam chain tensioner (A) and the cam chain guide (B).



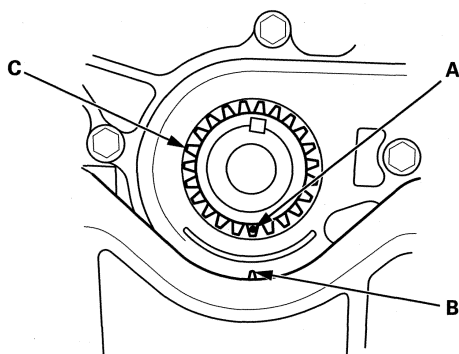
19. Remove the cam chain (C).



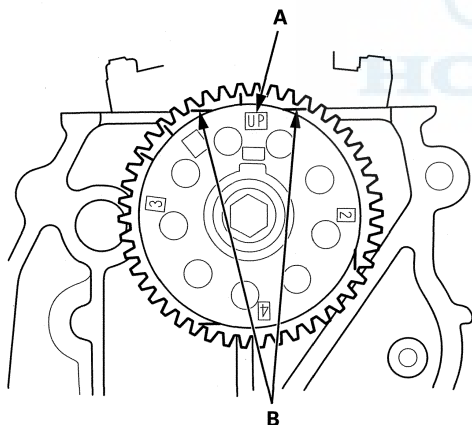
Cam Chain Installation

NOTE: Keep the cam chain away from magnetic fields.

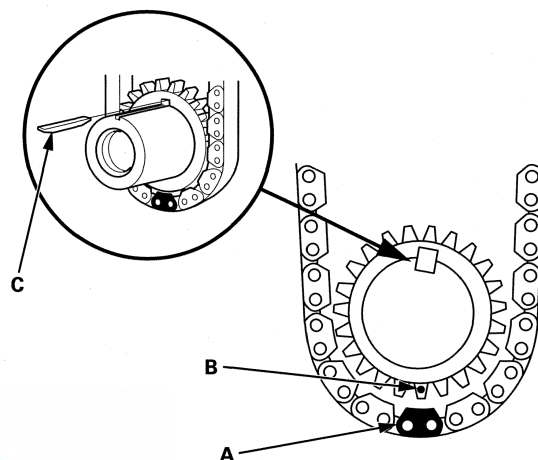
1. Set the crankshaft to top dead center (TDC). Align the TDC mark (A) on the crankshaft sprocket with the pointer (B) on the oil pump.



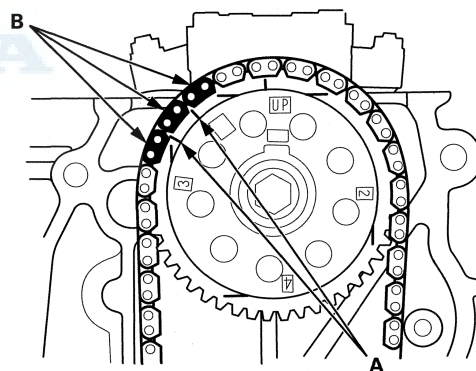
2. Remove the crankshaft sprocket (C).
3. Set the camshaft to TDC. The "UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.



4. Install the cam chain on the crankshaft sprocket with the colored piece (A) aligned with the TDC mark (B) on the crankshaft sprocket, then install the crankshaft sprocket with the key (C) to the crankshaft.



5. Install the cam chain on the camshaft sprocket with the pointers (A) aligned with the three colored pieces (B) as shown.

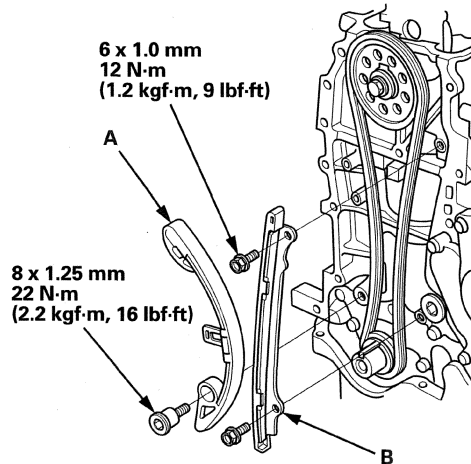


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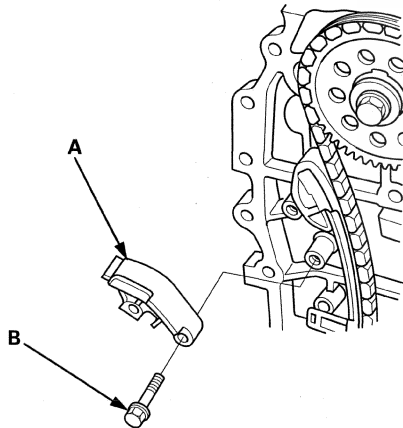
Cylinder Head

Cam Chain Installation (cont'd)

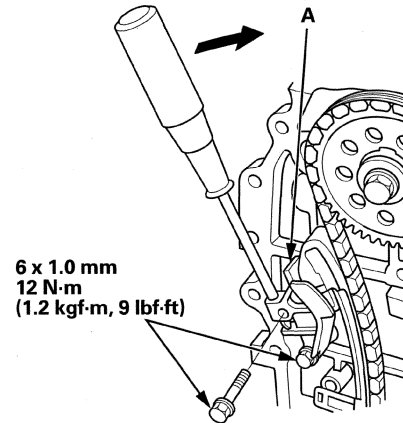
6. Install the cam chain tensioner (A) and the cam chain guide (B).



7. Install the cam chain tensioner slider (A), and loosely install the bolt (B).



8. Apply new engine oil to the sliding surface of the cam chain tensioner slider (A).



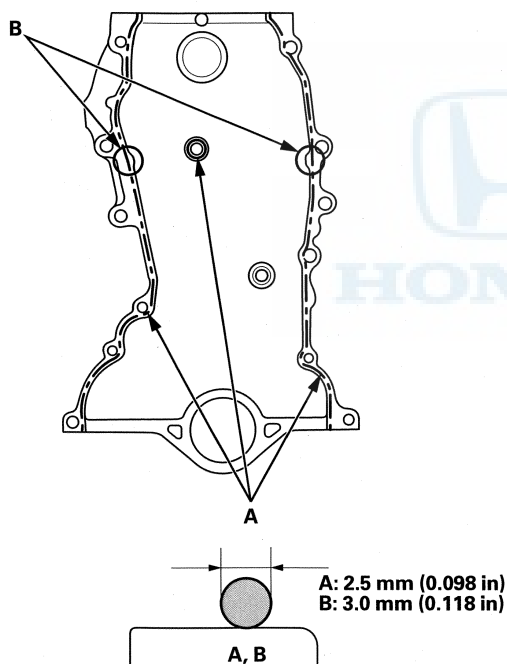
9. Rotate the cam chain tensioner slider clockwise to compress the cam chain tensioner, and install the remaining bolt, then tighten the bolts to the specified torque.
10. Check the cam chain case oil seal for damage. If the oil seal is damaged, replace the cam chain case oil seal (see page 6-22).
11. Remove the all of the old liquid gasket from the cam chain case mating surfaces, the bolts, and the bolt holes.
12. Clean and dry the cam chain case mating surfaces.



13. Apply liquid gasket (P/N 08717-0004, 08718-0003, 08718-0004, or 08718-0009) to the cylinder head and the engine block mating surfaces of the cam chain case and to the inside edge of the threaded bolt holes. Install the component within 5 minutes of applying the liquid gasket.

NOTE:

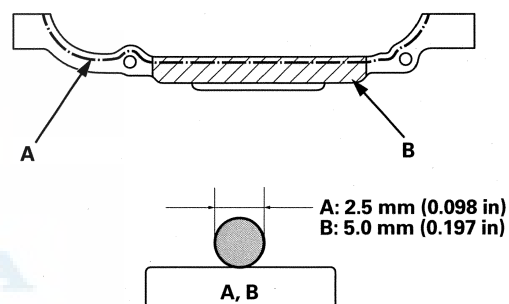
- Apply a 2.5 mm (0.098 in) diameter bead of liquid gasket along the broken line (A).
- Apply a 3.0 mm (0.118 in) diameter bead of liquid gasket along the broken line (B).
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.



14. Apply liquid gasket (P/N 08717-0004, 08718-0003, 08718-0004, or 08718-0009) to the oil pan mating surface of the cam chain case and to the inside edge of the threaded bolt holes. Install the component within 5 minutes of applying the liquid gasket.

NOTE:

- Apply a 2.5 mm (0.098 in) diameter bead of liquid gasket along the broken line (A).
- Apply a 5.0 mm (0.197 in) diameter bead of liquid gasket to the shaded area (B).
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.



(cont'd)

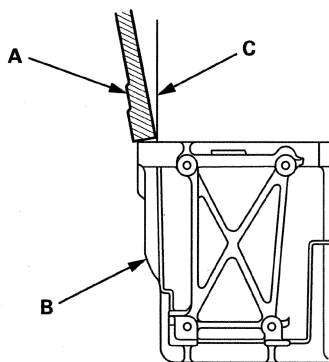
Cylinder Head

Cam Chain Installation (cont'd)

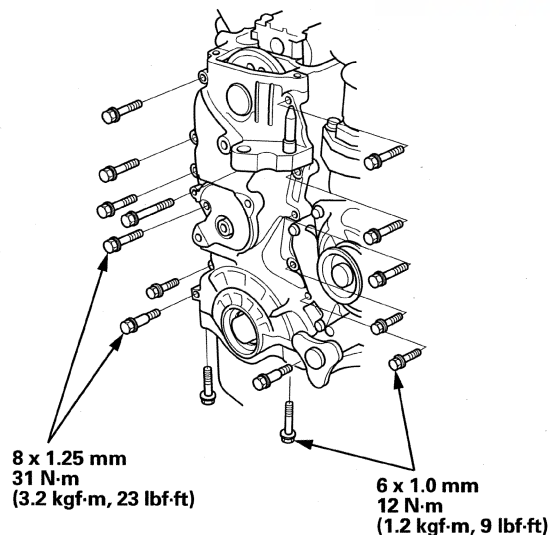
15. Set the edge of the cam chain case (A) to the edge of the oil pan (B), then install the cam chain case on the engine block (C).

NOTE:

- When installing the cam chain case, do not slide the bottom surface onto the oil pan mounting surface.
- Wait at least 30 minutes before filling the engine with oil.
- Do not run the engine for at least 3 hours after installing the cam chain case.

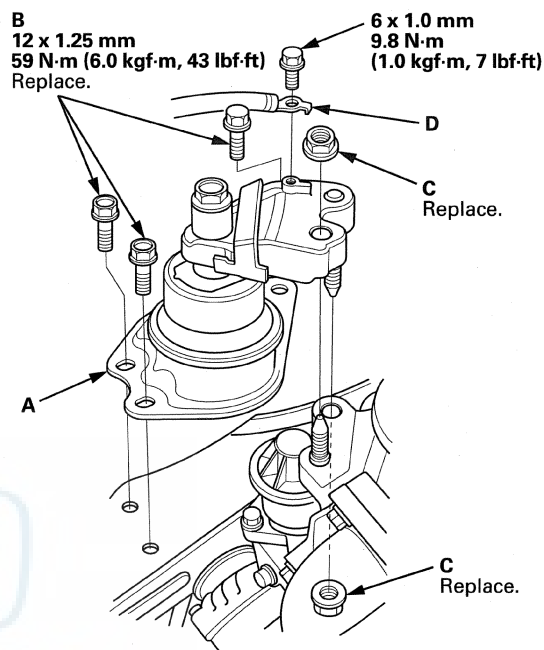


16. Tighten the cam chain case mounting bolts. Wipe off the excess liquid gasket from the oil pan and the cam chain case mating area.



17. Install the cylinder head cover (see page 6-23).

18. Install the side engine mount/bracket assembly (A), then tighten the new side engine mount/bracket assembly mounting bolts (B).



19. Loosely install new side engine mount/bracket assembly mounting nuts (C).

20. Install the ground cable (D).

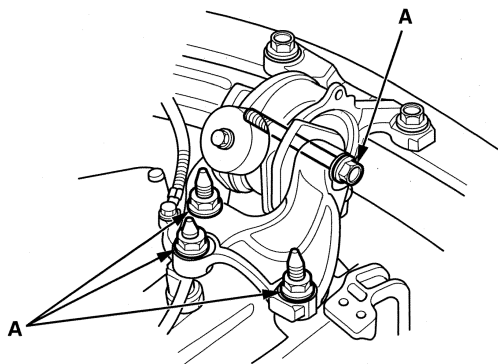
21. Remove the jack and the wood block from under the oil pan.

22. Remove the air cleaner (see page 11-307).

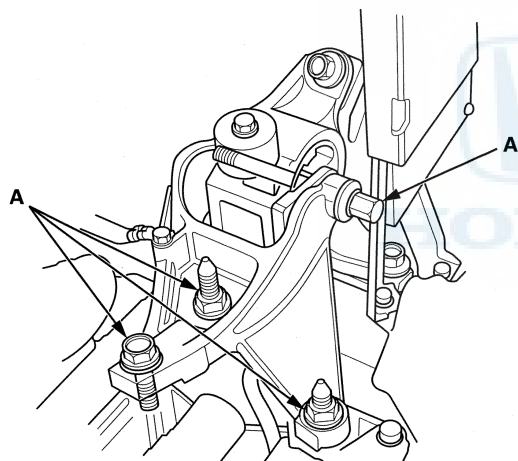


23. Loosen the transmission mount bracket mounting bolts and nuts (A).

M/T model



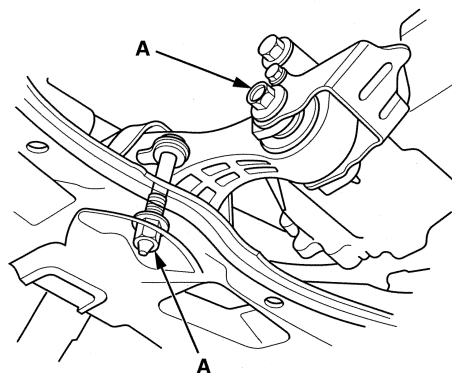
A/T model



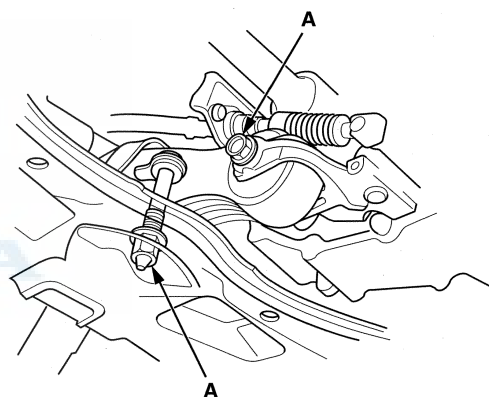
24. Raise the vehicle on the lift.

25. Loosen the torque rod mounting bolt and nut (A).

M/T model



A/T model



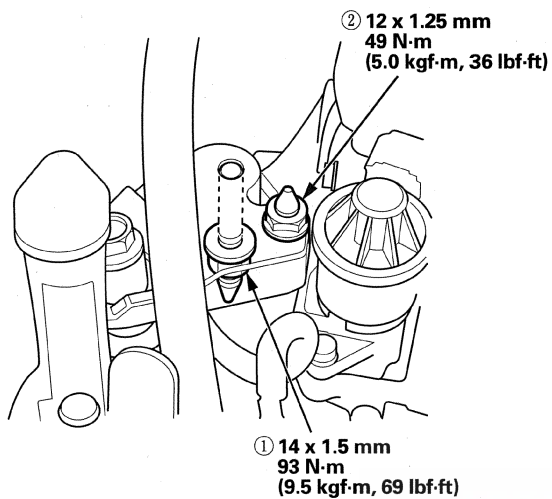
26. Lower the vehicle on the lift.

(cont'd)

Cylinder Head

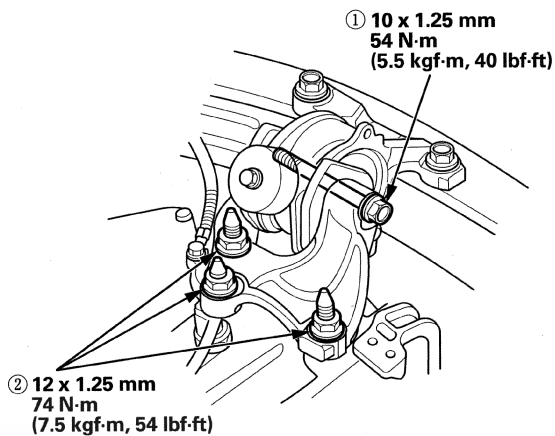
Cam Chain Installation (cont'd)

27. Tighten the side engine mount/bracket assembly mounting nuts in the numbered sequence shown.

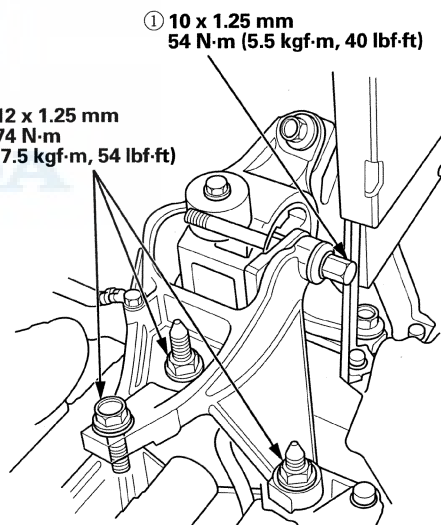


28. Tighten the transmission mount bracket mounting bolts and nuts in the numbered sequence shown.

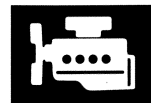
M/T model



A/T model

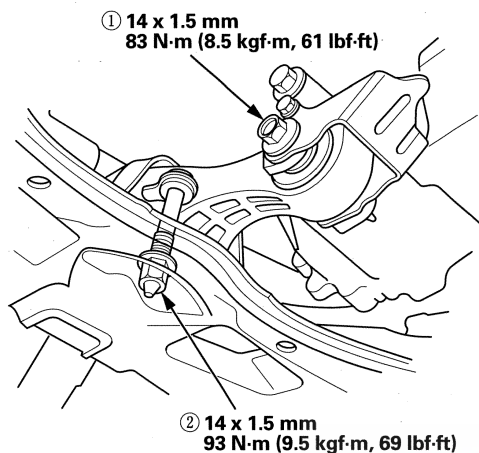


29. Raise the vehicle on the lift.

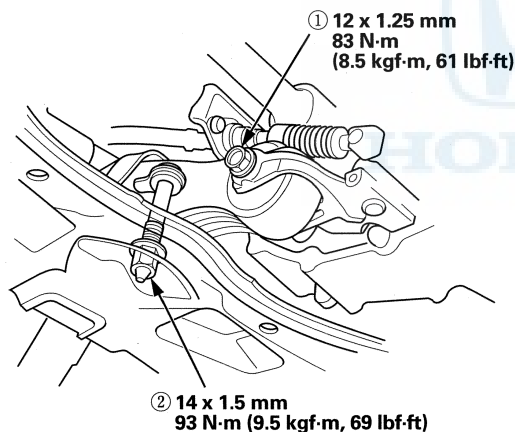


30. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.

M/T model

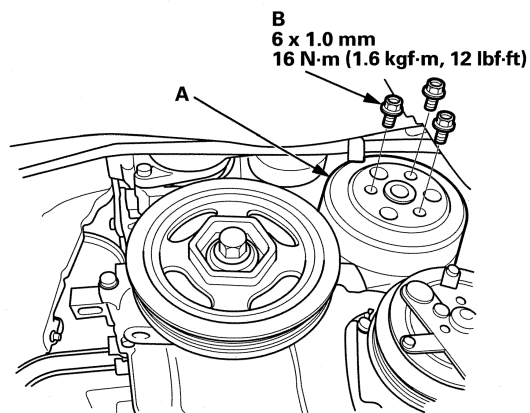


A/T model



31. Lower the vehicle on the lift.
32. Install the air cleaner (see page 11-307).
33. Install the drive belt auto-tensioner (see page 4-31).
34. Install the crankshaft pulley (see page 6-10).

35. Install the water pump pulley (A), and loosely install the water pump pulley mounting bolts (B).



36. Install the drive belt (see page 4-29).
37. Tighten the water pump pulley mounting bolts.
38. Install the splash shield (see page 20-180).
39. Install the right front wheel.
40. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-5).

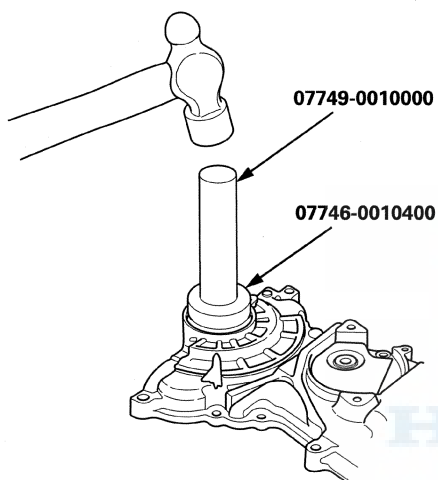
Cylinder Head

Cam Chain Case Oil Seal Installation

Special Tools Required

- Driver Handle, 15 x 135L 07749-0010000
- Bearing Driver Attachment, 52 x 55 mm 07746-0010400

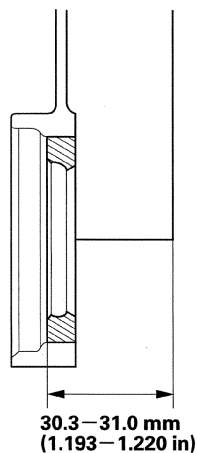
1. Clean and dry the cam chain case oil seal housing.
2. Apply a light coat of new engine oil to the lip of the cam chain case oil seal.
3. Use the driver handle, 15 x 135L and the bearing driver attachment, 52 x 55 mm to drive a new oil seal squarely into the cam chain case to the specified installed height.



4. Measure the distance between the cam chain case surface and the oil seal.

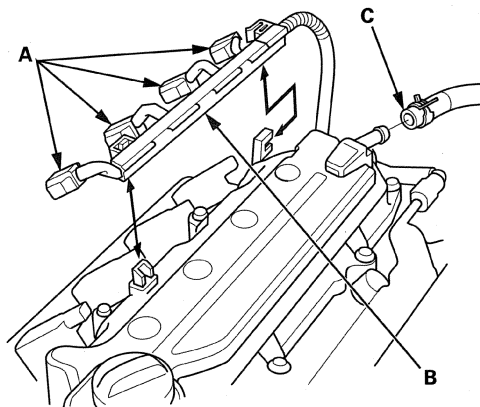
Oil Seal Installed Height

30.3–31.0 mm (1.193–1.220 in)

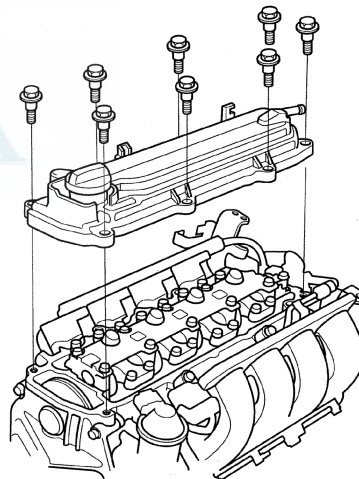


Cylinder Head Cover Removal

1. Remove the intake manifold chamber (see page 9-3).
2. Disconnect the four ignition coil connectors (A).



3. Remove the harness holder (B) and the breather hose (C).
4. Remove the cylinder head cover.



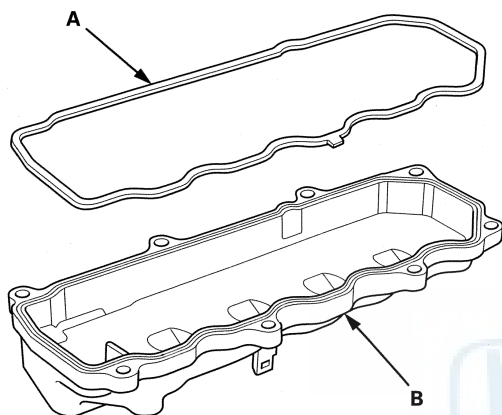


Cylinder Head Cover Installation

1. Thoroughly clean the head cover gasket and the groove of the cylinder head cover.

NOTE: Check and if necessary, replace the head cover gasket.

2. Install the head cover gasket (A) in the groove of the cylinder head cover (B). Make sure the head cover gasket is seated securely.

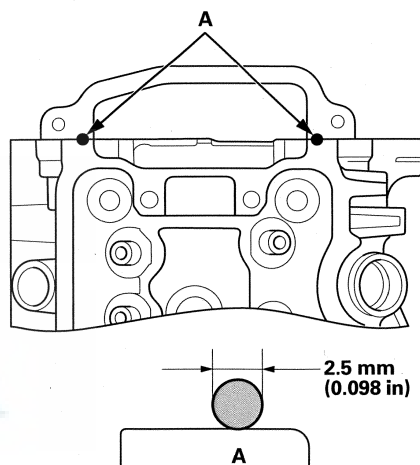


3. Remove all of the old liquid gasket from the cylinder head/cam chain case mating surfaces.
4. Check the head cover contacting surfaces with a shop towel.

5. Apply liquid gasket (P/N 08717-0004, 08718-0003, 08718-0004, or 08718-0009) to the cam chain case contact areas (A). Install the component within 5 minutes of applying the liquid gasket.

NOTE:

- Apply a 2.5 mm (0.098 in) diameter bead of liquid gasket to the cam chain case contact areas.
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.



(cont'd)

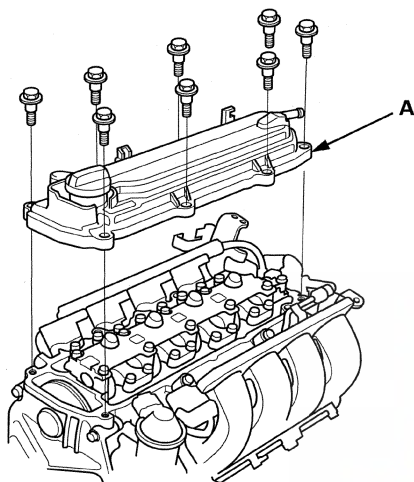
Cylinder Head

Cylinder Head Cover Installation (cont'd)

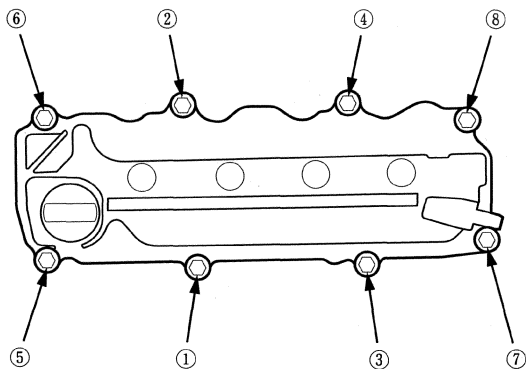
6. Place the cylinder head cover (A) on the cylinder head, then slide the cover slightly back and forth to seat the head cover gasket.

NOTE:

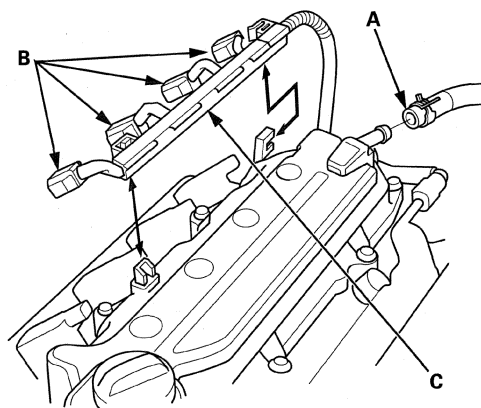
- Wait at least 30 minutes before filling the engine with oil.
- Do not run the engine for at least 3 hours after installing the head cover.



7. Tighten the bolts in three steps. In the final step torque all bolts, in sequence, to 9.8 N·m (1.0 kgf·m, 7 lbf·ft).



8. Connect the breather hose (A), and install the harness holder (B).



9. Connect the four ignition coil connectors (C).
10. Install the intake manifold chamber (see page 9-4).

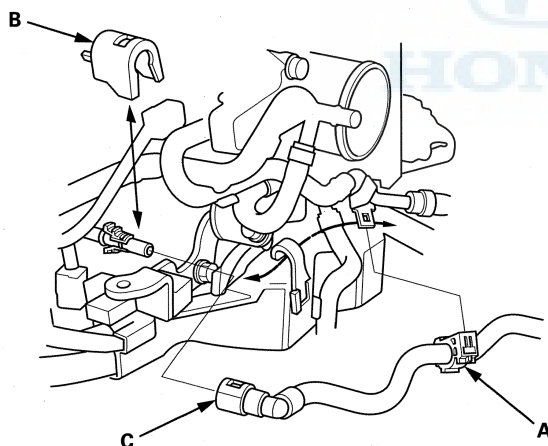


Cylinder Head Removal

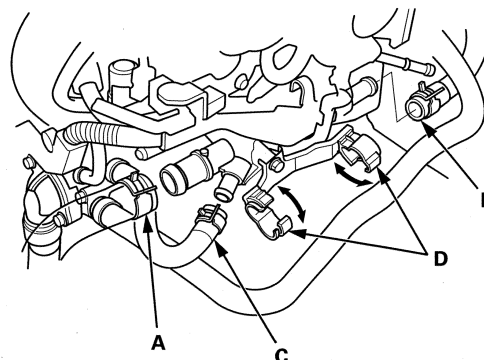
NOTE:

- Use fender covers to avoid damaging painted surfaces.
- To avoid damage, unplug the wiring connectors carefully while holding the connector portion.
- Connect the HDS to the DLC (see step 2 on page 11-3), and monitor ECT SENSOR 1. To avoid damaging the cylinder head, wait until the engine coolant temperature drops below 100 °F (38 °C) before loosening the cylinder head bolts.
- Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.
- Keep the cam chain away from magnetic fields.

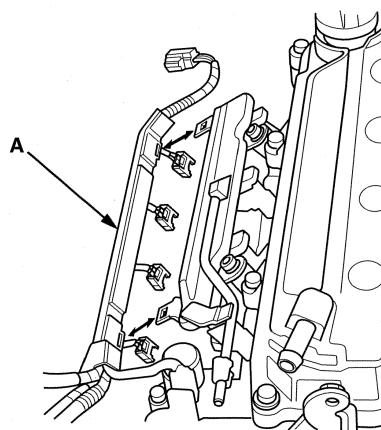
1. Relieve fuel pressure (see page 11-279).
2. Drain the engine coolant (see page 10-8).
3. Do the battery removal procedure (see page 22-70).
4. Remove the air cleaner (see page 11-307).
5. Remove the fuel feed hose clamp (A) and the quick-connect fitting cover (B), then disconnect the fuel feed hose (C) (see page 11-289).



6. Disconnect the upper radiator hose (A), the heater hose (B), and the water bypass hose (C).



7. Remove the heater hose from the clamps (D).
8. Remove the intake manifold/chamber assembly (see page 9-9).
9. Remove the warm up TWC (see page 11-314).
10. Disconnect the following engine wire harness connectors, and remove the wire harness clamps from the cylinder head:
 - Four injector connectors
 - ECT sensor 1 connector
 - CMP sensor connector
 - Secondary HO2S connector
 - Rocker arm oil control solenoid connector
11. Remove the harness holder (A) from the fuel rail.

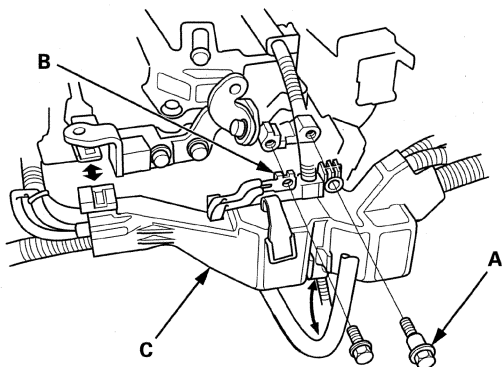


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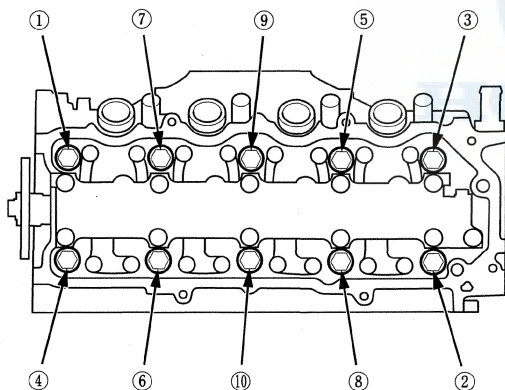
Cylinder Head

Cylinder Head Removal (cont'd)

12. Remove the harness holder mounting bolt (A) and the ground cable (B), then remove the harness holder (C) from the bracket.



13. Remove the cylinder head cover (see page 6-22).
14. Remove the cam chain (see page 6-12).
15. Remove the cylinder head bolts. To prevent warpage, loosen the bolts in sequence 1/3 turn at a time; repeat the sequence until all bolts are loosened.

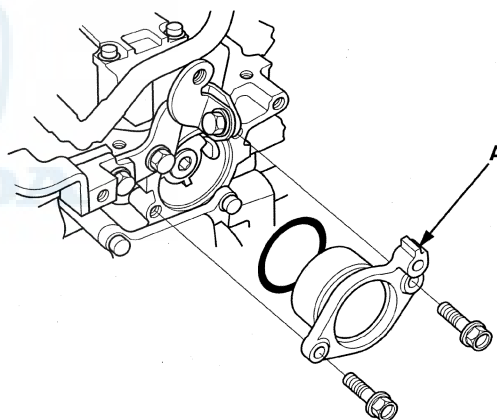


16. Remove the cylinder head.

CMP Pulse Plate Removal and Installation

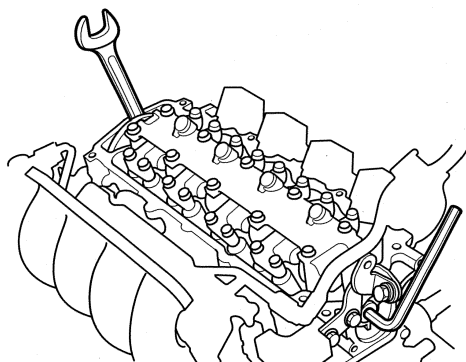
Removal

1. Remove the air cleaner (see page 11-307).
2. Remove the intake manifold chamber (see page 9-3).
3. Disconnect the following engine wire harness connectors, and remove the wire harness clamps from the cylinder head:
 - Four injector connectors
 - ECT sensor 1 connector
 - CMP sensor connector
 - A/F sensor connector
 - Secondary HO2S connector
4. Remove the harness holder mounting bolt and the ground cable, then remove the harness holder from the bracket (see step 12 on page 6-26).
5. Remove the cylinder head cover (see page 6-22).
6. Remove the camshaft thrust cover (A).

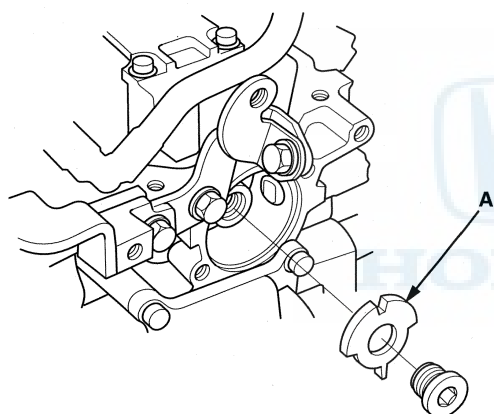




7. Hold the camshaft with an open-end wrench, then loosen the bolt.

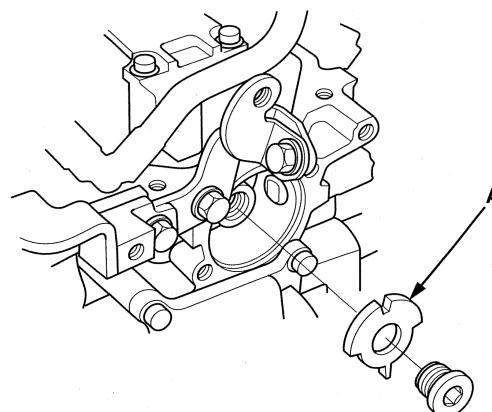


8. Remove the CMP pulse plate (A).



Installation

1. Install the CMP pulse plate (A).

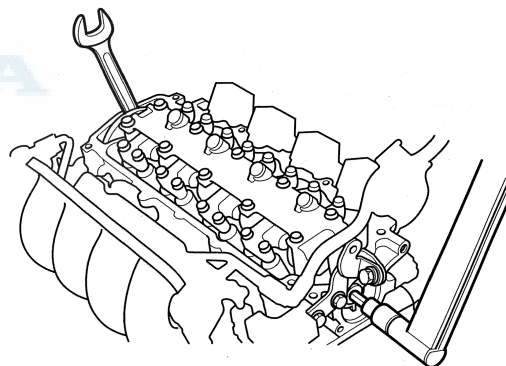


2. Hold the camshaft with an open-end wrench, then tighten the bolt.

Specified Torque

14 x 1.5 mm

34 N·m (3.5 kgf·m, 25 lbf·ft)

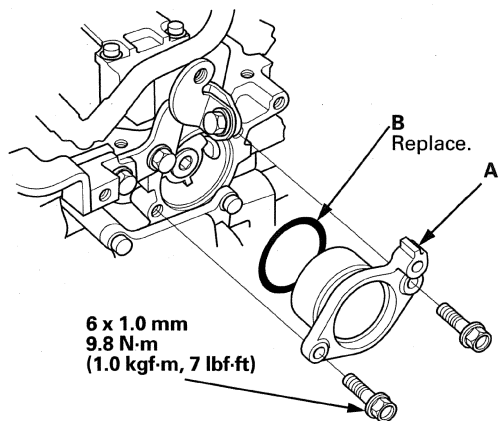


(cont'd)

Cylinder Head

CMP Pulse Plate Removal and Installation (cont'd)

3. Install the camshaft thrust cover (A) with a new O-ring (B).

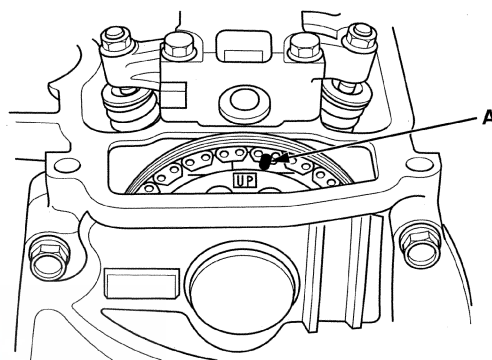


4. Install the cylinder head cover (see page 6-23).
5. Install the harness holder, then install the ground cable (see step 12 on page 6-47).
6. Connect the following engine wire harness connectors, and install the wire harness clamps from the cylinder head:
- Four injector connectors
 - ECT sensor 1 connector
 - CMP sensor connector
 - A/F sensor connector
 - Secondary HO2S connector
7. Install the intake manifold chamber (see page 9-4).
8. Install the air cleaner (see page 11-307).

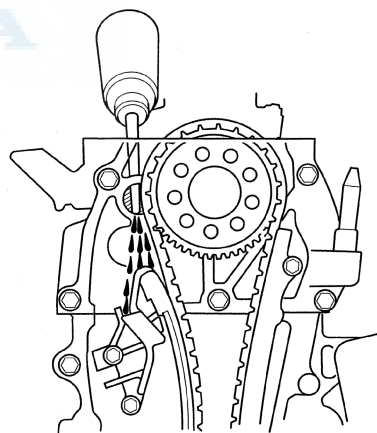
Camshaft Sprocket Removal

NOTE: Keep the cam chain away from magnetic fields.

1. Remove the drive belt (see page 4-29).
2. Remove the drive belt auto-tensioner (see page 4-31).
3. Remove the cylinder head cover (see page 6-22).
4. Make a reference mark (A) across the camshaft sprocket and the cam chain.

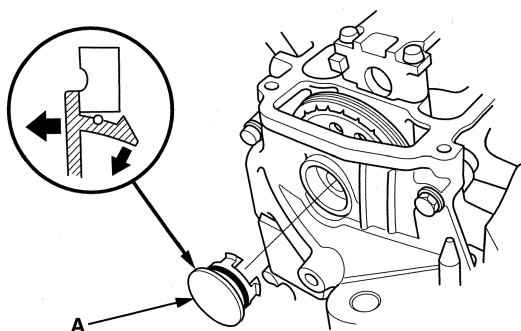


5. Apply new engine oil to the slider surface of the cam chain tensioner slider through the oil return hole in the cylinder head.

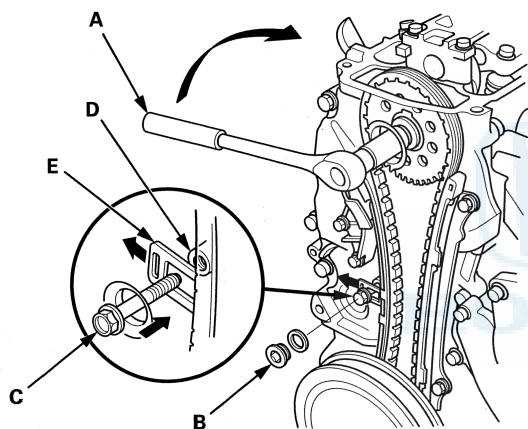




6. Remove the cylinder head plug (A).



7. Hold the crankshaft pulley and set a socket wrench (A) on the camshaft sprocket bolt.



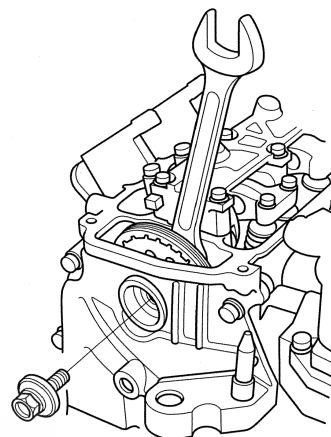
8. Remove the maintenance bolt (B), and turn the camshaft clockwise to compress the cam chain tensioner, then install a 6 x 1.0 mm bolt (C) in the bolt hole (D) on the engine block through the maintenance hole and cam chain tensioner (E).

NOTE:

- Turning torque should not exceed 56 N·m (5.7 kgf·m, 41 lbf·ft) when turning the camshaft.
- Do not turn the camshaft counterclockwise.

9. Hold the camshaft with an open-end wrench, then remove the camshaft sprocket.

NOTE: Hang the cam chain with a wire.

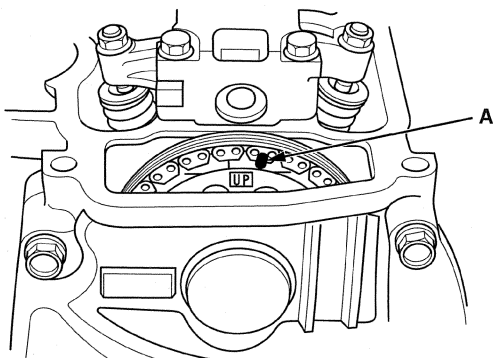


Cylinder Head

Camshaft Sprocket Installation

NOTE: Keep the cam chain away from magnetic fields.

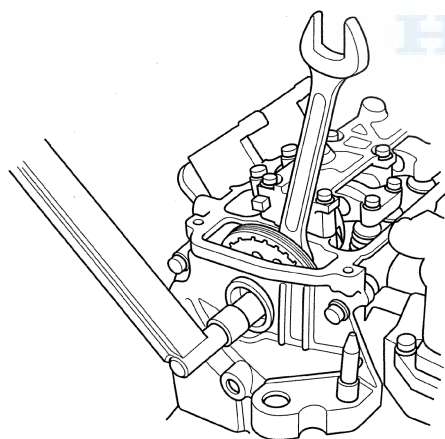
1. Install the cam chain to the camshaft sprocket by alignment the reference mark (A), then install the camshaft sprocket on the camshaft.



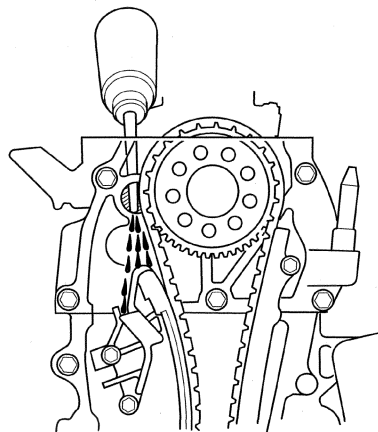
2. Apply new engine oil to the threads and flange of camshaft sprocket bolt.
3. Hold the camshaft with a open-end wrench, then tighten the bolt.

Specified torque

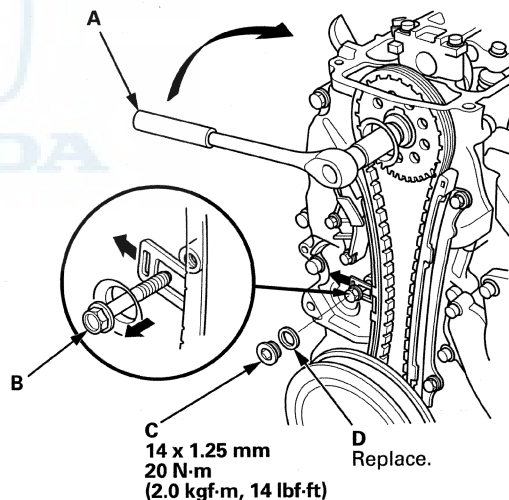
56 N·m (5.7 kgf·m, 41 lbf·ft)



4. Apply new engine oil to the slider surface of the cam chain tensioner slider through the oil return hole in the cylinder head.



5. Hold the crankshaft pulley and set the socket wrench (A) on the camshaft sprocket bolt.



6. Turn the camshaft clockwise to compress the cam chain tensioner, then remove the 6 x 1.0 mm bolt (B).

NOTE:

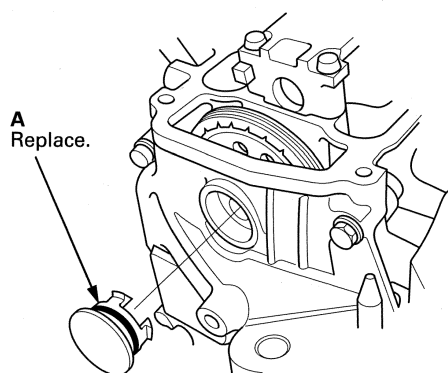
- Turning torque should not exceed 56 N·m (5.7 kgf·m, 41 lbf·ft) when turning the camshaft.
- Do not turn the camshaft counterclockwise.

7. Install the maintenance bolt (C) with a new washer (D).



Cylinder Head Inspection for Warpage

8. Install the new cylinder head plug (A).



9. Install the cylinder head cover (see page 6-23).
10. Install the drive belt auto-tensioner (see page 4-31).
11. Install the drive belt (see page 4-29).

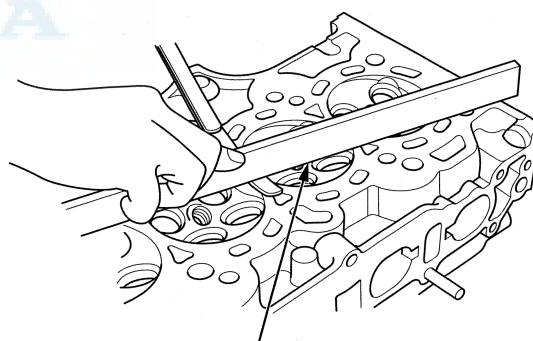
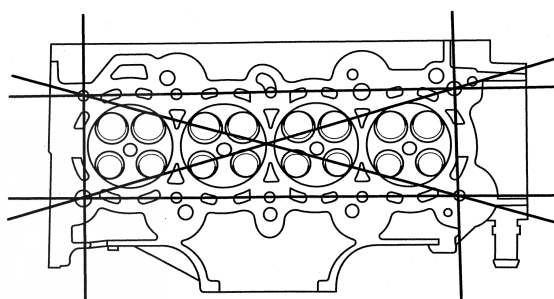
1. Remove the cylinder head (see page 6-25).
2. Inspect the camshaft (see page 6-36).
3. Check the cylinder head for warpage. Measure along the edges, and three ways across the center:
- If warpage is less than 0.08 mm (0.003 in) cylinder head resurfacing is not required.
 - Maximum resurface is limited to the cylinder head height standard as shown.

Cylinder Head Warpage

Standard (New): 0.08 mm (0.003 in) max.

Cylinder Head Height

Standard (New): 119.9–120.1 mm (4.720–4.728 in)



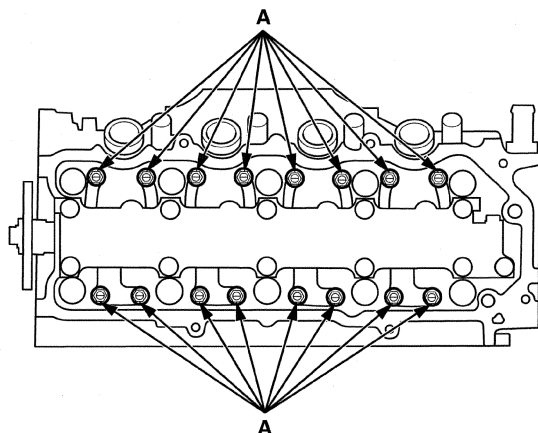
PRECISION STRAIGHT EDGE

Cylinder Head

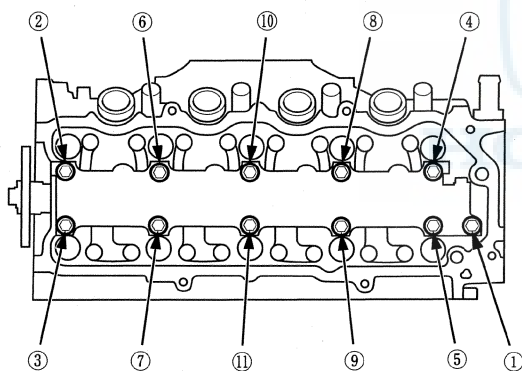
Rocker Arm Assembly Removal

1. Remove the cylinder head cover (see page 6-22).

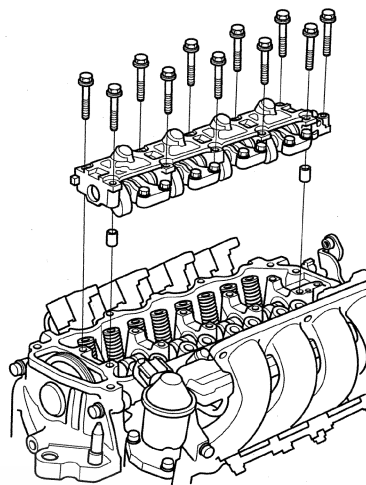
2. Loosen the rocker arm adjusting screws (A).



3. Unscrew the rocker shaft mounting bolts two turns at a time in the sequence shown.



4. Remove the rocker shaft mounting bolts, then remove the rocker arm assembly.

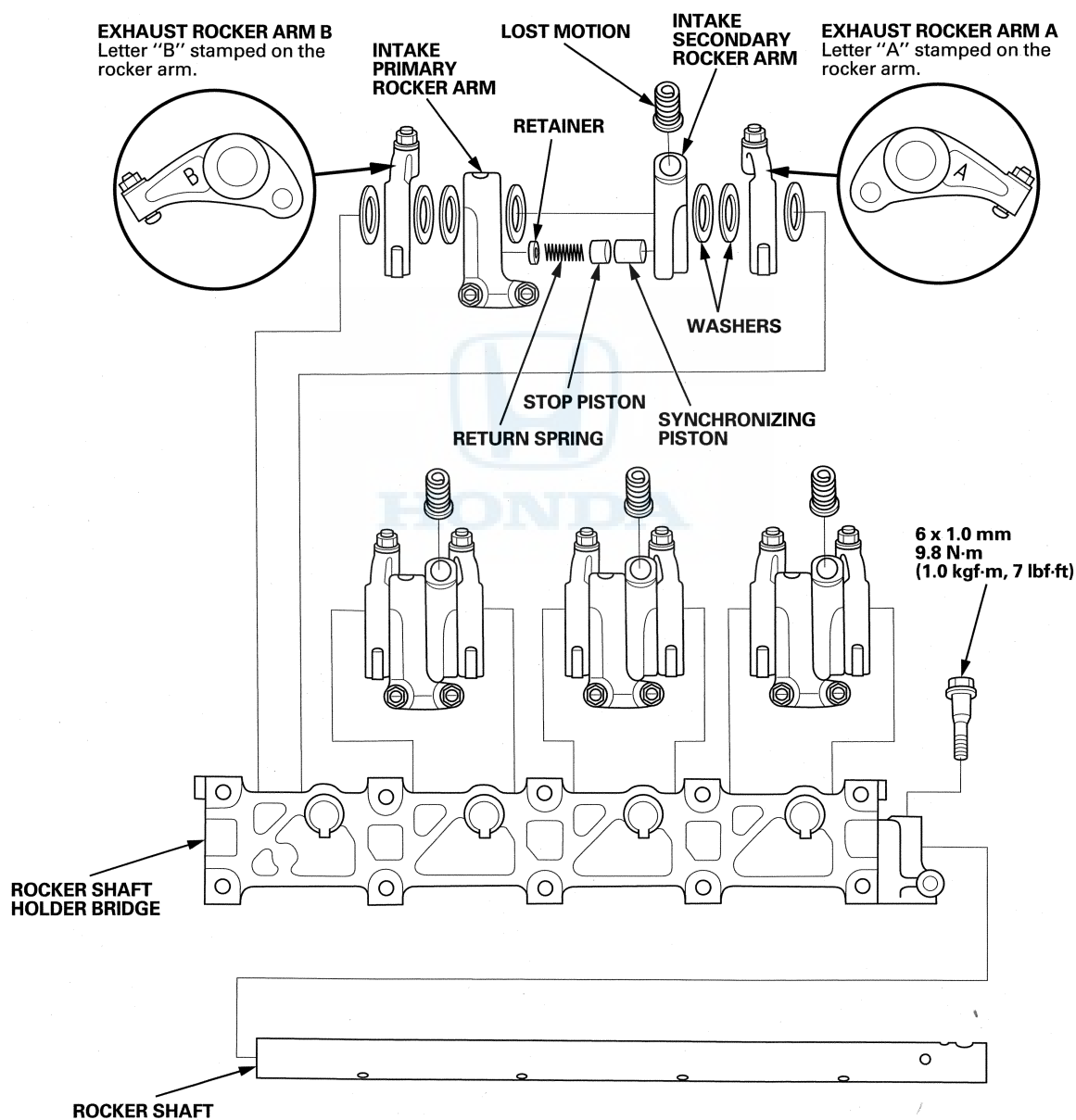




Rocker Arm and Shaft Disassembly/Reassembly

NOTE:

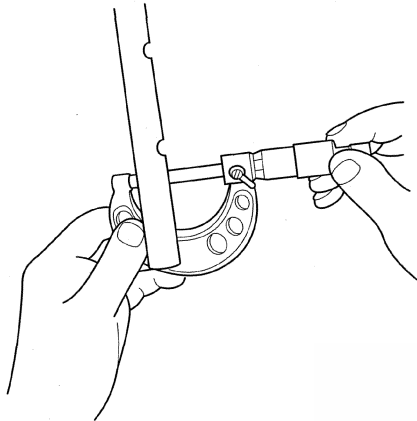
- Identify each part as it is removed so that each item can be reinstalled in its original location.
- Inspect the rocker arm shaft and the rocker arms (see page 6-34).
- If reused, the rocker arms must be installed in their original locations.
- Remove the rocker shaft bolt before removing the rocker shaft from the rocker shaft holder bridge.
- Prior to reassembling, clean all the parts in solvent, dry them, and apply new engine oil to any contact points, the bearing surfaces, and lost motions.
- When replacing the rocker arm assembly, remove the fastening hardware from the new rocker arm assembly.



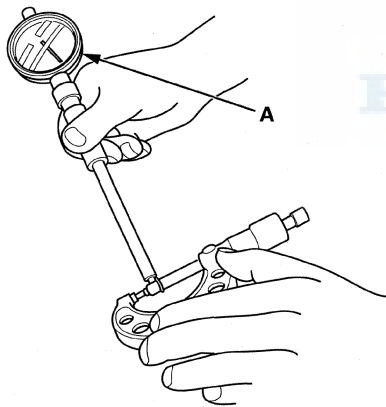
Cylinder Head

Rocker Arm and Shaft Inspection

1. Remove the rocker arm assembly (see page 6-32).
2. Disassemble the rocker arm assembly (see page 6-33).
3. Measure the diameter of the shaft at the first rocker location.



4. Zero the gauge (A) to the shaft diameter.



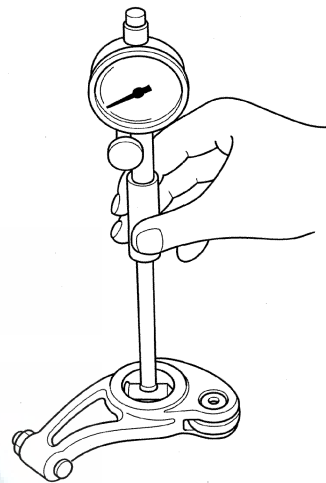
5. Measure the inside diameter of the rocker arm, and check it for an out-of-round condition.

Intake Rocker Arm-to-Shaft Clearance
Standard (New): 0.017—0.048 mm
(0.00067—0.00189 in)

Service Limit: 0.08 mm (0.0031 in)

Exhaust Rocker Arm-to-Shaft Clearance
Standard (New): 0.019—0.050 mm
(0.00075—0.00197 in)

Service Limit: 0.08 mm (0.0031 in)



6. Repeat for all rockers and shaft. If the clearance is beyond the service limit, replace the rocker shaft and all out of service limit rocker arms. If any VTEC rocker arm needs replacement, replace the rocker arms as an assembly.



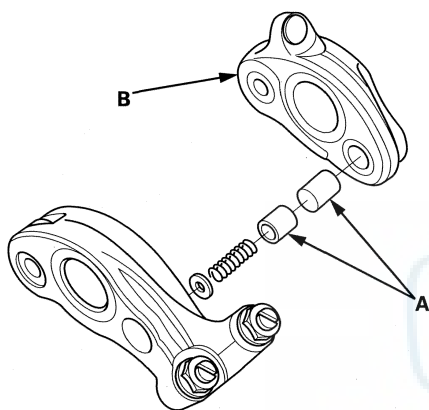
Camshaft Removal

VTEC Rocker Arms

7. Inspect the rocker arm pistons (A). Push on them manually. If they do not move smoothly, replace the rocker arm set.

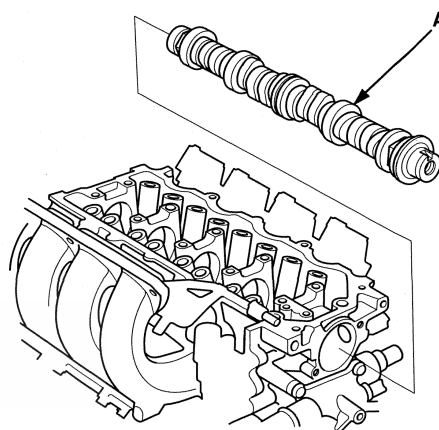
NOTE:

- Apply new engine oil to the rocker arm pistons when reassembling.
- When removing the rocker arm piston from the intake secondary rocker arm (B), carefully apply air pressure to the oil passage of the rocker arm.



8. Reassemble the rocker arm assembly (see page 6-33).
9. Install the rocker arm assembly (see page 6-45).

1. Remove the camshaft sprocket (see page 6-28).
2. Remove the rocker arm assembly (see page 6-32).
3. Remove the CMP sensor (see page 11-209).
4. Remove the CMP pulse plate (see page 6-26).
5. Remove the camshaft (A).



Cylinder Head

Camshaft Inspection

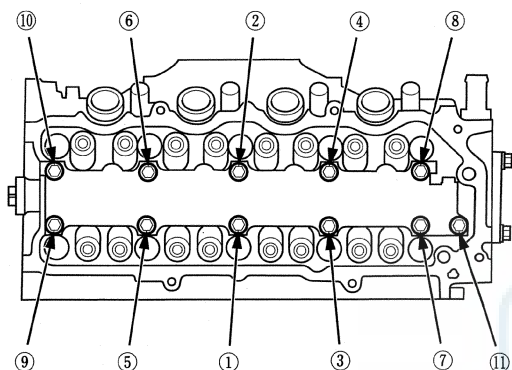
1. Remove the camshaft sprocket (see page 6-28).
2. Remove the rocker arm assembly (see page 6-32), then disassemble the rocker arm (see page 6-33).
3. Put the rocker shaft holder bridge on the cylinder head, then tighten the bolts to the specified torque.

Specified Torque

6 x 1.0 mm

①—⑩: 15 N·m (1.5 kgf·m, 11 lbf·ft)

⑪: 9.8 N·m (1.0 kgf·m, 7 lbf·ft)



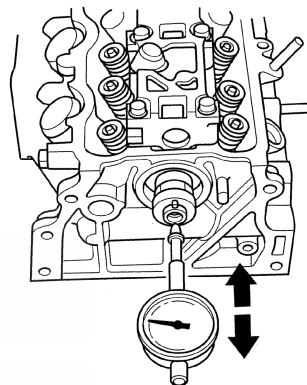
4. Seat the camshaft by pushing it toward the rear of the cylinder head.

5. Zero the dial indicator against the end of the camshaft. Push the camshaft back and forth, and read the end play. If the end play is beyond the service limit, replace the thrust cover and recheck. If it is still beyond the service limit, replace the cylinder head. If it is still beyond the service limit, replace the camshaft.

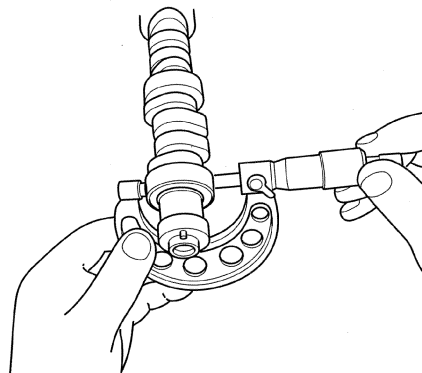
Camshaft End Play

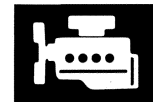
Standard (New): 0.05—0.25 mm (0.0020—0.0098 in)

Service Limit: 0.5 mm (0.020 in)

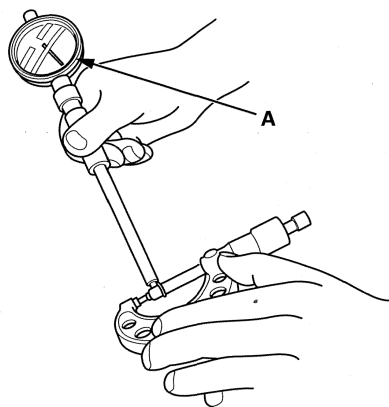


6. Remove the camshaft (see page 6-35).
7. Wipe the camshaft clean, then inspect the lift ramps. Replace the camshaft if any lobes are pitted, scored, or excessively worn.
8. Measure the diameter of each camshaft journal.





9. Zero the gauge (A) to the journal diameter.



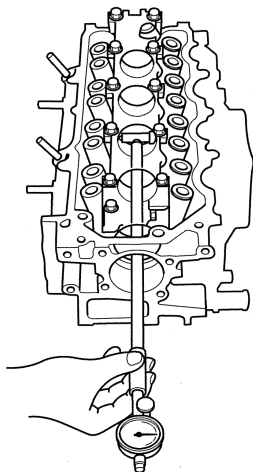
10. Clean the camshaft bearing surfaces in the cylinder head. Measure the inside diameter of each camshaft bearing surface, and check for an out-of-round condition:

- If the camshaft-to-holder clearance is within limits, go to step 12.
- If the camshaft-to-holder clearance is beyond the service limit, and the camshaft has been replaced, replace the cylinder head.
- If the camshaft-to-holder clearance is beyond the service limit, and the camshaft has not been replaced, go to step 11.

Camshaft-to-Holder Oil Clearance

Standard (New): 0.045–0.084 mm
(0.00177–0.00331 in)

Service Limit: 0.100 mm (0.00394 in)

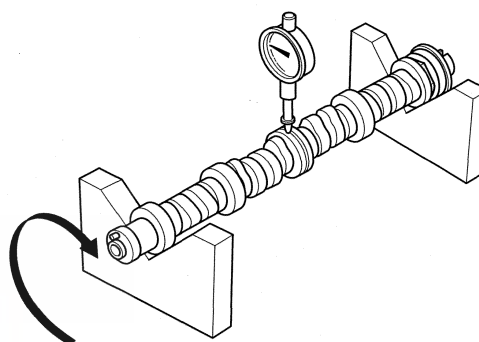


11. Check the total runout with the camshaft supported on V-blocks:

- If the total runout is within the standard, replace the cylinder head.
- If the total runout is not within the standard, replace the camshaft, and recheck the oil clearance. If the oil clearance is still out of tolerance, replace the cylinder head.

Camshaft Total Runout

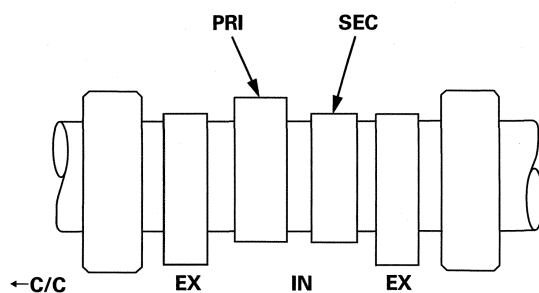
Standard (New): 0.03 mm (0.0012 in) max.



12. Measure the cam lobe height.

Cam Lobe Height Standard (New)

	INTAKE	EXHAUST
PRI	35.241 mm (1.38744 in)	35.471 mm (1.39649 in)
SEC	36.173 mm (1.42413 in)	



PRI: Primary
SEC: Secondary

IN: Intake
EX: Exhaust

C/C: Cam Chain

Cylinder Head

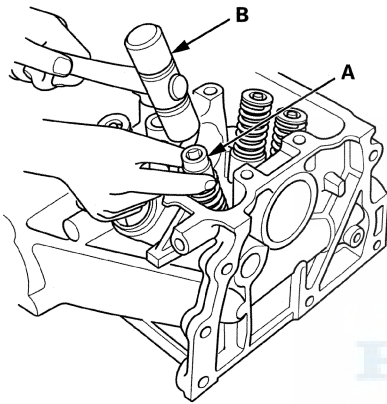
Valve, Spring, and Valve Seal Removal

Special Tools Required

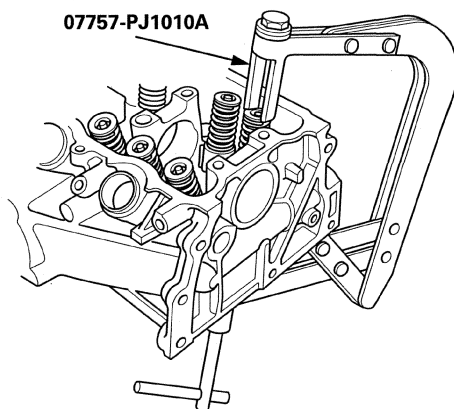
Valve Spring Compressor Attachment 07757-PJ1010A

Identify the valves and the valve springs as they are removed so that each item can be reinstalled in its original position.

1. Remove the cylinder head (see page 6-25).
2. Remove the rocker arm assembly (see page 6-32).
3. Remove the camshaft (see page 6-35).
4. Using an appropriate-sized socket (A) and a plastic mallet (B), lightly tap the spring retainer to loosen the valve cotters.

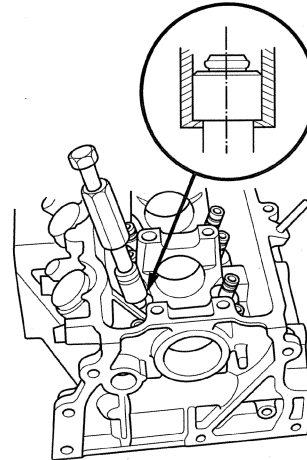


5. Install the valve spring compressor attachment and the valve spring compressor. Compress the valve spring and remove the valve cotters.

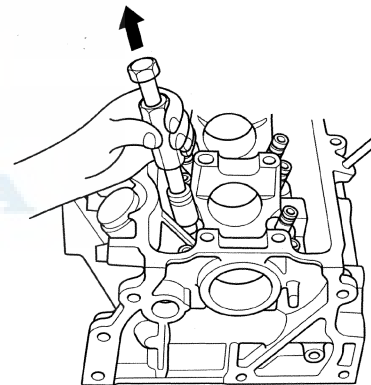


6. Remove the valve spring compressor and the valve spring compressor attachment, then remove the spring retainer, the valve spring, and the valve.

7. Install the valve guide seal remover.



8. Remove the valve seal.



9. Remove the valve spring seat.



Valve Inspection

1. Remove the valves (see page 6-38).

2. Measure the valve in these areas.

Intake Valve Dimensions

A Standard (New): 27.85—28.15 mm
(1.0965—1.1083 in)

B Standard (New): 118.55—119.15 mm
(4.6673—4.6909 in)

C Standard (New): 5.48—5.49 mm
(0.2157—0.2161 in)

C Service Limit: 5.45 mm (0.2146 in)

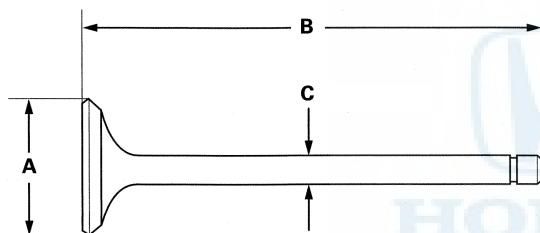
Exhaust Valve Dimensions

A Standard (New): 22.85—23.15 mm
(0.8996—0.9114 in)

B Standard (New): 117.25—117.85 mm
(4.6161—4.6398 in)

C Standard (New): 5.45—5.46 mm
(0.2146—0.2150 in)

C Service Limit: 5.42 mm (0.2134 in)



Valve Stem-to-Guide Clearance Inspection

1. Remove the valves (see page 6-38).

2. Subtract the O.D. of the valve stem, measured with a micrometer, from the I.D. of the valve guide, measured with an inside micrometer or ball gauge.

Take the measurements in three places along the valve stem and three places inside the valve guide.

The difference between the largest valve guide measurement and the smallest valve stem measurement should not exceed the service limit.

Intake Valve Stem-to-Guide Clearance

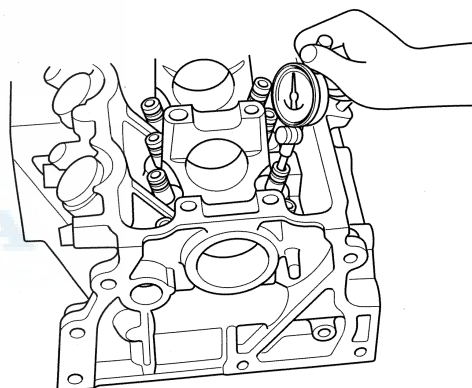
Standard (New): 0.020—0.050 mm
(0.00079—0.00197 in)

Service Limit: 0.08 mm (0.0031 in)

Exhaust Valve Stem-to-Guide Clearance

Standard (New): 0.050—0.080 mm
(0.00197—0.00315 in)

Service Limit: 0.11 mm (0.0043 in)



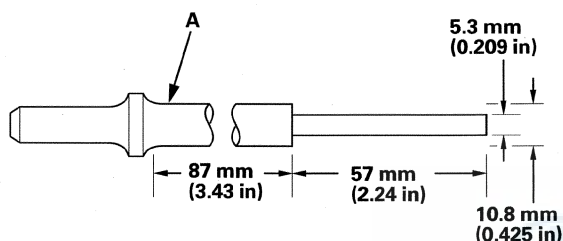
Cylinder Head

Valve Guide Replacement

Special Tools Required

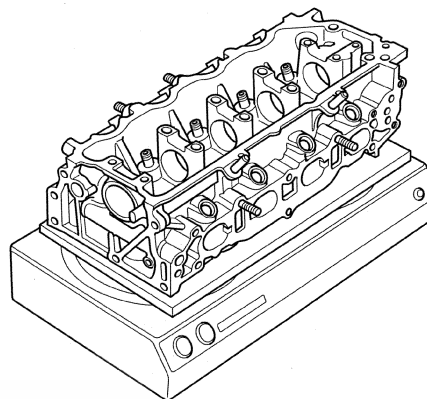
- Valve Guide Driver, 5.35 x 9.7 mm 07742-0010100
- Valve Guide Reamer, 5.5 mm 07HAH-PJ7A100

1. Inspect valve stem-to-guide clearance (see page 6-39).
2. As illustrated, use a commercially available air-impact valve guide driver (A) modified to fit the diameter of the valve guides. In most cases, the same procedure can be done using the valve guide driver, 5.35 x 9.7 mm and a conventional hammer.



3. Select the proper replacement valve guides, and chill them in the freezer section of a refrigerator for at least an hour.

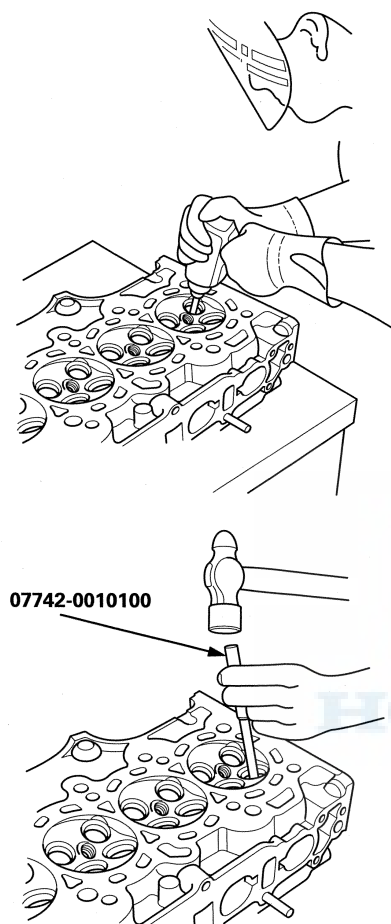
4. Use a hot plate or an oven to evenly heat the cylinder head to 300 °F (150 °C). Monitor the temperature with a cooking thermometer. Do not get the head hotter than 300 °F (150 °C); excessive heat may loosen the valve seats.



5. Working from the camshaft side, use the valve guide driver and an air hammer to drive the guide about 2 mm (0.08 in) towards the combustion chamber. This will knock off some of the carbon and make removal easier. Hold the air hammer directly in line with the valve guide to prevent damaging the driver. Wear safety goggles or a face shield.



6. Turn the head over, and drive the valve guide out toward the camshaft side of the head.



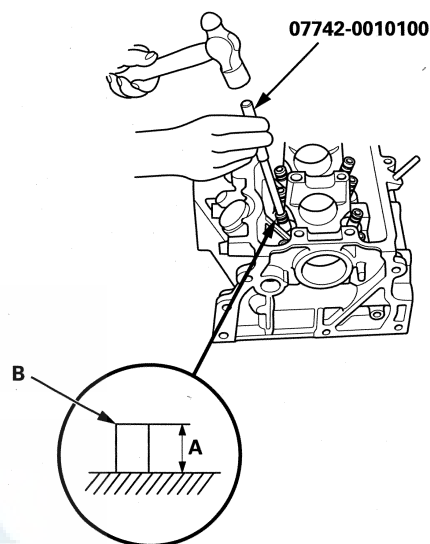
7. If a valve guide will not move, drill it out with an 8 mm (5/16 in) drill bit, then try again.

NOTE: Drill guides only in extreme cases; you could damage the cylinder head if the valve guide breaks.

8. Remove a new valve guide(s) from the freezer, one at a time, as you need them.

9. Apply a thin coat of new engine oil to the outside of a new valve guide. Install the valve guide from the camshaft side of the head; use the valve guide driver to drive the valve guide to the specified installed height (A) of the valve guide (B). If you have all 16 valve guides to do, you may have to reheat the head.

Valve Guide Installed Height
15.85—16.35 mm (0.6240—0.6437 in)



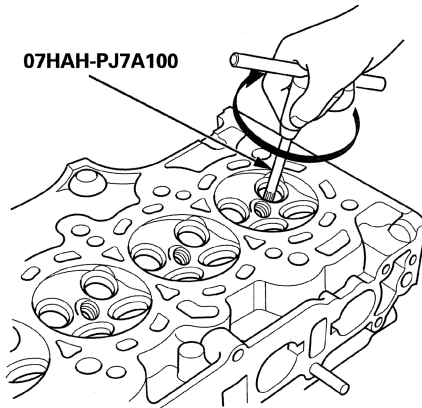
10. Coat both the valve guide reamer, 5.5 mm and the valve guide with cutting oil.

(cont'd)

Cylinder Head

Valve Guide Replacement (cont'd)

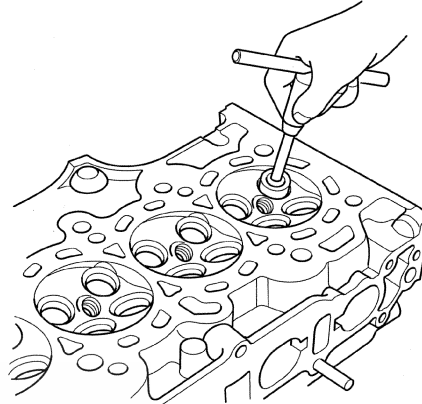
11. Rotate the reamer clockwise the full length of the valve guide bore.



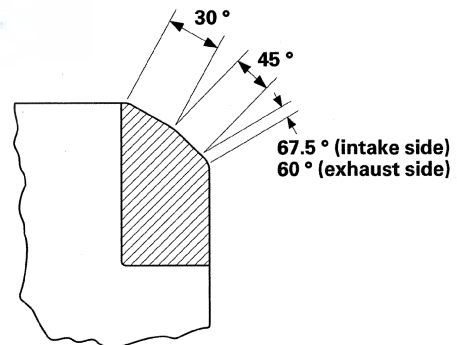
12. Continue to rotate the reamer clockwise while removing it from the bore.
13. Thoroughly wash the valve guide in detergent and water to remove any cutting residue.
14. Check the clearances with a valve (see page 6-39). Verify that a valve slides in the intake and exhaust valve guides without sticking.
15. Inspect the valve seating. If necessary renew the valve seat using a valve seat cutter (see page 6-42).

Valve Seat Reconditioning

1. Inspect valve stem-to-guide clearance (see page 6-39). If the valve guides are worn, replace them (see page 6-40) before cutting the valve seats.
2. Renew the valve seats in the cylinder head using a valve seat cutter.



3. Carefully cut a 45° seat, removing only enough material to ensure a smooth and concentric seat.
4. Bevel the upper and lower edges at the angles shown in the illustration. Check the width of the seat and adjust accordingly.





5. Make one more very light pass with the 45 ° cutter to remove any possible burrs caused by the other cutters.

Intake Valve Seat Width

Standard (New): 0.850—1.150 mm
(0.03346—0.04528 in)

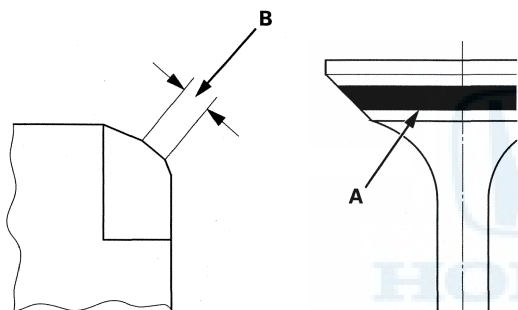
Service Limit: 1.60 mm (0.0630 in)

Exhaust Valve Seat Width

Standard (New): 1.250—1.550 mm
(0.04921—0.06102 in)

Service Limit: 2.00 mm (0.0787 in)

6. After resurfacing the seat, inspect for even valve seating: Apply Prussian Blue compound (A) to the valve face. Insert the valve in its original location in the head, then lift it and snap it closed against the seat several times.



7. The actual valve seating surface (B), as shown by the blue compound, should be centered on the seat:

- If it is too high (closer to the valve stem), you must make a second cut with the 67.5 ° cutter (intake seat) or the 60 ° cutter (exhaust seat) to move it down, then one more cut with the 45 ° cutter to restore seat width.
- If it is too low (close to the valve edge), you must make a second cut with the 30 ° cutter to move it up, then make one more cut with the 45 ° cutter to restore seat width.

NOTE: The final cut should always be made with the 45 ° cutter.

8. Insert the intake and exhaust valves in the head, and measure valve stem installed height (A).

Intake Valve Stem Installed Height

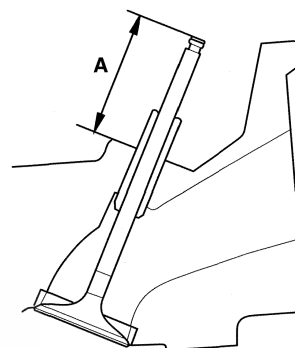
Standard (New): 46.1—46.5 mm (1.815—1.831 in)

Service Limit: 46.8 mm (1.843 in)

Exhaust Valve Stem Installed Height

Standard (New): 46.2—46.6 mm (1.819—1.835 in)

Service Limit: 46.9 mm (1.846 in)



9. If valve stem installed height is over the service limit, replace the valve and recheck. If it is still over the service limit, replace the cylinder head; the valve seat in the head is too deep.

Cylinder Head

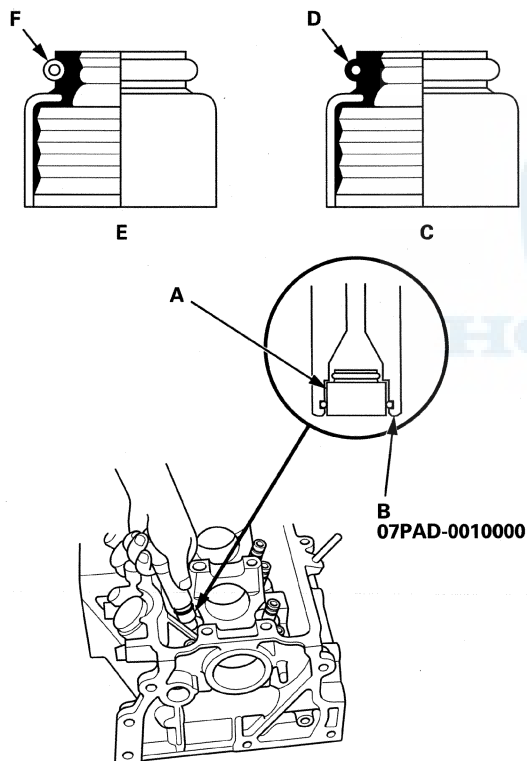
Valve, Spring, and Valve Seal Installation

Special Tools Required

- Stem Seal Driver 07PAD-0010000
- Valve Spring Compressor Attachment 07757-PJ1010A

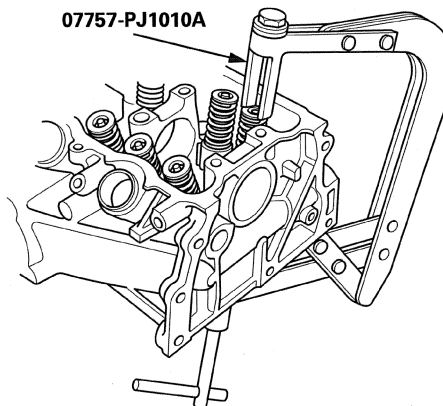
1. Coat the valve stems with new engine oil. Install the valves in the valve guides.
2. Check that the valves move up and down smoothly.
3. Install the spring seats on the cylinder head.
4. Install the new valve seals (A) using the 5.5 mm side of the stem seal driver (B).

NOTE: The exhaust valve seals (C) has a black spring (D) and intake valve seal (E) has a white or silver spring (F); they are not interchangeable.



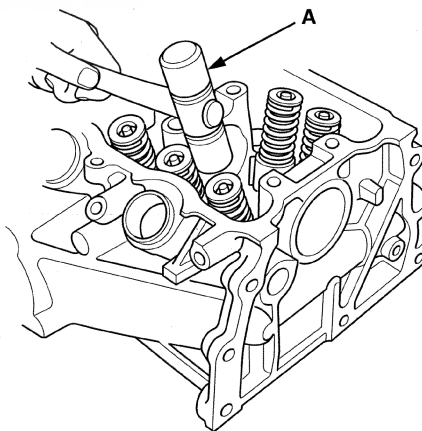
5. Install the valve spring and the spring retainer. Place the end of the valve spring with closely wound coils toward the cylinder head.

6. Install the valve spring compressor attachment and the valve spring compressor. Compress the valve spring and install the valve cotters.



7. Remove the valve spring compressor and the valve spring compressor attachment.
8. Lightly tap the end of each valve stem two or three times with a plastic mallet (A) to ensure proper seating of the valve and the valve cotters. Tap the valve stem only along its axis so you do not bend the valve stem.

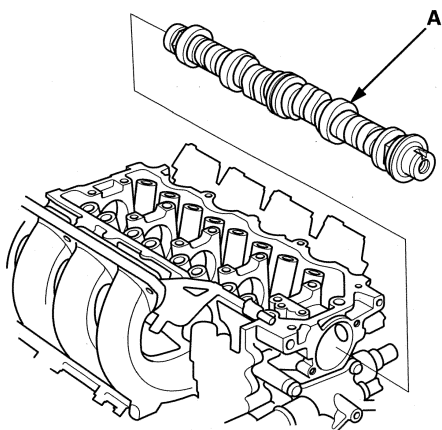
NOTE: Be sure to raise the head off the work bench so the valve is not possibly damaged.





Camshaft Installation

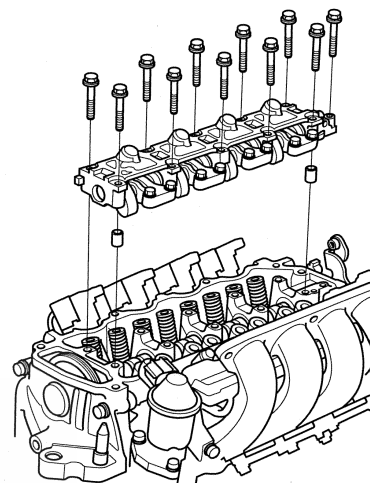
1. Insert the camshaft (A). Apply new engine oil to the journals and the cam lobes.



2. Install the CMP pulse plate (see page 6-27).
3. Install the CMP sensor (see page 11-209).
4. Install the rocker arm assembly (see page 6-45).
5. Install the camshaft sprocket (see page 6-30).

Rocker Arm Assembly Installation

1. If the rocker arm assembly is disassembled, reassemble the rocker arm assembly (see page 6-33).
2. Apply engine oil to the end of the valve stem.
3. Install the rocker arm assembly.



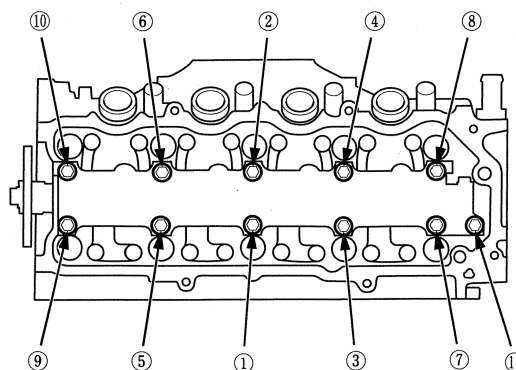
4. Tighten each bolts two turns at a time in the sequence.

Specified Torque

6 x 1.0 mm

①—⑩: 15 N·m (1.5 kgf·m, 11 lbf·ft)

⑪: 9.8 N·m (1.0 kgf·m, 7 lbf·ft)

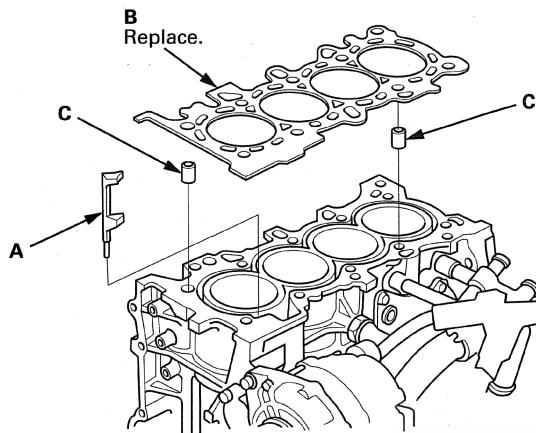


5. Adjust the valve clearance (see page 6-8).
6. Install the cylinder head cover (see page 6-23).

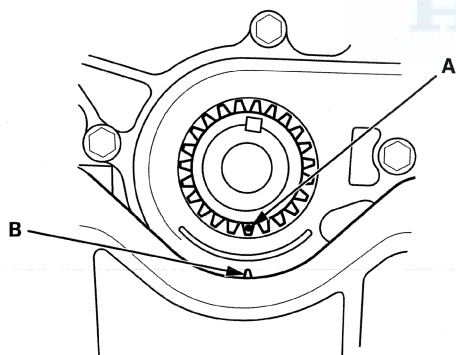
Cylinder Head

Cylinder Head Installation

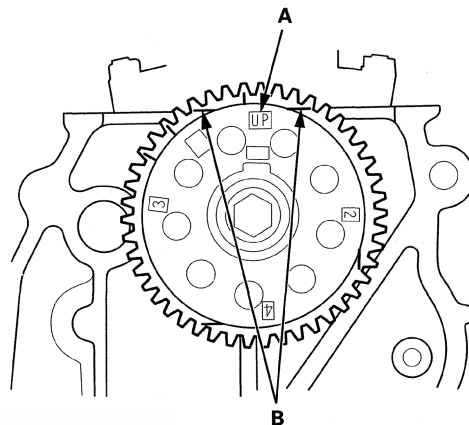
1. Clean the cylinder head and the engine block surface.
2. Install a new coolant separator (A) in the engine block whenever the engine block is replaced.



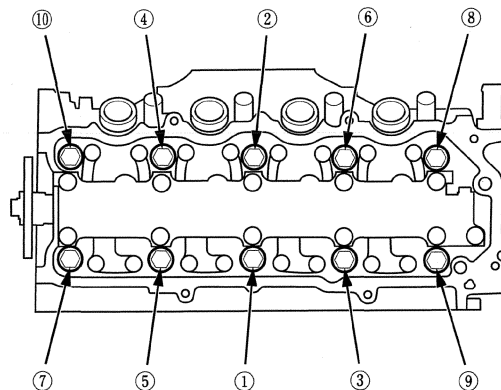
3. Install a new cylinder head gasket (B) and the dowel pins (C) on the engine block. Always use a new cylinder head gasket.
4. Set the crankshaft to top dead center (TDC). Align the TDC mark (A) on the crankshaft sprocket with the pointer (B) on the oil pump.

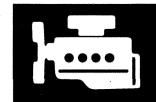


5. Set the camshaft TDC. The "UP" mark (A) on the camshaft sprocket should be at the top, and the TDC grooves (B) on the camshaft sprocket should line up with the top edge of the head.

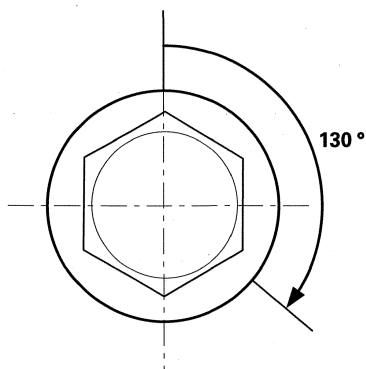


6. Install the cylinder head on the engine block.
7. Apply new engine oil to the threads and flange of all cylinder head bolts.
8. Torque the cylinder head bolts in sequence to 29 N·m (3.0 kgf-m, 22 lbf-ft) with a beam-type torque wrench if possible. When using a preset click-type torque wrench, be sure to tighten slowly and do not overtighten. If a bolt makes any noise while you are torquing it, loosen the bolt and retighten it from the first step.





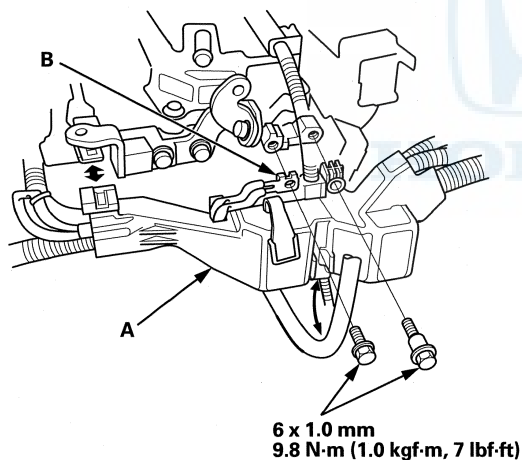
9. Tighten all cylinder head bolts an additional 130 °.



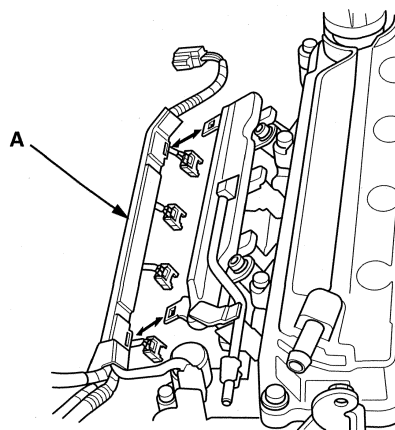
10. Install the cam chain (see page 6-15).

11. Install the cylinder head cover (see page 6-23).

12. Install the harness holder (A), then install the ground cable (B).



13. Install the harness holder (A) to the fuel rail.



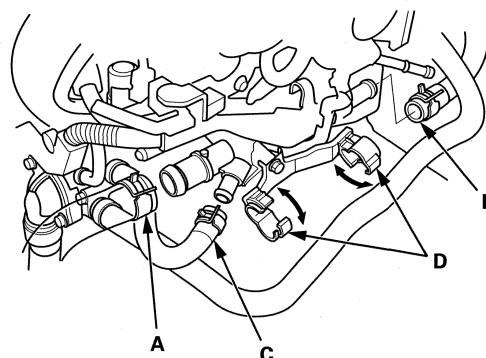
14. Connect the following engine wire harness connectors, and install the wire harness clamps to the cylinder head:

- Four injector connectors
- ECT sensor 1 connector
- CMP sensor connector
- Secondary HO2S connector
- Rocker arm oil control solenoid connector

15. Install the warm up TWC (see page 11-314).

16. Install the intake manifold/chamber assembly (see page 9-10).

17. Connect the upper radiator hose (A), the heater hose (B), and the water bypass hose (C).



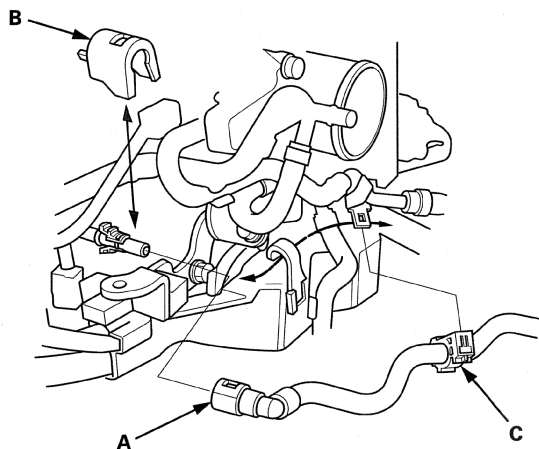
18. Install the heater hose to the clamps (D).

(cont'd)

Cylinder Head

Cylinder Head Installation (cont'd)

19. Connect the fuel feed hose (A) (see page 11-292), then install the quick-connect fitting cover (B) and the fuel feed hose clamp (C).



20. Install the air cleaner (see page 11-307).
21. After installation, check that all tubes, hoses, and connectors are installed correctly.
22. Do the battery installation procedure (see page 22-71).
23. Inspect for fuel leaks. Turn the ignition switch to ON (II) (do not operate the starter) so the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation three times, then check for fuel leakage at any point in the fuel line.
24. Refill the radiator with engine coolant, and bleed the air from the cooling system (see step 8 on page 10-8).
25. Clean up any spilled engine coolant.
26. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-5).
27. Inspect the idle speed (see page 11-267).
28. Inspect the ignition timing (see page 4-19).

Engine Mechanical



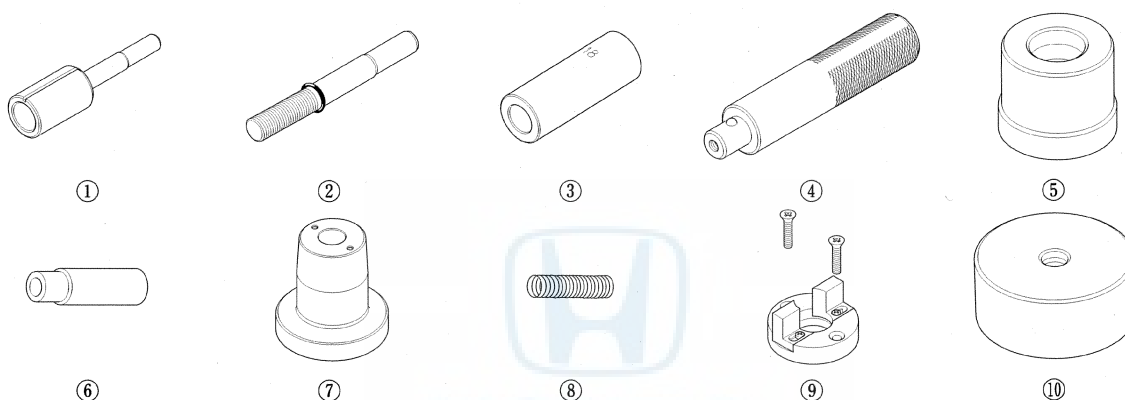
Engine Block

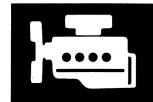
Special Tools	7-2
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Drain Bolt/Sealing Bolt Installation	7-32

Engine Block

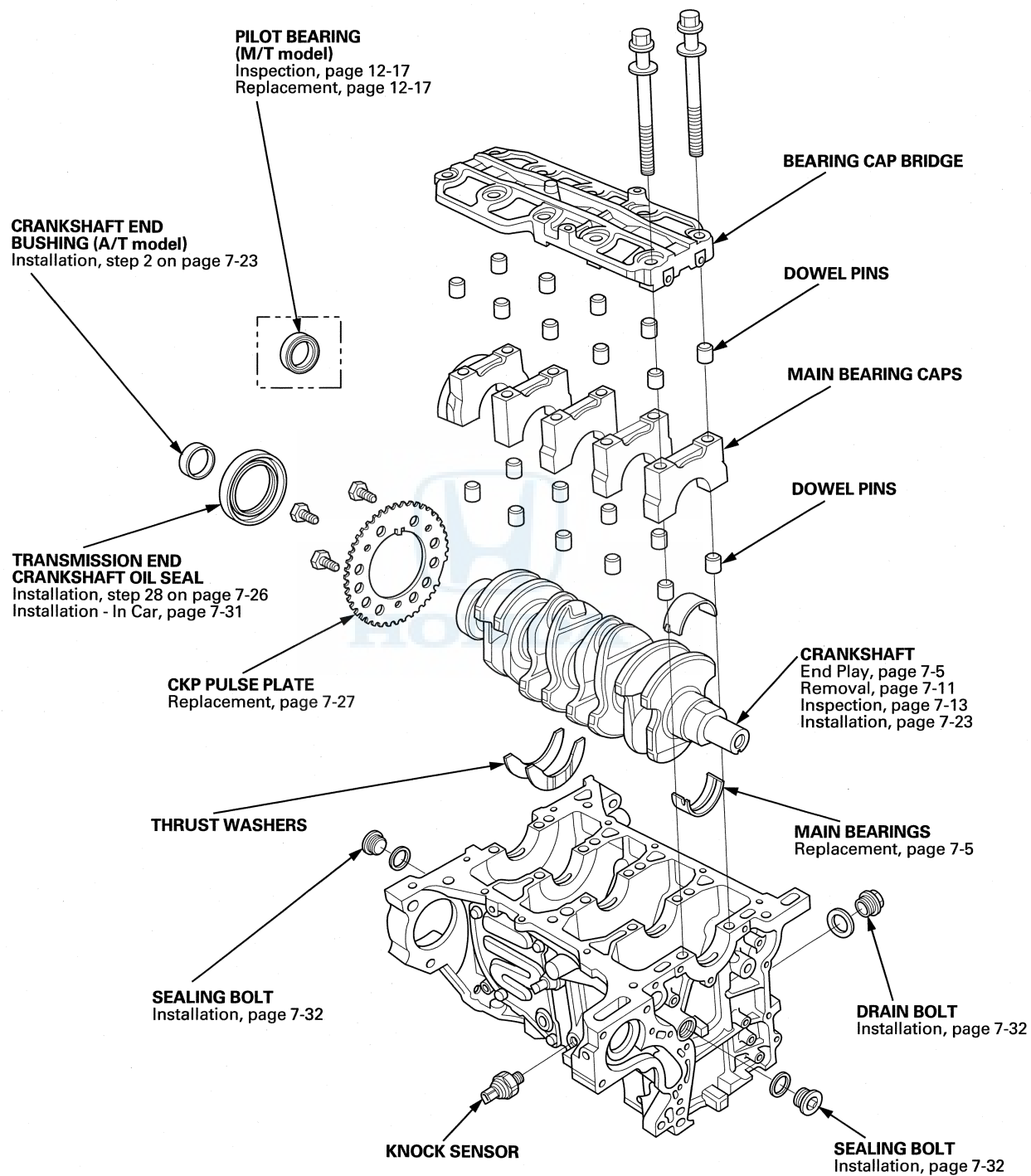
Special Tools

Ref.No.	Tool Number	Description	Qty
①	070AF-PWC0110	Pilot Pin	1
②	070AF-PWC0120	Insert Adjust	1
③	070AF-PWC0130	Pilot Collar, O.D. 18 mm	1
④	07749-0010000	Driver Handle, 15 x 135L	1
⑤	07946-1870100	Bearing Driver Attachment, 28 x 30	1
⑥	07973-6570201	Adjustable Piston Pin Driver Head	1
⑦	07973-6570500	Piston Base	1
⑧	07973-6570600	Piston Base Spring	1
⑨	07TGF-001000A	Piston Base Head	1
⑩	07ZAD-PNAA100	Oil Seal Driver Attachment, 96 mm	1





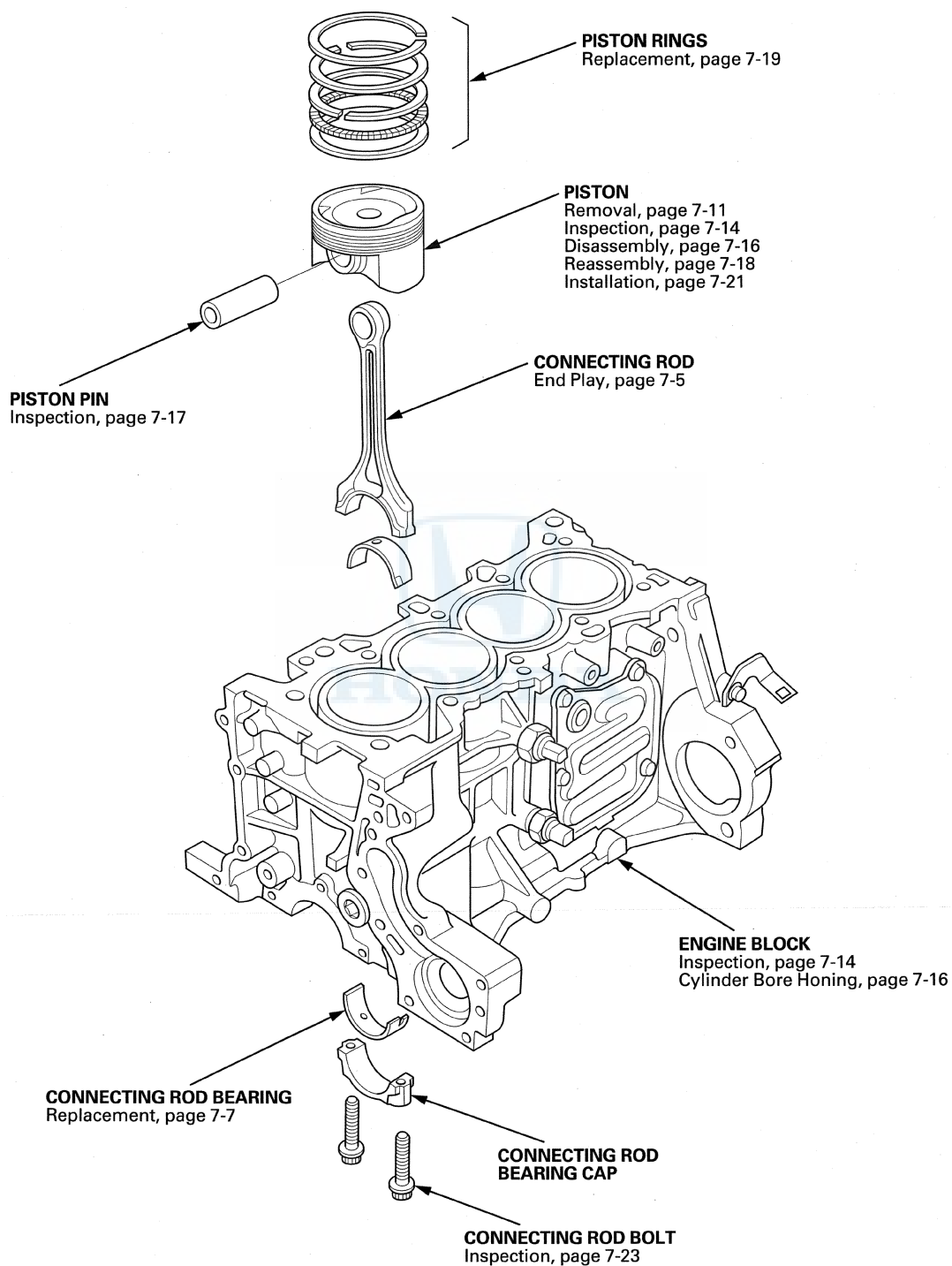
Component Location Index

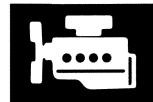


(cont'd)

Engine Block

Component Location Index (cont'd)

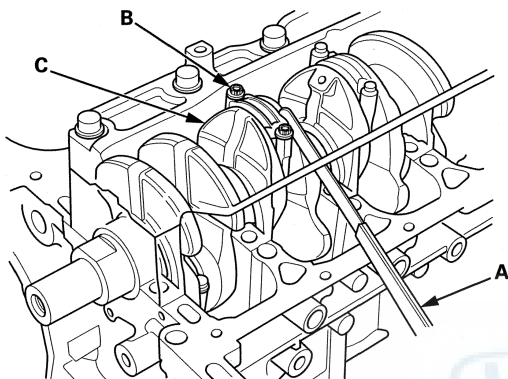




Connecting Rod and Crankshaft End Play Inspection

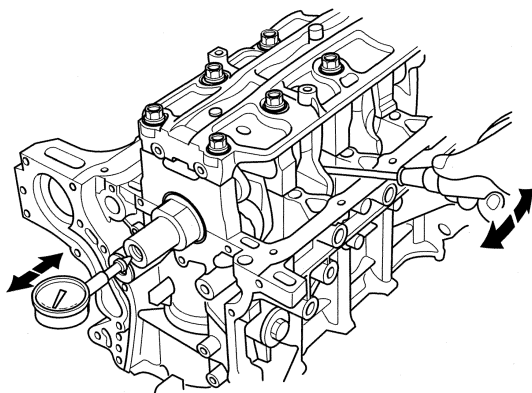
1. Remove the oil pump (see page 8-14).
2. Measure the connecting rod end play with a feeler gauge (A) between the connecting rod (B) and the crankshaft (C).

Connecting Rod End Play
Standard (New): 0.15–0.35 mm (0.006–0.013 in)
Service Limit: 0.40 mm (0.015 in)



3. If the connecting rod end play is beyond the service limit, install a new connecting rod, and recheck. If it is still beyond the service limit, replace the crankshaft (see page 7-11).
4. To check crankshaft end play, push the crankshaft firmly away from the dial indicator by prying, and zero the dial against the end of the crankshaft. Then pull the crankshaft firmly back toward the indicator by prying; the dial reading should not exceed the service limit.

Crankshaft End Play
Standard (New): 0.10–0.35 mm (0.0039–0.0138 in)
Service Limit: 0.45 mm (0.0177 in)



5. If the end play is beyond the service limit, replace the thrust washers, and recheck. If it is still beyond the service limit, replace the crankshaft (see page 7-11).

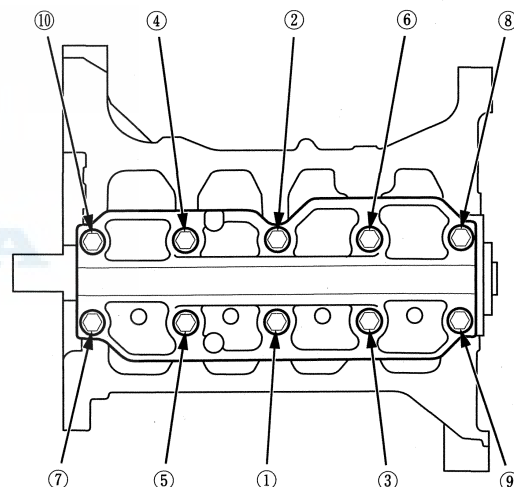
Crankshaft Main Bearing Replacement

Main Bearing Clearance Inspection

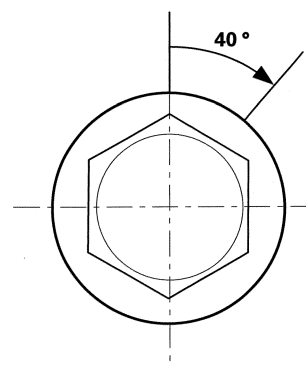
1. Remove the bearing cap bridge, the main bearing caps, and main bearing halves (see page 7-11).
2. Clean each main journal and main bearing half with a clean shop towel.
3. Place one strip of plastigage across each main journal.
4. Reinstall the main bearings, the main bearing caps, and the bearing cap bridge, then torque the bearing cap bolts to 25 N·m (2.5 kgf·m, 18 lbf·ft) in the proper sequence.

NOTE:

- Apply new engine oil to the bolt threads and flanges.
- Do not rotate the crankshaft during inspection.



5. Tighten the bearing cap bolts an additional 40°.



(cont'd)

Engine Block

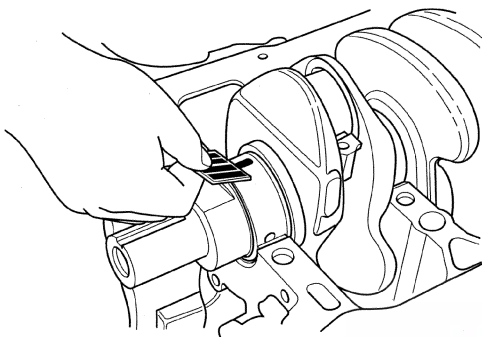
Crankshaft Main Bearing Replacement (cont'd)

6. Remove the bearing cap bridge, the main bearing caps, and the main bearing halves, and measure the widest part of the plastigage.

Main Bearing-to-Journal Oil Clearance

Standard (New): 0.018–0.036 mm
(0.00071–0.00142 in)

Service Limit: 0.050 mm (0.00197 in)



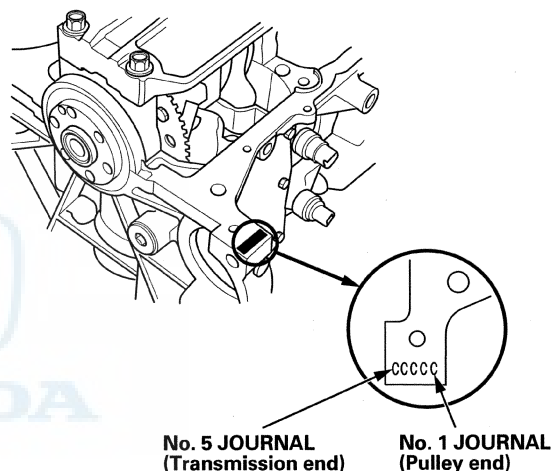
7. If the plastigage measures too wide or too narrow, remove the crankshaft, and remove the upper half of the main bearing. Install a new, complete main bearing with the same color code, and recheck the clearance. Do not file, shim, or scrape the main bearings or the main bearing caps to adjust clearance.
8. If the plastigage shows the clearance is still incorrect, try the next larger or smaller main bearing (the color listed above or below that one), and check the clearance again. If the proper clearance cannot be obtained by using the appropriate larger or smaller main bearings, replace the crankshaft (see page 7-11) and start over.

Main Bearing Selection

Block Bore Code Location

Letters have been stamped on the end of the engine block as a code for the size of each of the five main journal bores.

Use them, and the numbers stamped on the crankshaft (codes for main journal size), to choose the correct main bearings. If the codes are indecipherable because of an accumulation of dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.



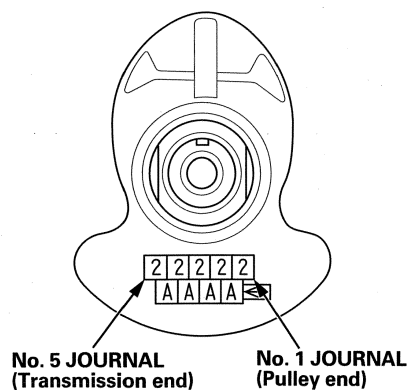
Bearing Identification

Color code is on the edge of the bearing

		Larger crank bore			
		A	B	C	D
		Smaller bearing (Thicker)			
↓ Smaller main journal	1	White	Red	Pink	Yellow
	2	Red	Pink	Yellow	Green
	3	Pink	Yellow	Green	Brown
	4	Yellow	Green	Brown	Black
		Smaller bearing (Thicker)			



Main Journal Code Location



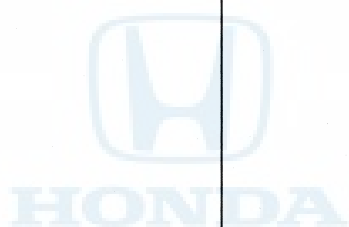
Connecting Rod Bearing Replacement

Connecting Rod Bearing Clearance Inspection

1. Remove the bearing cap bridge (see page 7-11).
2. Remove the connecting rod cap and the connecting rod bearing half.
3. Clean the connecting rod journal and the connecting rod bearing half with a clean shop towel.
4. Place one strip of plastigage across the connecting rod journal.
5. Reinstall the connecting rod bearing half and the connecting rod cap, and torque the connecting rod bolts to 9.8 N·m (1.0 kgf·m, 7 lbf·ft) +90 °.

NOTE:

- Apply new engine oil to the bolt threads and flanges.
- Do not rotate the crankshaft during inspection.



(cont'd)

Engine Block

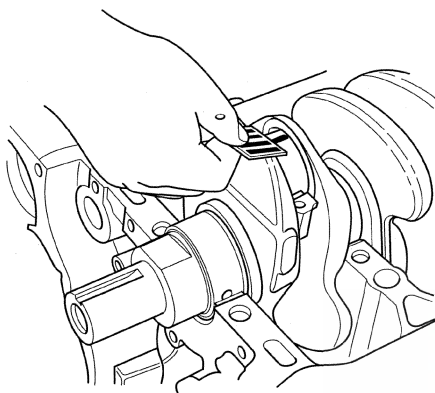
Connecting Rod Bearing Replacement (cont'd)

6. Remove the connecting rod cap and the connecting rod bearing half, and measure the widest part of the plastigage.

Connecting Rod Bearing-to-Journal Oil Clearance

Standard (New): 0.020–0.038 mm
(0.00079–0.00150 in)

Service Limit: 0.050 mm (0.00197 in)



7. If the plastigage measures too wide or too narrow, remove the upper half of the connecting rod bearing. Install a new, complete connecting rod bearing with the same color code, and recheck the clearance. Do not file, shim, or scrape the connecting rod bearings or the connecting rod caps to adjust clearance.
8. If the plastigage shows the clearance is still incorrect, try the next larger or smaller connecting rod bearing (the color listed above or below that one), and check the clearance again. If the proper clearance cannot be obtained by using the appropriate larger or smaller connecting rod bearings, replace the crankshaft (see page 7-11) and start over.

Connecting Rod Bearing Selection

Each connecting rod falls into one of four tolerance ranges (from 0 to 0.024 mm (0.00095 in), in 0.006 mm (0.00024 in) increments) depending on the size of its big end bore.

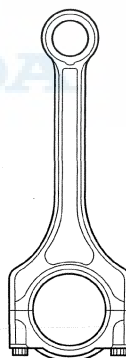
It's then stamped with a number (1, 2, 3, or 4) indicating the range. You may find any combination of 1, 2, 3, or 4 in any engine.

Big End Bore Size: 43.0 mm (1.693 in)

Inspect each connecting rod for cracks and heat damage.

Connecting Rod Big End Bore Code Locations

Numbers have been stamped on the side of each connecting rod as a code for the size of the big end. Use them, and the letters stamped on the crank (codes for rod journal size), to choose the correct connecting rod bearings. If the codes are indecipherable because of an accumulation of dirt and dust, do not scrub them with a wire brush or scraper. Clean them only with solvent or detergent.



Half of the number is stamped on the connecting rod and the other half is stamped on the rod cap.



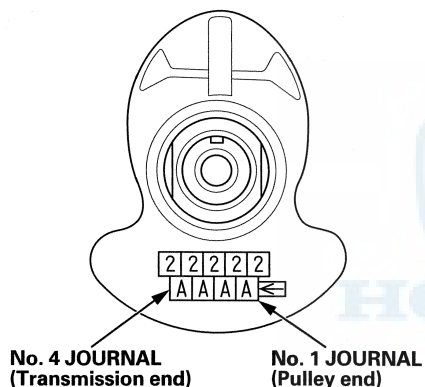
Oil Pan Removal

Bearing Identification

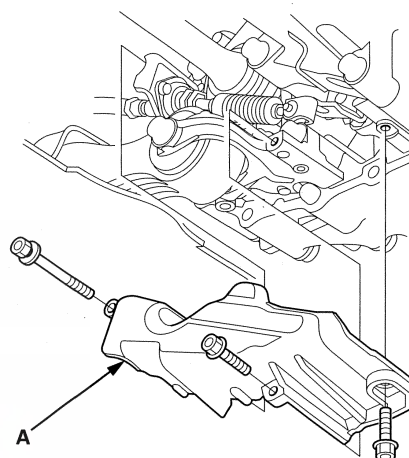
Color code is on the edge of the bearing

	Larger big rod bore			
	1	2	3	4
A B C D	Smaller bearing (Thicker)			
	Red	Pink	Yellow	Green
	Pink	Yellow	Green	Brown
	Yellow	Green	Brown	Black
	Green	Brown	Black	Blue

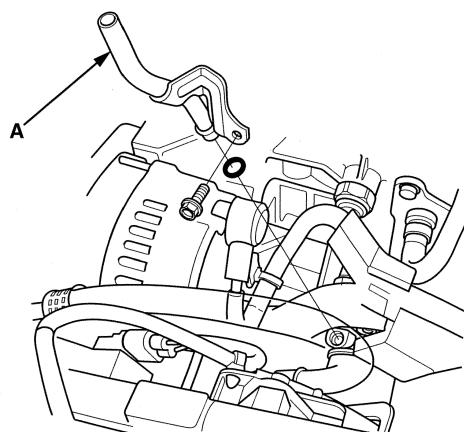
Connecting Rod Journal Code Location



1. If the engine is already out of the vehicle, go to step 7.
2. Drain the engine oil (see page 8-10).
3. Remove the drive belt (see page 4-29).
4. Remove the driveshaft heat shield (see step 33 on page 5-6).
5. Remove the A/C compressor without disconnecting the A/C hoses (see step 37 on page 5-7).
6. A/T model: Remove the shift cable cover (A).



7. M/T model: Remove the torque rod bracket (see page 5-30).
8. Remove the dipstick, then remove the dipstick tube (A).

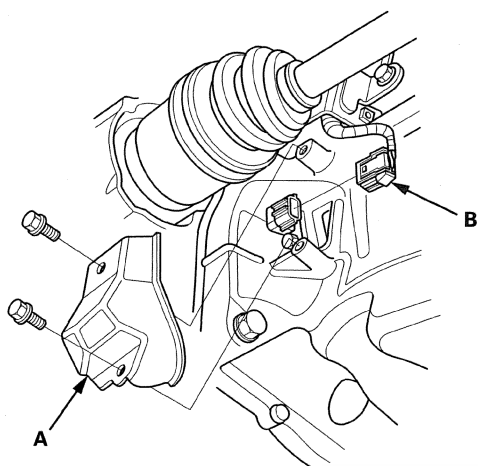


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Engine Block

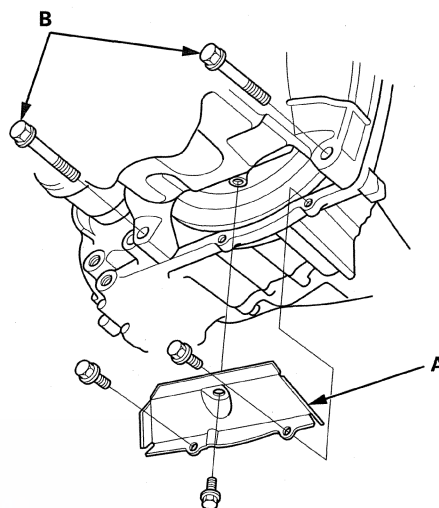
Oil Pan Removal (cont'd)

9. Remove the CKP sensor cover (A), then disconnect the CKP sensor connector (B).

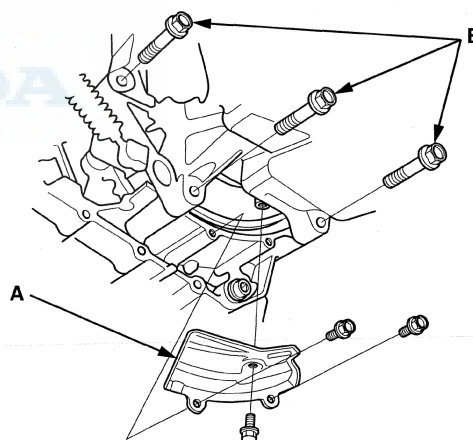


10. Remove the clutch case cover/torque converter case cover (A), and the transmission mounting bolts (B).

M/T model



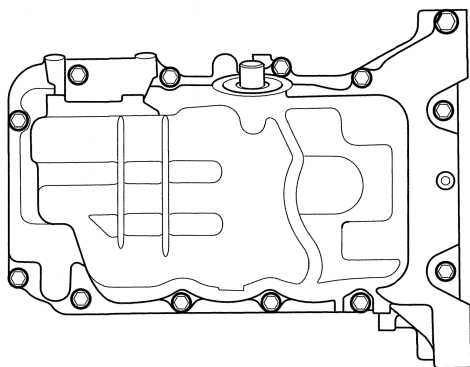
A/T model



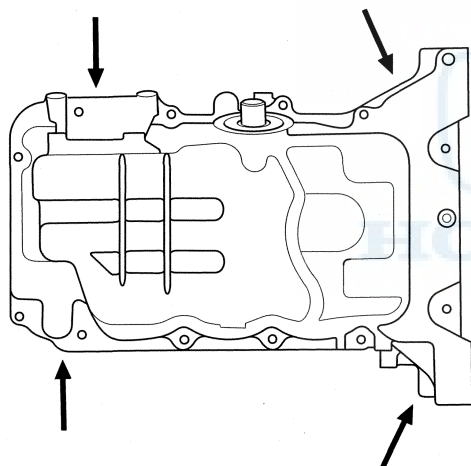


Crankshaft and Piston Removal

11. Remove the oil pan bolts. Note the bolt locations by their size.

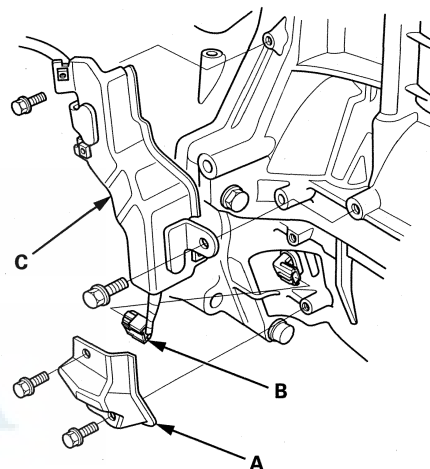


12. Using a flat-blade screwdriver, separate the oil pan from the block in the places shown.



13. Remove the oil pan.

1. Remove the engine/transmission (see page 5-3).
2. Remove the transmission.
 - M/T model (see page 13-7)
 - A/T model (see page 14-193)
3. M/T model: Remove the pressure plate (see page 12-14), the clutch disc (see page 12-15), and the flywheel (see page 12-16).
4. A/T model: Remove the drive plate (see page 14-200).
5. Remove the CKP sensor cover (A), then disconnect the CKP sensor connector (B).



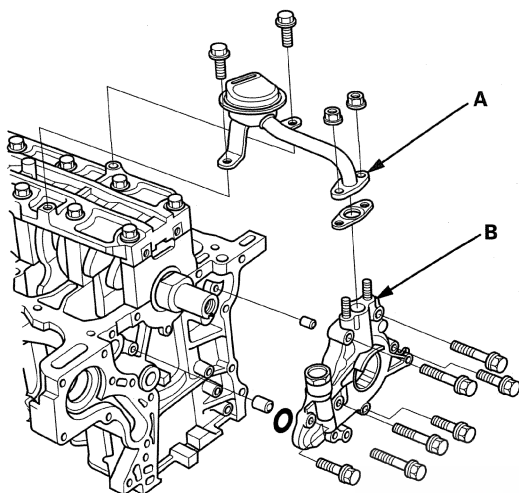
6. Remove the harness cover (C).
7. Remove the cylinder head (see page 6-25).
8. Remove the oil pan (see page 7-9).

(cont'd)

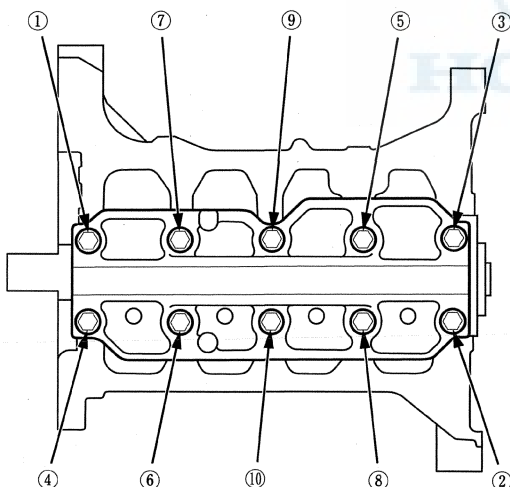
Engine Block

Crankshaft and Piston Removal (cont'd)

9. Remove the oil screen (A), then remove the oil pump (B).



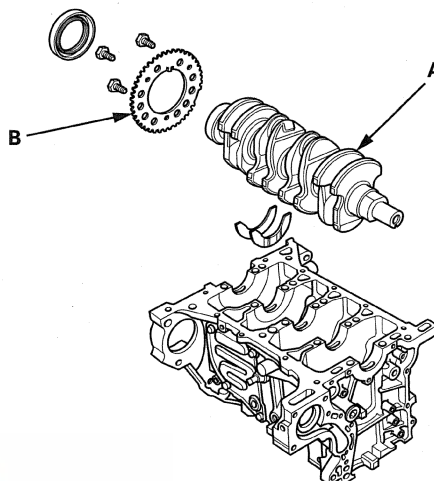
10. Remove the bearing cap bolts. To prevent warpage, unscrew the bolts in sequence 1/3 turn at a time; repeat the sequence until all bolts are loosened.



11. Remove the bearing cap bridge and the main bearing caps.

12. Remove the connecting rod caps/bearings. Keep all connecting rod caps/bearings in order.

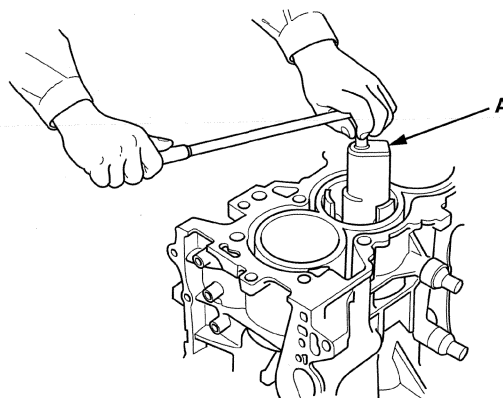
13. Lift the crankshaft (A) out of the engine block, being careful not to damage the journals and the CKP pulse plate (B).



14. Remove the CKP pulse plate.

15. Remove the upper connecting rod bearing halves from the connecting rods, and set them aside with their respective caps.

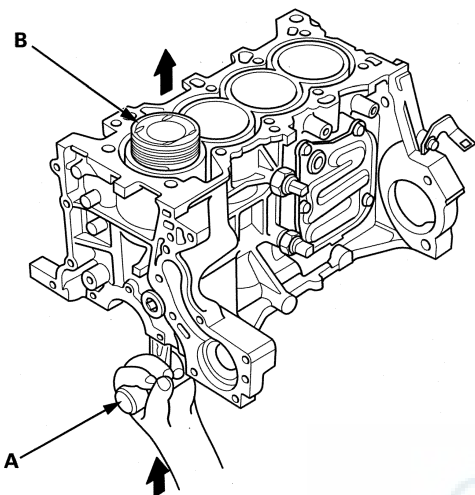
16. If you can feel a ridge of metal or hard carbon around the top of each cylinder, remove it with a ridge reamer (A). Follow the reamer manufacturer's instructions. If the ridge is not removed, it may damage the pistons as they are pushed out.





Crankshaft Inspection

17. Use the wooden handle of a hammer (A) to drive out the piston/connecting rod assembly (B). Take care not to damage the cylinder with the connecting rod.



18. Reinstall the main bearings, the main bearing caps, and the bearing cap bridge on the engine block in the proper order.
19. Reinstall the connecting rod bearings and the connecting rod caps after removing each piston/connecting rod assembly.
20. Mark each piston/connecting rod assembly with its cylinder number to make sure they are reused in original order.

NOTE: The existing number on the connecting rod does not indicate its position in the engine, it indicates the rod bore size.

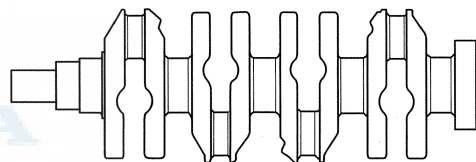
Out-of-Round and Taper

1. Remove the crankshaft from the engine block (see page 7-11).
2. Clean the crankshaft oil passages with pipe cleaners or a suitable brush.
3. Check the keyway slot and the threaded holes for damage.
4. Measure the out-of-round at the middle of each connecting rod and the main journal in two places. The difference between measurements on each journal must not be more than the service limit.

Journal Out-of-Round

Standard (New): 0.005 mm (0.00020 in) max.

Service Limit: 0.010 mm (0.00039 in)



5. Measure the taper at the edges of each connecting rod and the main journal. The difference between measurements on each journal must not be more than the service limit.

Journal Taper

Standard (New): 0.005 mm (0.00020 in) max.

Service Limit: 0.010 mm (0.00039 in)

(cont'd)

Engine Block

Crankshaft Inspection (cont'd)

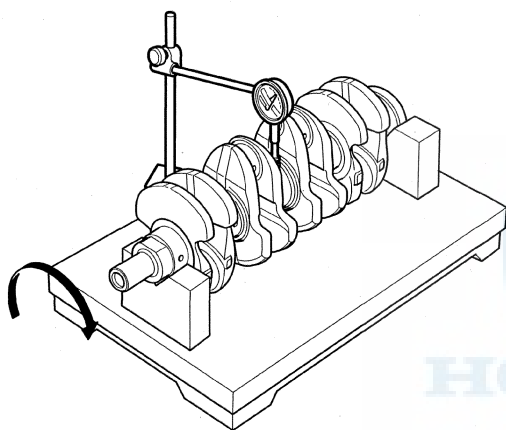
Straightness

6. Place the V-blocks on a flat surface.
7. Check the total runout with the crankshaft supported on V-blocks.
8. Measure the runout on all of the main journals. Rotate the crankshaft two complete revolutions. The difference between measurements on each main journal must not be more than the service limit.

Crankshaft Total Runout

Standard (New): 0.03 mm (0.0012 in) max.

Service Limit: 0.04 mm (0.0016 in)



Block and Piston Inspection

1. Remove the crankshaft and the pistons (see page 7-11).
2. Check the piston for distortion or cracks.
3. Measure the piston skirt diameter (A) at a point 16 mm (0.63 in) from the bottom of the skirt.

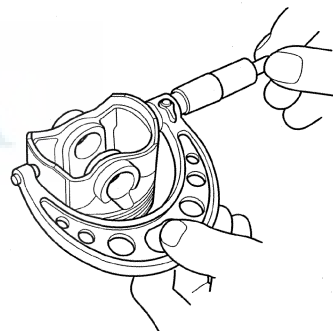
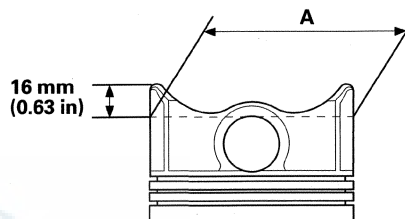
Piston Diameter

Standard (New): 72.980—72.990 mm
(2.87322—2.87362 in)

Service Limit: 72.97 mm (2.8728 in)

Oversize Piston Diameter

0.25: 73.230—73.240 mm (2.88307—2.88346 in)





4. Measure wear and taper in direction Y at three levels in each cylinder as shown. If measurements in any cylinder are beyond the oversize bore service limit, replace the engine block. If the engine block is to be rebored, refer to step 7 after reboring.

Cylinder Bore Size

Standard (New): 73.000–73.015 mm
(2.87401–2.87460 in)

Service Limit: 73.065 mm (2.87657 in)

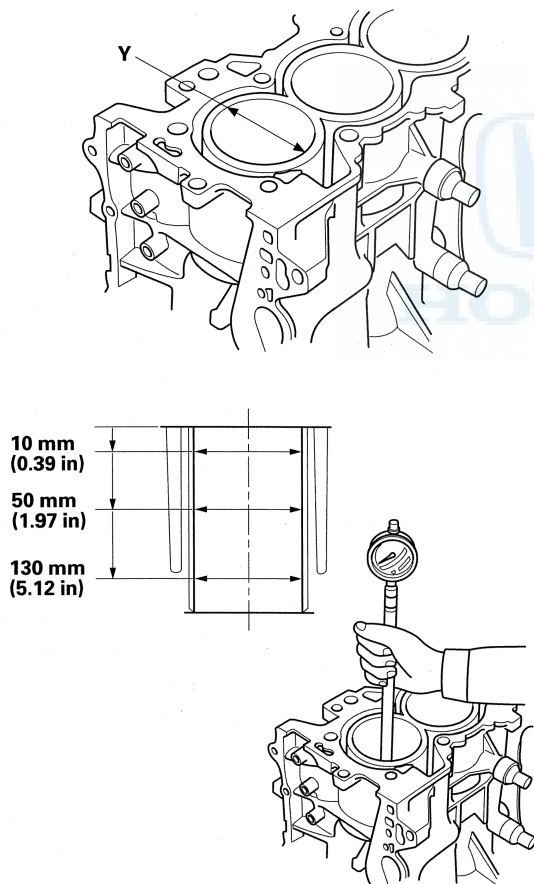
Oversize

0.25: 73.250–73.265 mm (2.88385–2.88444 in)

Reboring limit: 0.25 mm (0.0098 in) max.

Bore Taper

Limit: (Difference between first and third measurement) 0.05 mm (0.0020 in)

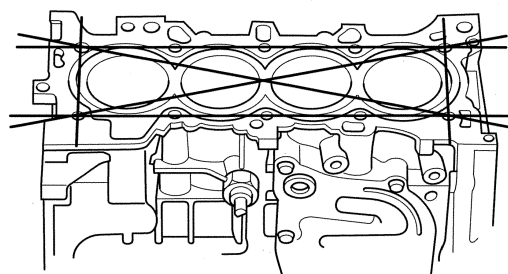


5. Scored or scratched cylinder bores must be honed (see page 7-16).

6. Check the top of the engine block for warpage. Measure along the edges and across the center as shown.

Engine Block Warpage

Standard (New): 0.07 mm (0.002 in) max.



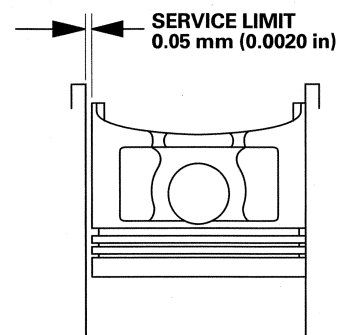
PRECISION STRAIGHT EDGE

7. Calculate the difference between the cylinder bore diameter and the piston diameter. If the clearance is near or exceeds the service limit, inspect the piston and engine block for excessive wear.

Piston-to-Cylinder Clearance

Standard (New): 0.010–0.035 mm
(0.00039–0.00138 in)

Service Limit: 0.05 mm (0.0020 in)



Engine Block

Cylinder Bore Honing

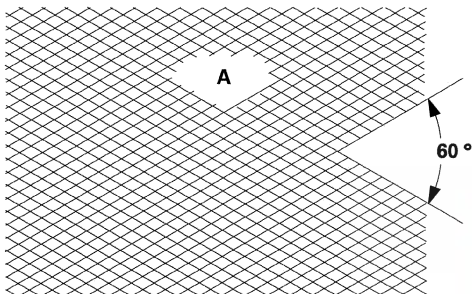
1. Measure the cylinder bores (see page 7-14).

If the engine block is to be reused, hone the cylinders and remeasure the bores. Only scored or scratched cylinder bore must be honed.

2. Hone the cylinder bores with honing oil and a fine (400 grit) stone in a 60 degree cross-hatch pattern (A).

NOTE:

- Use only a rigid hone with 400 grit or finer stone such as Sunnen, Ammco, or equivalent.
- Do not use stones that are worn or broken.



3. When honing is complete, thoroughly clean the engine block of all metal particles. Wash the cylinder bores with hot soapy water, then dry and oil them immediately to prevent rusting.

NOTE: Never use solvent, it will only redistribute the grit on the cylinder walls.

4. If scoring or scratches are still present in the cylinder bores after honing to the service limit, rebore the engine block. Some light vertical scoring and scratching is acceptable if it is not deep enough to catch your fingernail and does not run the full length of the bore.

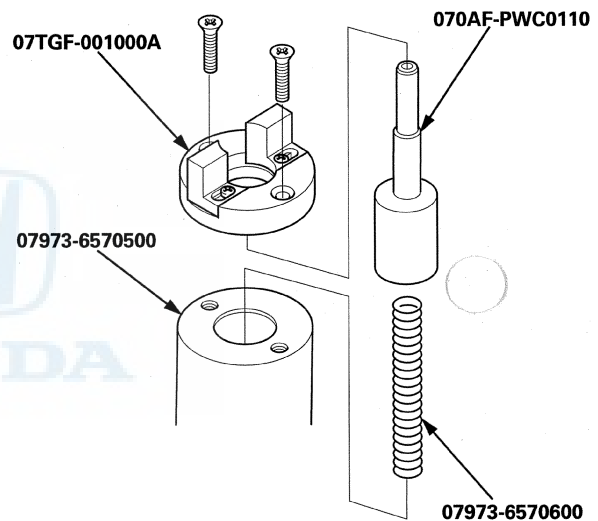
Piston, Pin, and Connecting Rod Replacement

Special Tools Required

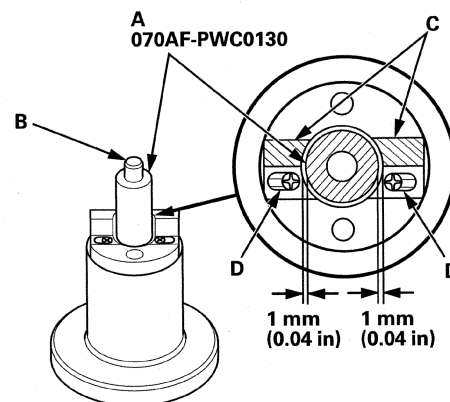
- Pilot Pin 070AF-PWC0110
- Piston Base 07973-6570500
- Piston Base Spring 07973-6570600
- Piston Base Head 07TGF-001000A
- Pilot Collar, O.D. 18 mm 070AF-PWC0130
- Insert Adjust 070AF-PWC0120
- Adjustable Piston Pin Driver Head 07973-6570201

Disassembly

1. Remove the piston from the engine block (see page 7-11).
2. Assemble the special tool as shown.

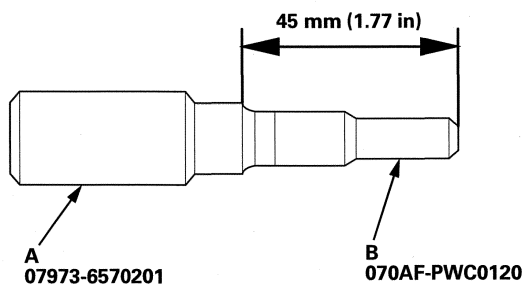


3. Temporarily install the pilot collar, O.D. 18 mm (A) over the pilot pin (B), and adjust the piston base head (C) as shown, then tighten the screws (D). Remove the pilot collar.

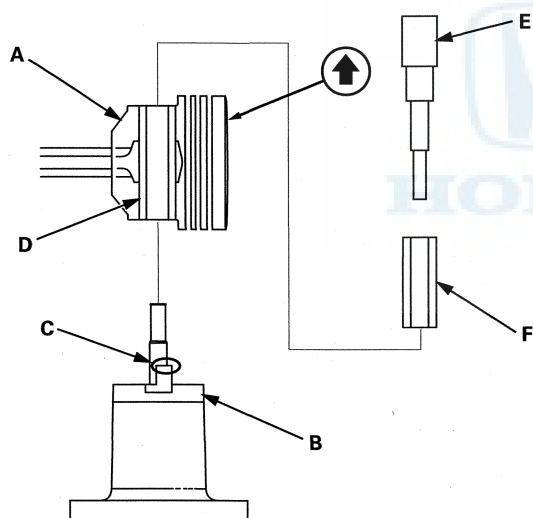




4. Assemble and adjust the length of the adjustable piston pin driver head (A) and insert adjust (B) to 45 mm (1.77 in).



5. With the arrow on top of the piston pointing up, place the piston/connecting rod assembly (A) on the piston base head (B). Be sure you position the recessed flat area of the piston against the area of the piston base head (C) as shown.



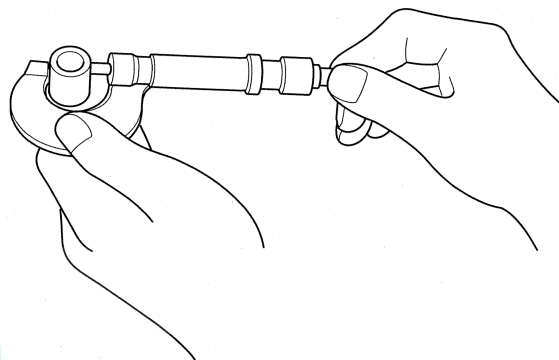
6. Press the piston pin (D) out with the adjustable piston pin driver head and insert adjust (E), the pilot collar (F), and a hydraulic press.

Inspection

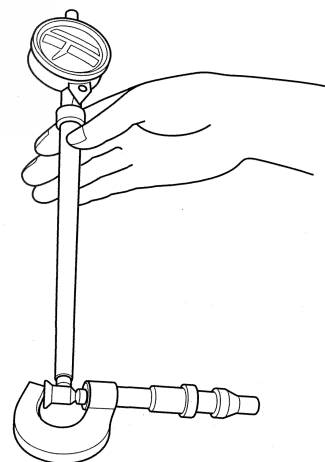
NOTE: Inspect the piston, the piston pin, and the connecting rod when they are at room temperature.

1. Measure the diameter of the piston pin.

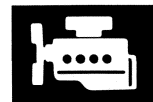
Piston Pin Diameter
Standard (New): 17.996–18.000 mm
(0.70850–0.70866 in)



2. Zero the dial indicator to the piston pin diameter.

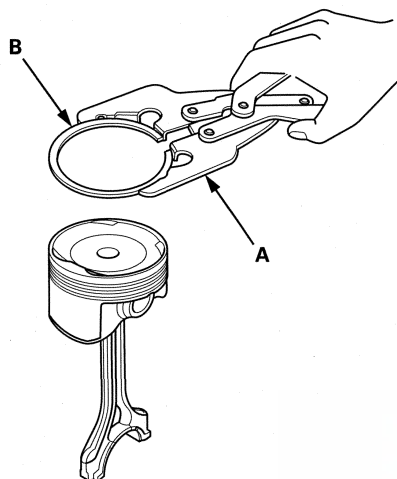


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Piston Ring Replacement

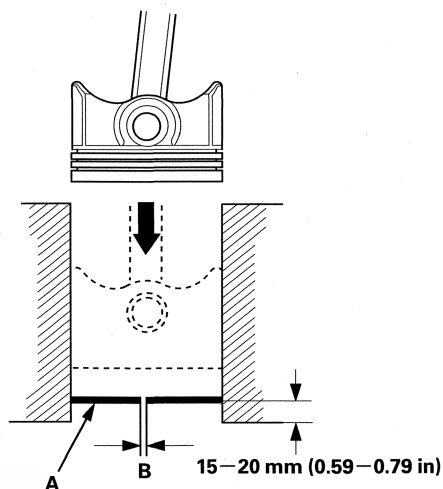
1. Remove the piston from the engine block (see page 7-11).
2. Using a ring expander (A), remove the old piston rings (B).



3. Clean all the ring grooves thoroughly with a squared-off broken ring, or a ring groove cleaner with a blade to fit the piston grooves. File down the blade, if necessary. The top and second ring grooves are 1.0 mm (0.039 in) wide, and the oil ring groove is 2.0 mm (0.079 in) wide. Do not use a wire brush to clean the ring grooves, or cut the ring grooves deeper with the cleaning tool.

NOTE: If the piston is to be separated from the connecting rod, do not install new rings yet.

4. Using a piston, push a new ring (A) into the cylinder bore 15–20 mm (0.59–0.79 in) from the bottom.



5. Measure the piston ring end-gap (B) with a feeler gauge:
 - If the gap is too small, check to see if you have the proper rings for your engine.
 - If the gap is too large, recheck the cylinder bore diameter against the wear limits (see page 7-14). If the bore is over the service limit, the engine block must be rebored.

Piston Ring End-Gap

Top Ring:

Standard (New): 0.15–0.30 mm (0.006–0.011 in)

Service Limit: 0.60 mm (0.023 in)

Second Ring:

RIKEN

Standard (New): 0.30–0.42 mm (0.012–0.016 in)

Service Limit: 0.65 mm (0.025 in)

NIPPON

Standard (New): 0.35–0.50 mm (0.014–0.019 in)

Service Limit: 0.65 mm (0.025 in)

Oil Ring:

Standard (New): 0.20–0.70 mm (0.008–0.027 in)

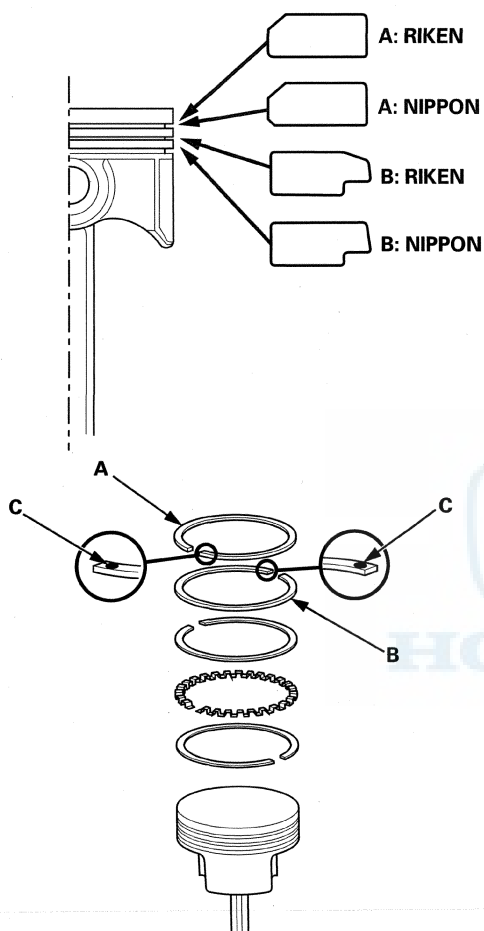
Service Limit: 0.80 mm (0.031 in)

(cont'd)

Engine Block

Piston Ring Replacement (cont'd)

6. Install the rings as shown. The top ring (A) has a R or 1N mark, and the second ring (B) has a 2R or 2N mark. The manufacturing marks (C) must be facing upward.



7. After installing a new set of rings, measure the ring-to-groove clearances.

Top Ring-to-groove Clearance

RIKEN

Standard (New): 0.065—0.090 mm (0.003—0.003 in)

Service Limit: 0.15 mm (0.005 in)

NIPPON

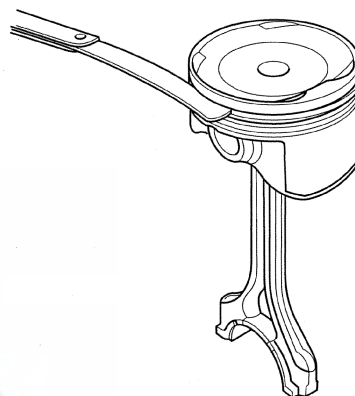
Standard (New): 0.061—0.090 mm (0.003—0.003 in)

Service Limit: 0.15 mm (0.005 in)

Second Ring-to-groove Clearance

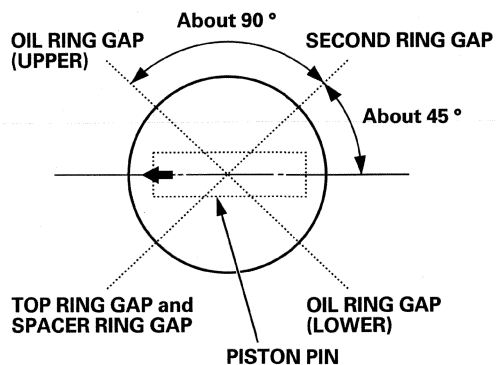
Standard (New): 0.030—0.055 mm (0.002—0.002 in)

Service Limit: 0.12 mm (0.004 in)



8. Rotate the rings in their grooves to make sure they do not bind.

9. Position the ring end gaps as shown:

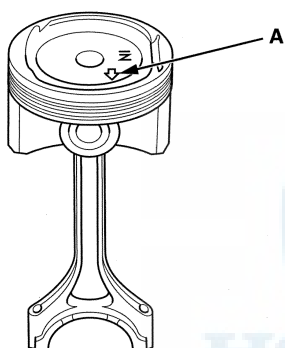




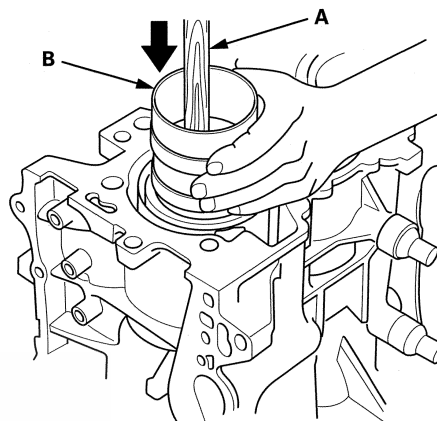
Piston Installation

If the Crankshaft is Already Installed

1. Set the crankshaft to bottom dead center (BDC) for each cylinder as its piston is installed.
2. Remove the connecting rod caps, and check that the connecting rod bearing is securely in place.
3. Apply new engine oil to the piston, inside of the ring compressor, and the cylinder bore, then attach the ring compressor to the piston/connecting rod assembly.
4. Position the piston/connecting rod assembly with the arrow (A) facing the cam chain side of the engine block.



5. Position the piston/connecting rod assembly in the cylinder, and tap it in using the wooden handle of a hammer (A). Maintain downward force on the ring compressor (B) to prevent the rings from expanding before entering the cylinder bore.



6. Stop after the ring compressor pops free, and check the connecting rod-to-connecting rod journal alignment before pushing the piston into place.
7. Check the connecting rod bearing clearance with a plastigage (see page 7-7).
8. Inspect the connecting rod bolts (see page 7-23).
9. Apply new engine oil to the bolt threads and flanges, then install the connecting rod caps with connecting rod bearings. Torque the bolts to 9.8 N·m (1.0 kgf·m, 7 lbf·ft).

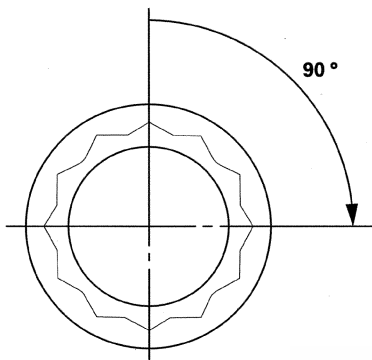
(cont'd)

Engine Block

Piston Installation (cont'd)

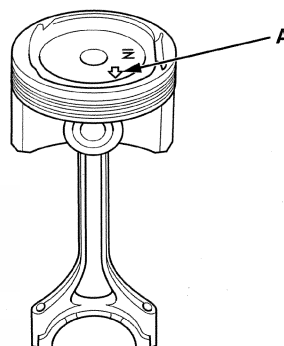
10. Tighten the connecting rod bolts an additional 90 °.

NOTE: Remove the connecting rod bolt if you tightened it beyond the specified angle, and go back to step 8 of the procedure. Do not loosen it back to the specified angle.

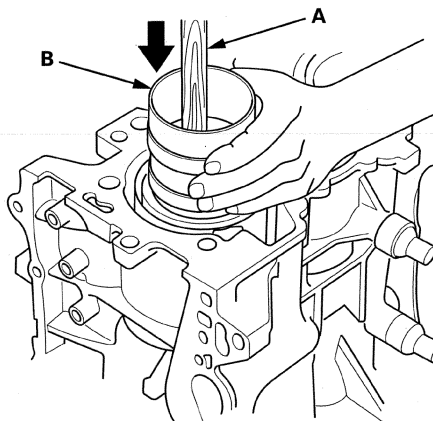


If the Crankshaft is Not Installed

1. Remove the connecting rod caps, and check that the connecting rod bearing is securely in place.
2. Apply new engine oil to the piston, inside of the ring compressor, and the cylinder bore, then attach the ring compressor to the piston/connecting rod assembly.
3. Position the piston/connecting rod assembly with the arrow (A) facing the cam chain side of the engine block.



4. Position the piston/connecting rod assembly in the cylinder, and tap it in using the wooden handle of a hammer (A). Maintain downward force on the ring compressor (B) to prevent the rings from expanding before entering the cylinder bore.

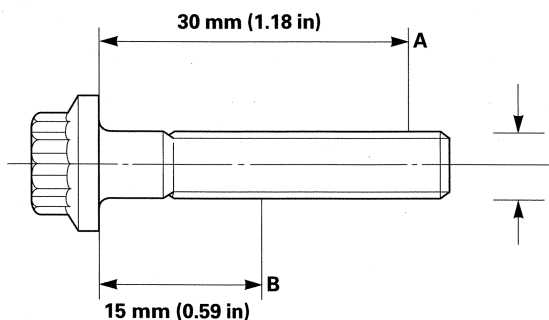


5. Position all pistons at top dead center (TDC).



Connecting Rod Bolt Inspection

1. Measure the diameter of each connecting rod bolt at point A and point B with a micrometer.



2. Calculate the difference in diameter between point A and point B.

Point A — Point B = Difference in Diameter

Difference in Diameter

Specification: 0—0.05 mm (0—0.0020 in)

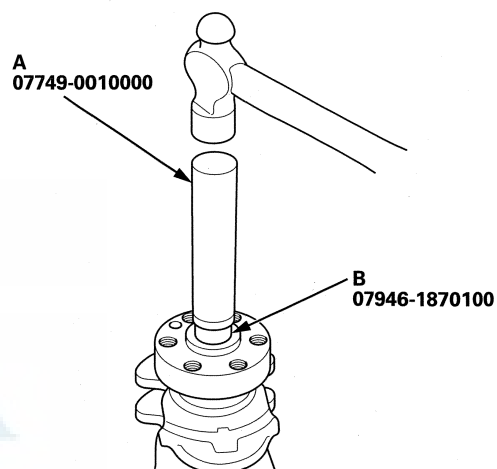
3. If the difference in diameter is out of tolerance, replace the connecting rod bolt.

Crankshaft Installation

Special Tools Required

- Bearing Driver Attachment, 28 x 30 mm 07946-1870100
- Driver Handle, 15 x 135L 07749-0010000
- Oil Seal Driver Attachment, 96 mm 07ZAD-PNAA100

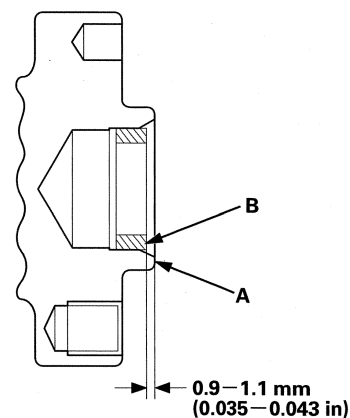
1. M/T model: Install the pilot bearing when replacing the crankshaft (see step 23 on page 12-17).
2. A/T model: Install the crankshaft end bushing when replacing the crankshaft. Using the driver handle, 15 x 135L (A) and the bearing driver attachment, 28 x 30 mm (B), to drive the crankshaft end bushing squarely into the crankshaft to the specified installed height.



3. A/T model: Measure the distance between the crankshaft (A) surface and crankshaft end bushing (B).

Bushing Installed Height

0.9—1.1 mm (0.035—0.043 in)

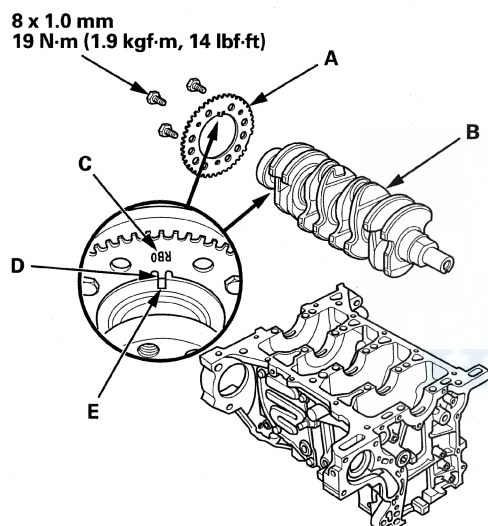


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Engine Block

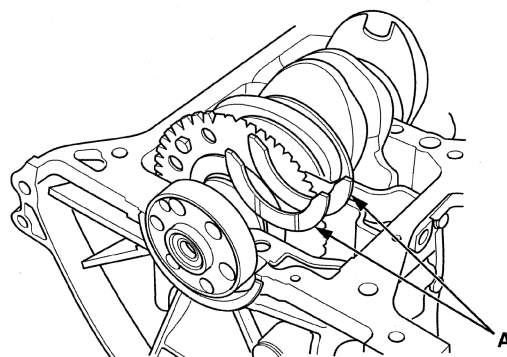
Crankshaft Installation (cont'd)

4. Check the main bearing clearance with a plastigage (see page 7-5).
5. Check the connecting rod bearing clearance with a plastigage (see page 7-7).
6. Install the bearing halves in the engine block and the connecting rods.
7. Apply new engine oil to the inside of the main bearings and the connecting rod bearings.
8. Install the CKP pulse plate (A) on the crankshaft (B); face the marked side (C) toward the transmission, and align the tab (D) on the CKP pulse plate with the groove (E) on the crankshaft.

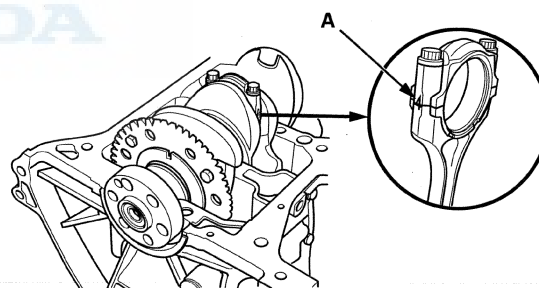


9. Hold the crankshaft so that connecting rod journal No. 2 and connecting rod journal No. 3 are straight up, and lower the crankshaft into the engine block.

10. Apply new engine oil to the side with the thrust washer groove. Install the thrust washers (A) in the No. 4 journal.



11. Inspect the connecting rod bolts (see page 7-23).
12. Apply new engine oil to the threads and flanges of the connecting rod bolts.
13. Seat the connecting rod journals into connecting rod No. 1 and connecting rod No. 4. Line up the mark (A) on the connecting rod and the connecting rod cap, then install the connecting rod caps and the connecting rod bolts finger-tight.

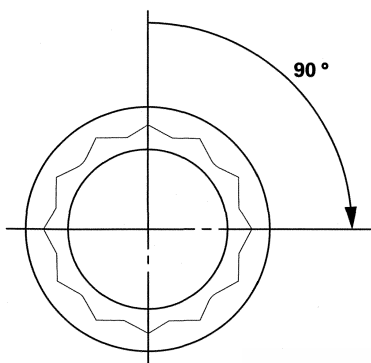


14. Rotate the crankshaft clockwise, and seat the connecting rod journals into connecting rod No. 2 and connecting rod No. 3. Line up the mark on the connecting rod and the connecting rod cap, then install the connecting rod caps and the connecting rod bolts finger-tight.
15. Torque the connecting rod bolts to 9.8 N·m (1.0 kgf·m, 7 lbf·ft).

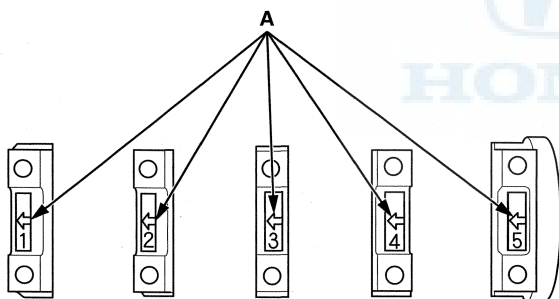


16. Tighten the connecting rod bolts an additional 90 °.

NOTE: Remove the connecting rod bolt if you tightened it beyond the specified angle, and go back to step 11 of the procedure. Do not loosen it back to the specified angle.



17. Install the main bearing caps with facing the arrows (A) the cam chain side on the bearing cap bridge.



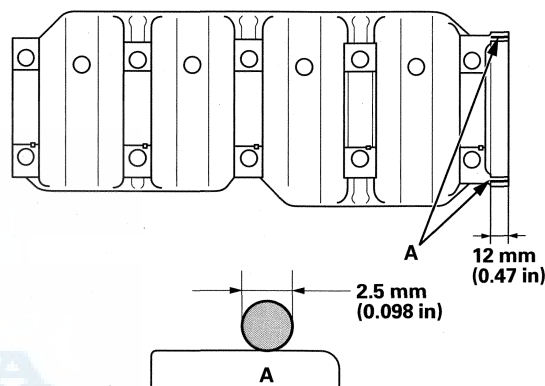
18. Remove all of the old liquid gasket from the bearing cap bridge/No. 5 main bearing cap mating surfaces.

19. Clean and dry the bearing cap bridge/No. 5 main bearing cap mating surfaces.

20. Apply liquid gasket (P/N 08717-0004, 08718-0003, 08718-0004, or 08718-0009) to the engine block mating surface of the bearing cap bridge/No. 5 main bearing cap. Install the component within 5 minutes of applying the liquid gasket.

NOTE:

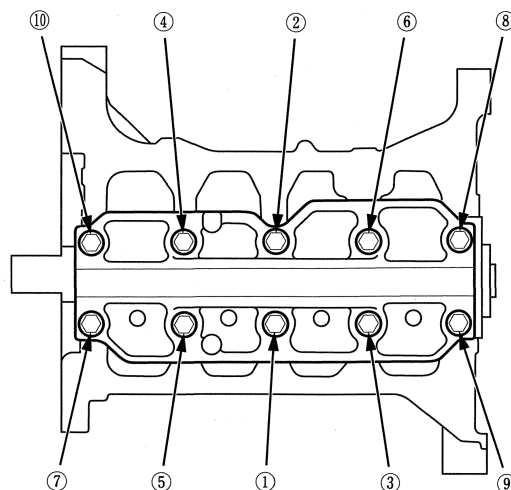
- Apply a 2.5 mm (0.098 in) diameter bead of liquid gasket along the broken line (A).
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.



21. Put the bearing cap bridge on the engine block.

22. Apply new engine oil to the threads and the flange of the bearing cap bolts.

23. Torque the bearing cap bolts in sequence to 25 N·m (2.5 kgf-m, 18 lbf-ft).

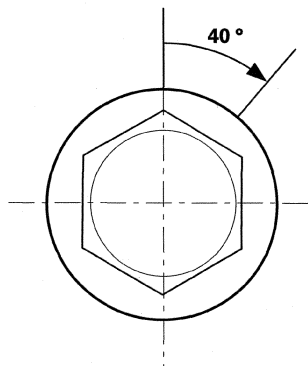


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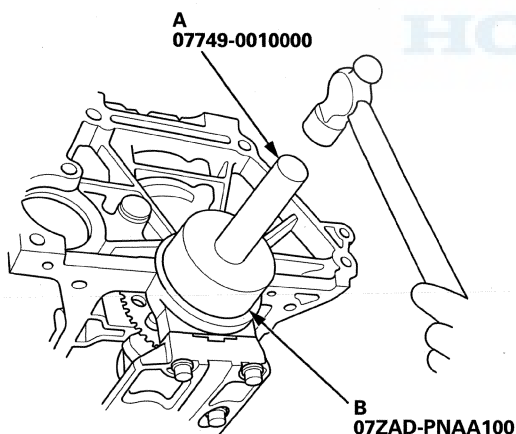
Engine Block

Crankshaft Installation (cont'd)

24. Tighten the bearing cap bolts an additional 40 °.

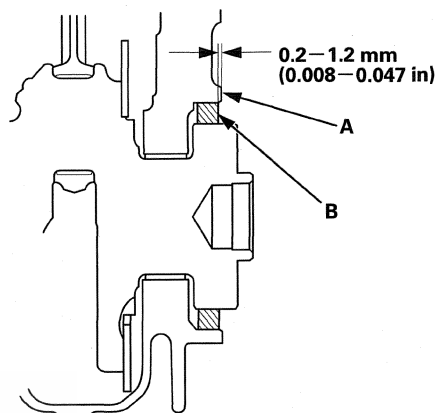


25. Clean the excess liquid gasket off the engine block.
26. Clean and dry the crankshaft oil seal housing.
27. Apply a light coat of new engine oil to the lip of the crankshaft oil seal.
28. Using the driver handle (A) and the oil seal driver attachment, 96 mm (B), to drive a new crankshaft oil seal squarely into the block to the specified installed height.

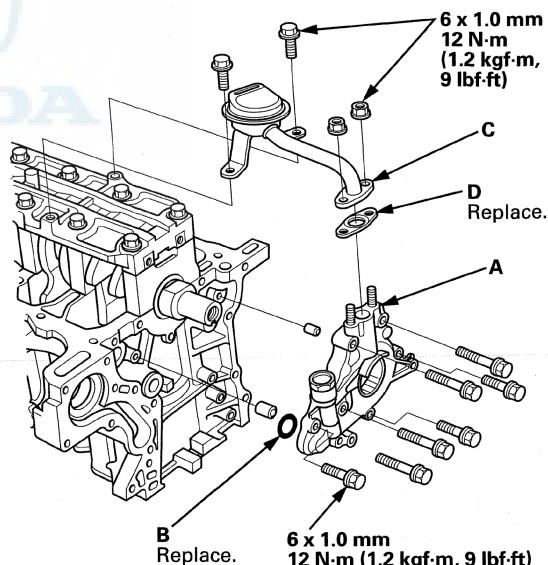


29. Measure the distance between the cylinder block (A) and the crankshaft oil seal (B).

Oil Seal Installed Height:
0.2—1.2 mm (0.008—0.047 in)



30. Install the oil pump (A) with a new O-ring (B).

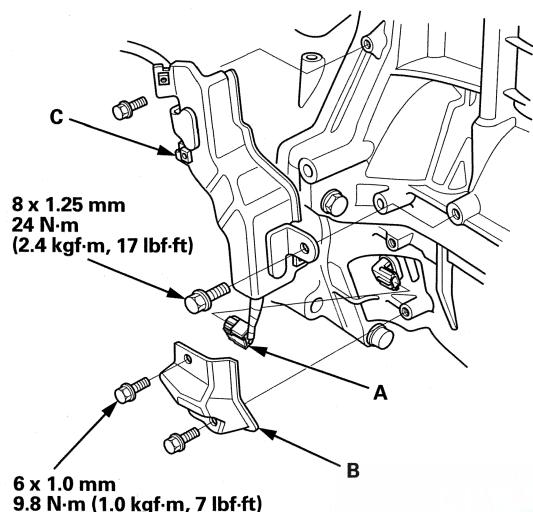


31. Install the oil screen (C) with a new gasket (D).
32. Install the oil pan (see page 7-28).
33. Install the cylinder head (see page 6-46).



CKP Pulse Plate Replacement

34. Connect the CKP sensor connector (A), then install the CKP sensor cover (B).



35. Install the harness cover (C).

36. M/T model: Install the flywheel (see page 12-16), the clutch disc, and the pressure plate (see page 12-18).

37. A/T model: Install the drive plate (see page 14-200).

38. Install the transmission.

- M/T model (see page 13-11)
- A/T model (see page 14-201)

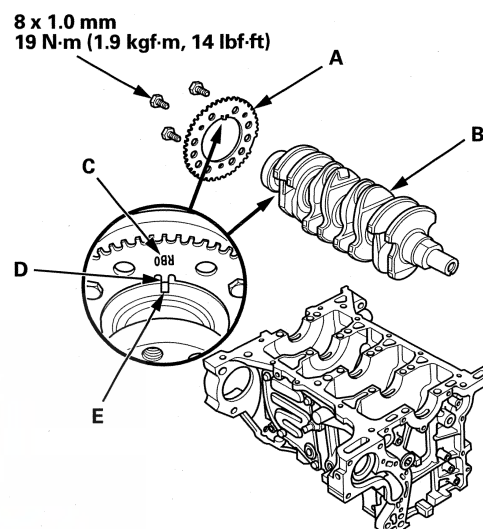
39. Install the engine/transmission (see page 5-10).

NOTE: When any crankshaft main or connecting rod bearing is replaced, run the engine at idle until it reaches normal operating temperature, then continue to run it for about 15 minutes.

1. Remove the crankshaft from the engine block (see page 7-11).

2. Remove the CKP pulse plate (A) from the crankshaft (B).

NOTE: Be careful not to damage the journals and the CKP pulse plate.



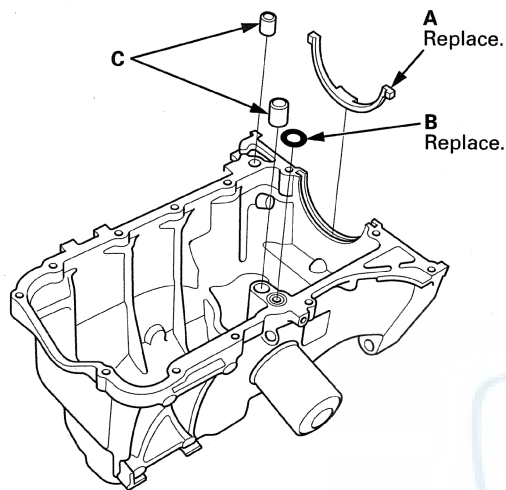
3. Install the CKP pulse plate on the crankshaft; face the marked side (C) toward the transmission, and align the tab (D) on the CKP pulse plate with the groove (E) on the crankshaft.

4. Install the crankshaft on the engine block (see page 7-23).

Engine Block

Oil Pan Installation

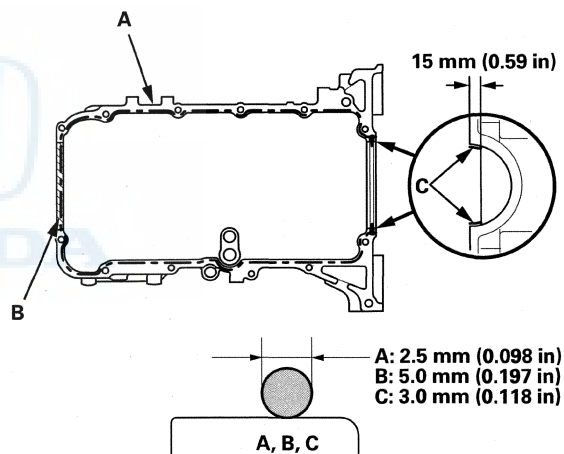
1. Remove all of the old liquid gasket from the oil pan mating surfaces, the bolts, and the bolt holes.
2. Clean and dry the oil pan mating surfaces and the O-ring groove.
3. Install a new oil pan gasket (A), a new O-ring (B), and the dowel pins (C) on the oil pan.

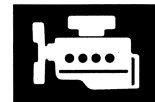


4. Apply liquid gasket (P/N 08717-0004, 08718-0003, 08718-0004, or 08718-0009) to the engine block mating surface of the oil pan and to the inside edge of the threaded bolt holes. Install the component within 5 minutes of applying the liquid gasket.

NOTE:

- Apply a 2.5 mm (0.098 in) diameter bead of liquid gasket along the broken line (A).
- Apply a 5.0 mm (0.197 in) diameter bead of liquid gasket to the shaded area (B).
- Apply a 3.0 mm (0.118 in) diameter bead of liquid gasket along the broken line (C).
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.

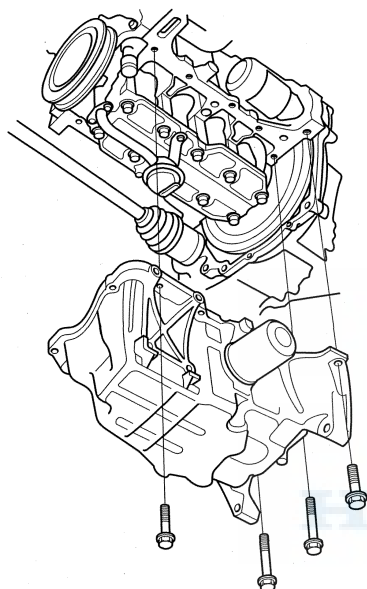




5. Install the oil pan.

NOTE:

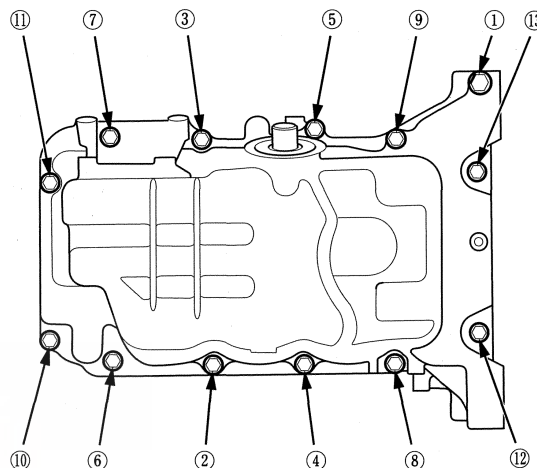
- Wait at least 30 minutes before filling the engine with oil.
- Do not run the engine for at least 3 hours after installing the oil pan.
- Make sure to install the bolts in the correct locations according to size.



6. Tighten the bolts in three steps. Wipe off the excess liquid gasket from crankshaft pulley end and the flywheel/drive plate end.

Specified torque

- ①: 24 N·m (2.4 kgf·m, 17 lbf·ft)
②—⑬: 12 N·m (1.2 kgf·m, 9 lbf·ft)



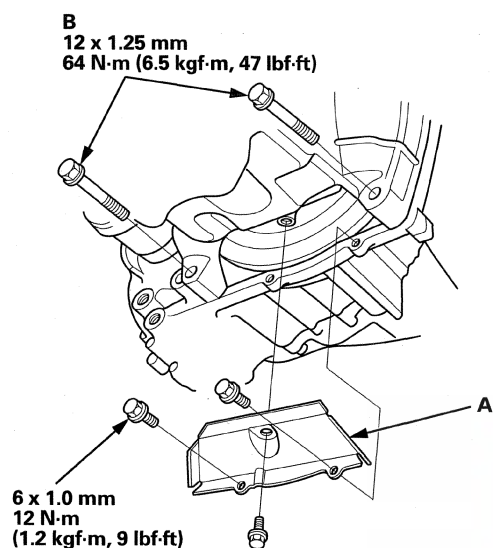
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Engine Block

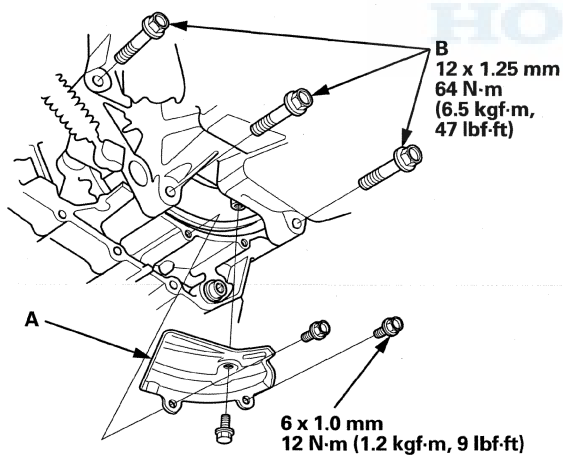
Oil Pan Installation (cont'd)

7. Install the clutch case cover/torque converter case cover (A), and install the transmission mounting bolts (B).

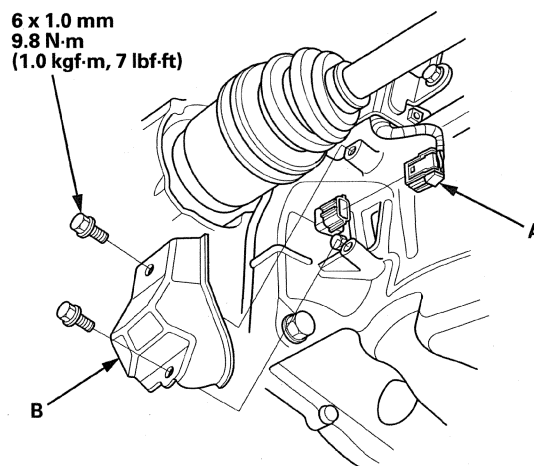
M/T model



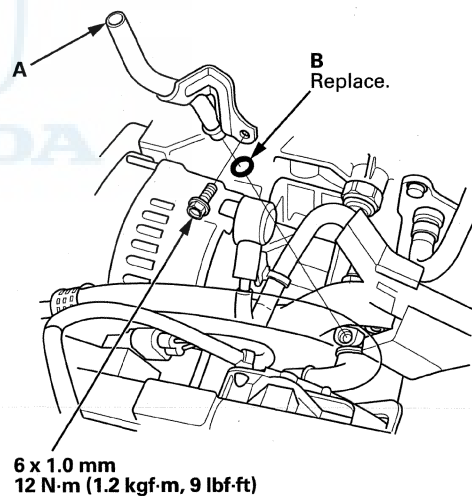
A/T model



8. Connect the CKP sensor connector (A), then install the CKP sensor cover (B).



9. Install the dipstick tube (A) with a new O-ring (B), then install the dipstick.

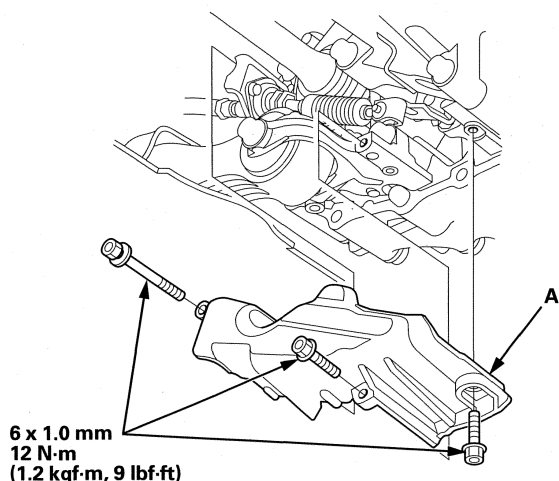


10. M/T model: Install the torque rod bracket (see page 5-30).
11. If the engine is still in the vehicle, do steps 12 through 16.



Transmission End Crankshaft Oil Seal Installation - In Car

12. A/T model: Install the shift cable cover (A).



13. Install the A/C compressor (see step 33 on page 5-16).

14. Install the driveshaft heat shield (see step 28 on page 5-15).

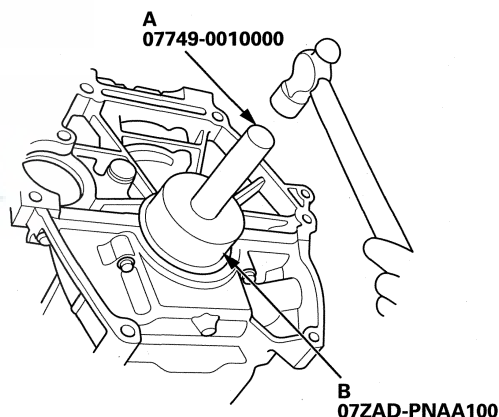
15. Install the drive belt (see page 4-29).

16. Refill the engine with engine oil (see step 4 on page 8-10).

Special Tools Required

- Driver Handle, 15 x 135L 07749-0010000
- Oil Seal Driver Attachment, 96 mm 07ZAD-PNAA100

1. Remove the transmission.
 - M/T model (see page 13-7)
 - A/T model (see page 14-193)
2. M/T model: Remove the pressure plate (see page 12-14), the clutch disc (see page 12-15), and the flywheel (see page 12-16).
3. A/T model: Remove the drive plate (see page 14-200).
4. Clean and dry the crankshaft oil seal housing.
5. Apply a light coat of new engine oil to the lip of the crankshaft oil seal.
6. Using the driver handle, 15 x 135 L (A), and the oil seal driver attachment, 96 mm (B), to drive a new crankshaft oil seal squarely into the engine block to the specified installed height.



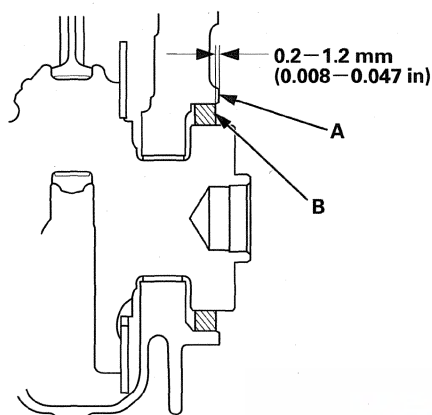
(cont'd)

Engine Block

Transmission End Crankshaft Oil Seal Installation - In Car (cont'd)

7. Measure the distance between the cylinder block (A) and the crankshaft oil seal (B).

Oil Seal Installed Height
0.2—1.2 mm (0.008—0.047 in)

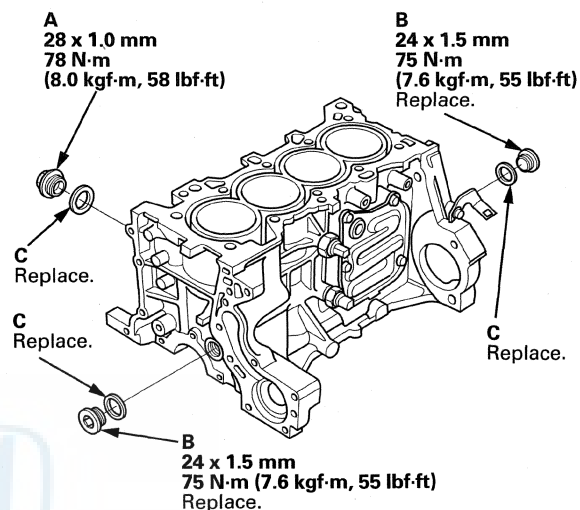


8. M/T model: Install the flywheel (see page 12-16), the clutch disc, and the pressure plate (see page 12-18).
9. A/T model: Install the drive plate (see page 14-200).
10. Install the transmission.
- M/T model (see page 13-11)
 - A/T model (see page 14-201)

Drain Bolt/Sealing Bolt Installation

NOTE:

- When installing the drain bolt (A), always use a new washer.
- When installing the sealing bolt(s) (B), always use a new bolt(s) and washer(s) (C).



Engine Mechanical



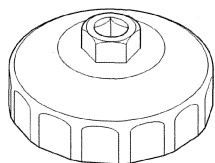
Engine Lubrication

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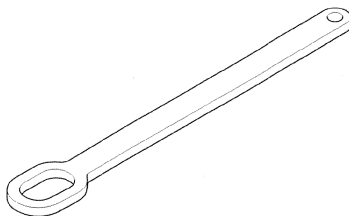
Engine Lubrication

Special Tools

Ref.No.	Tool Number	Description	Qty
①	07AAA-PLCA100	Oil Filter Wrench	1
②	07AAK-SNAA600	Support Eyelet	1



①

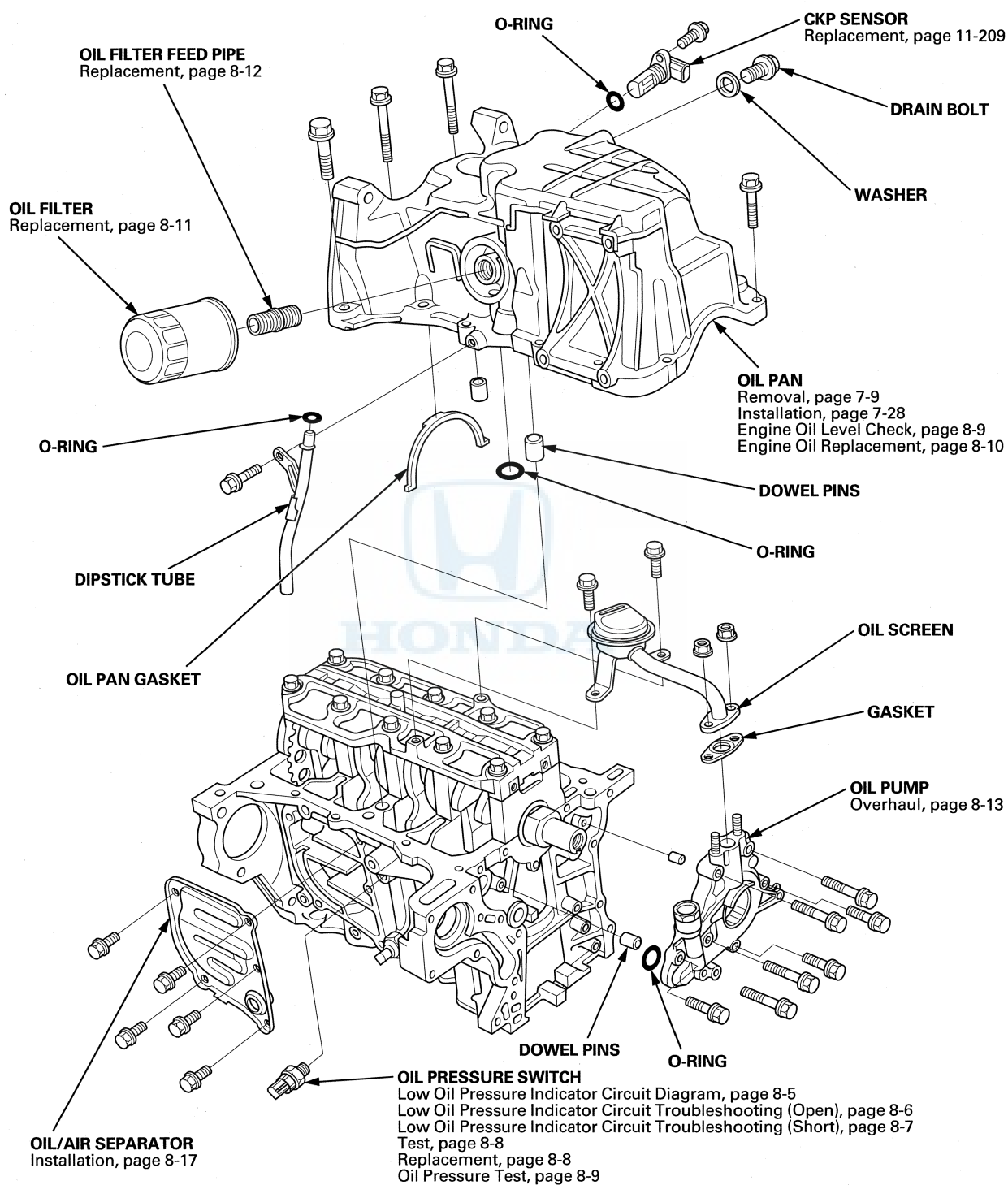


②





Component Location Index

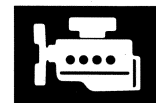


Engine Lubrication

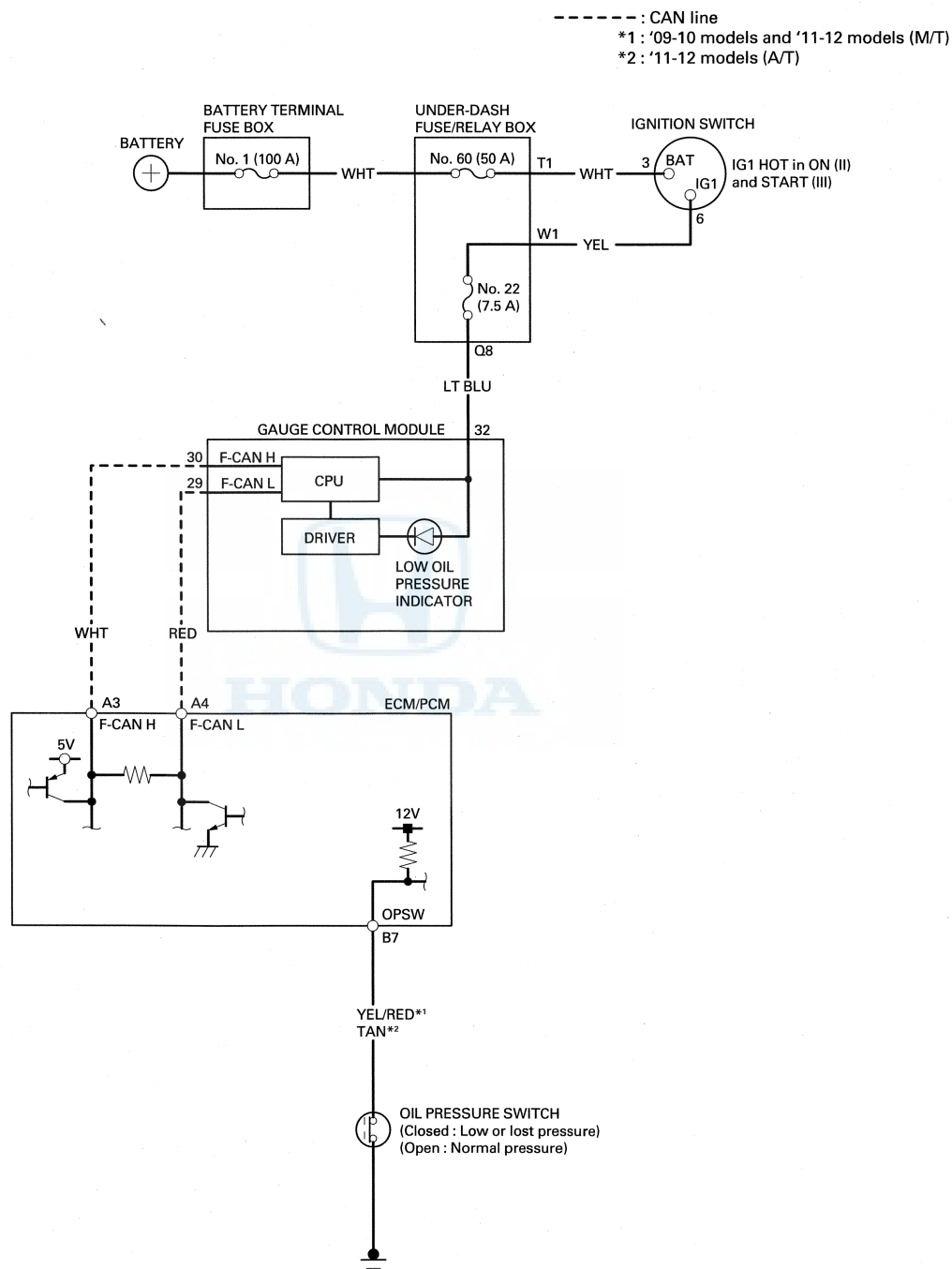
Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Excessive engine oil consumption	1. Check for oil leaks. 2. Check for worn valve guide(s) (see page 6-39) or worn valve seal(s) (see page 6-38). 3. Check for damaged or worn piston ring(s) (see page 7-19). 4. Check for damaged or worn engine internal parts (cylinder wall, pistons, etc.) (see page 7-14).	Check the maintenance records as engine oil that is worn out burns off at a higher rate
Low oil pressure indicator stays on	1. Check the engine oil level (see page 8-9). 2. Do the low oil pressure indicator circuit troubleshooting (Short) (see page 8-7).	A wire shorted to ground between the ECM/PCM and the oil pressure switch
Low oil pressure indicator does not come on with the ignition switch in ON (II)	Do the low oil pressure indicator circuit troubleshooting (Open) (see page 8-6).	An open in the wire between the ECM/PCM and the oil pressure switch





Low Oil Pressure Indicator Circuit Diagram



Engine Lubrication

Low Oil Pressure Indicator Circuit Troubleshooting (Open)

NOTE:

- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Connect the HDS to the DLC (see step 2 on page 11-3).
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
4. Check for DTCs (see page 11-3). If a DTC is present, diagnose, and repair the cause before continuing with this test.
5. Turn the ignition switch to ON (II), and check the OIL PRESSURE SWITCH in the DATA LIST with the HDS.

Is ON indicated?

YES—Replace the gauge control module (see page 22-294). ■

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0).
7. Check the oil pressure switch (see page 8-8).

Is the oil pressure switch OK?

YES—Go to step 8.

NO—Replace the oil pressure switch (see page 8-8). ■

8. Turn the ignition switch to ON (II), and jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).

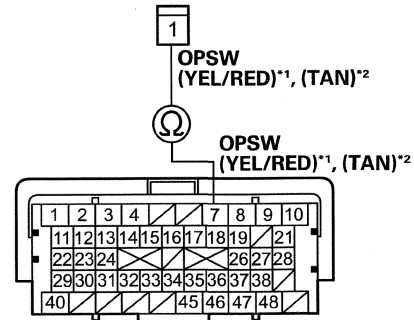
NOTE: This step must be done to protect the ECM/PCM from damage.

9. Disconnect ECM/PCM connector B (49P) and the oil pressure switch connector.

10. Check for continuity between ECM/PCM connector terminal B7 and oil pressure switch 1P connector terminal No. 1.

OIL PRESSURE SWITCH 1P CONNECTOR

Wire side of female terminal

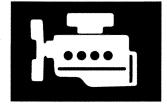


Terminal side of female terminals

Is there continuity?

YES—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

NO—Repair an open in the wire between ECM/PCM connector terminal B7 and oil pressure switch 1P connector terminal No. 1. ■



Low Oil Pressure Indicator Circuit Troubleshooting (Short)

NOTE:

- Information marked with an asterisk (*1) applies to '09-10 models '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Connect the HDS to the DLC (see step 2 on page 11-3).
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
4. Check for DTCs (see page 11-3). If a DTC is present, diagnose, and repair the cause before continuing with this test.

5. Start the engine, and check the OIL PRESSURE SWITCH in the DATA LIST with the HDS.

Is OFF indicated?

YES—Replace the gauge control module (see page 22-294). ■

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0).
7. Check the oil pressure switch (see page 8-8).

Is the oil pressure switch OK?

YES—Go to step 8.

NO—Do the oil pressure test (see page 8-9). If the oil pressure is OK, replace the oil pressure switch (see page 8-8). ■

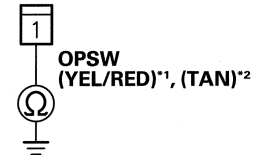
8. Turn the ignition switch to ON (II), and jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).

NOTE: This step must be done to protect the ECM/PCM from damage.

9. Disconnect ECM/PCM connector B (49P) and the oil pressure switch connector.

10. Check for continuity between oil pressure switch 1P connector terminal No. 1 and body ground.

OIL PRESSURE SWITCH 1P CONNECTOR



Wire side of female terminal

Is there continuity?

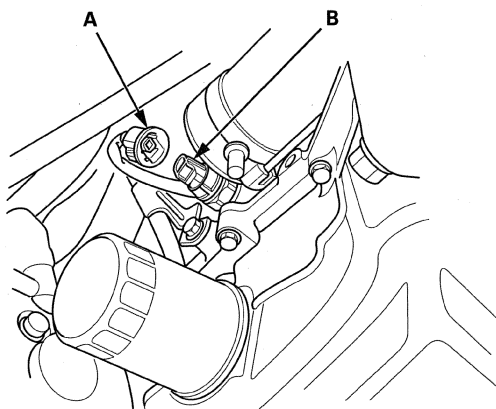
YES—Repair a short in the wire between ECM/PCM connector terminal B7 and oil pressure switch 1P connector terminal No. 1. ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

Engine Lubrication

Oil Pressure Switch Test

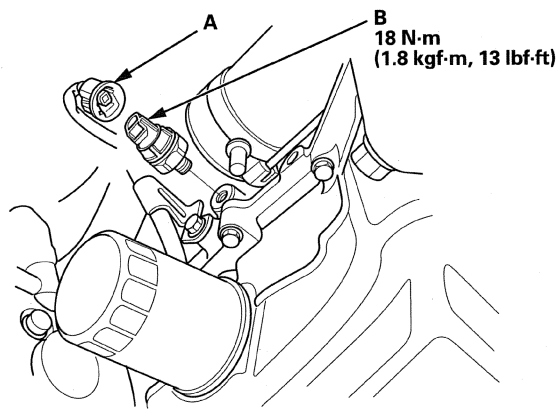
1. Disconnect the oil pressure switch connector (A) from the engine oil pressure switch (B).



2. Check for continuity between the oil pressure switch terminal and the engine (ground). There should be continuity with the engine stopped. There should be no continuity with the engine running.
3. Connect the oil pressure switch connector to the oil pressure switch.

Oil Pressure Switch Replacement

1. Disconnect the oil pressure switch connector (A), then remove the oil pressure switch (B).



2. Remove all of the old liquid gasket from the oil pressure switch mounting hole.
3. Apply liquid gasket (P/N 08718-0004) to a new oil pressure switch threads. Install the component within 5 minutes of applying the liquid gasket.

NOTE:

- Using too much liquid gasket may cause liquid gasket to enter the oil passage or the end of the oil pressure switch.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply the new liquid gasket.

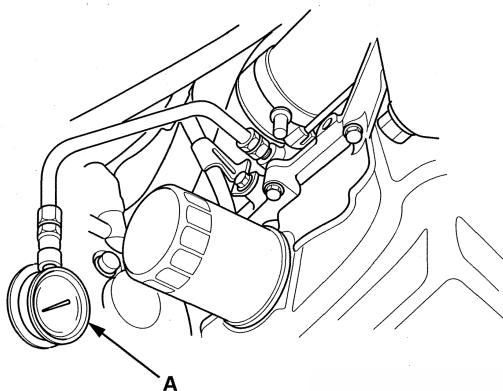
4. Install the oil pressure switch.
5. Connect the oil pressure switch connector.



Oil Pressure Test

If the low oil pressure indicator stays on with the engine running, check the engine oil level (see page 8-9). If the oil level is correct:

1. Remove the oil pressure switch (see page 8-8), then install an oil pressure gauge (A).



2. Start the engine. Shut it off immediately if the gauge registers no oil pressure. Repair the problem before continuing.
3. Allow the engine to reach operating temperature (fan comes on at least twice). The pressure should be:

Engine Oil Temperature: 176 °F (80 °C)

Engine Oil Pressure:

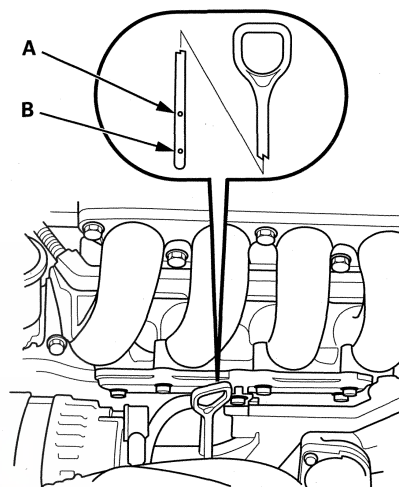
At Idle: 69 kPa (0.70 kgf/cm², 10.0 psi) min.

At 3,000 rpm: 343 kPa (3.50 kgf/cm², 49.8 psi) min.

4. If the oil pressure is not within specifications, inspect these items:
 - Blocking of oil filter.
 - Blocking of oil screen.
 - Inspect the oil pressure relief valve (see page 8-13).
 - Inspect the oil pump (see page 8-15).
5. Remove the oil pressure gauge, then install the oil pressure switch (see page 8-8).

Engine Oil Level Check

1. Park the vehicle on level ground, and start the engine. Hold the engine at 3,000 rpm with no load (M/T in neutral, A/T in P or N) until the radiator fan comes on, then turn off the engine, and wait a few minutes.
2. Remove the dipstick, and wipe off the dipstick, then reinstall the dipstick.
3. Remove the dipstick, and check the engine oil level. It should be between the upper mark (A) and the lower mark (B).

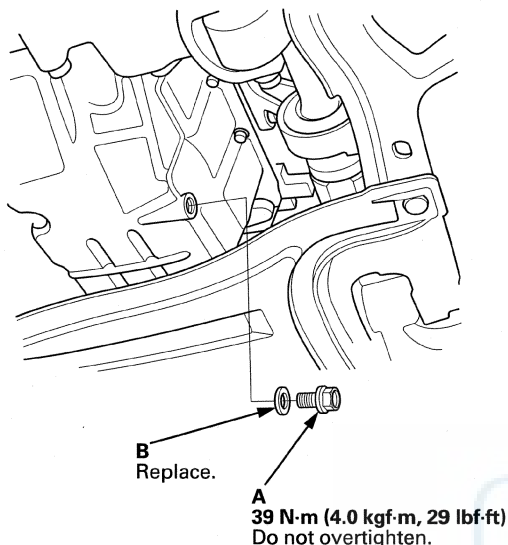


4. If the engine oil level is near or below the lower mark, check for oil leakage, and add engine oil (see step 4 on page 8-10) to bring it to the upper mark.

Engine Lubrication

Engine Oil Replacement

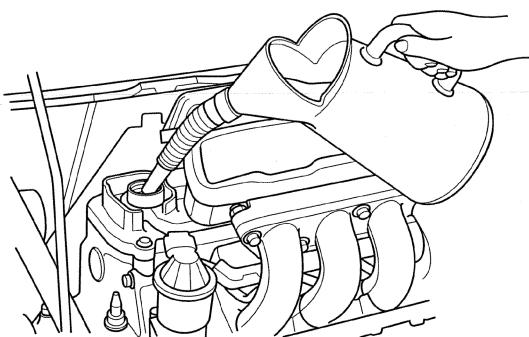
1. Allow the engine to reach operating temperature (fan comes on at least twice).
2. Remove the drain bolt (A), and drain the engine oil.



3. Reinstall the drain bolt with a new washer (B) and torque to specification.
4. Refill the engine with the recommended oil (see page 3-2).

Capacity

At Oil Change:	3.4 L (3.6 US qt)
At Oil Change Including Filter:	3.6 L (3.8 US qt)
After Engine Overhaul:	4.2 L (4.4 US qt)



5. Run the engine for more than 3 minutes, then check the oil level (see page 8-9) and for any oil leakage.
6. If the Maintenance Minder required engine oil replacement, reset the Maintenance Minder (see page 3-4), and this procedure is complete. If the Maintenance Minder did not require engine oil replacement, go to step 7.
7. Turn the ignition switch to LOCK (0).
8. Connect the HDS to the DLC (see step 2 on page 11-3).
9. Turn the ignition switch to ON (II).
10. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
11. Select GAUGE in the BODY ELECTRICAL with the HDS.
12. Select ADJUSTMENT in GAUGES with the HDS.
13. Select MAINTENANCE MINDER in the ADJUSTMENT with the HDS.
14. Select RESET in the MAINTENANCE MINDER with the HDS.
15. Select RESETTNG THE ENGINE OIL LIFE with the HDS.

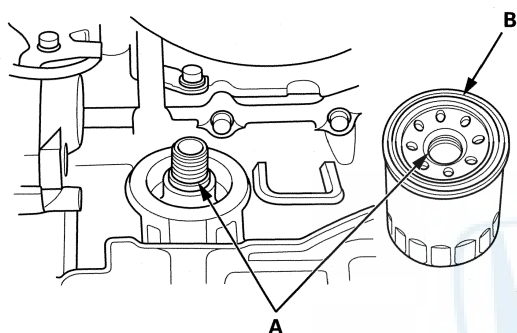


Engine Oil Filter Replacement

Special Tools Required

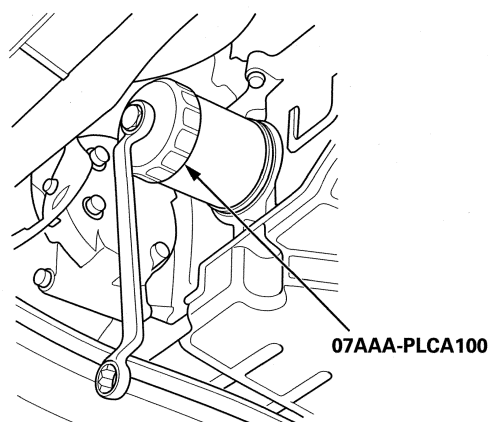
Oil Filter Wrench 07AAA-PLCA100

1. Drain the engine oil (see page 8-10).
2. Remove the oil filter with the oil filter wrench.
3. Inspect the filter to make sure the rubber seal is not stuck to the oil filter seating surface of the engine.
4. Inspect the threads (A) and the rubber seal (B) on a new filter. Clean the seat on the oil pan, then apply a light coat of new engine oil to the filter rubber seal. Use only filters with a built-in bypass system.



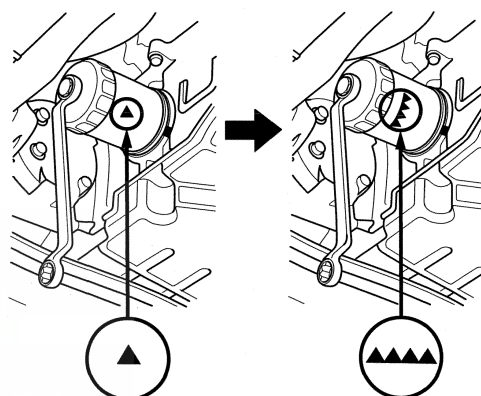
5. Install the oil filter by hand.
6. After the rubber seal seats, tighten the oil filter clockwise with the oil filter wrench to the specified torque.

Tighten: 3/4 Turn Clockwise
Tightening Torque: 12 N·m (1.2 kgf·m, 9 lbf·ft)



7. If four numbers or marks (1 to 4 or ▼ to ▼▼▼▼) are printed around the outside of the filter, you can use the following procedure to tighten the filter:

- Spin the filter on until its seal lightly seats against the oil pan, and note which number or mark is at the bottom.
- Tighten the filter by turning it clockwise three numbers or marks from the one you noted. For example, if mark ▼ is at the bottom when the seal is lightly seated, tighten the filter until the mark ▼▼▼▼ comes around to the bottom.



Mark when rubber seal is seated.

Mark after tightening.

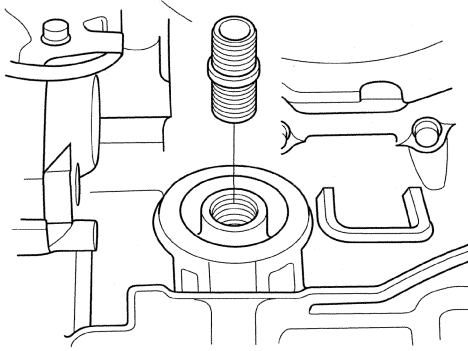
Number or Mark when rubber seal is seated	1 or ▼	2 or ▼▼	3 or ▼▼▼	4 or ▼▼▼▼
Number or Mark after tightening	4 or ▼▼▼▼	1 or ▼	2 or ▼▼	3 or ▼▼▼

8. After installation, fill the engine with the engine oil up to the specified level (see page 8-9), run the engine for more than 3 minutes, then check for oil leakage.

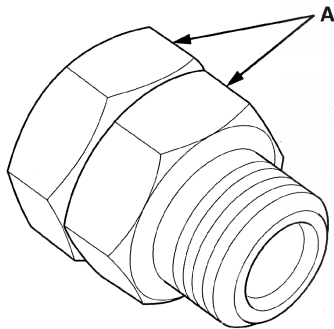
Engine Lubrication

Oil Filter Feed Pipe Replacement

1. Remove the filter (see page 8-11).
2. Remove the oil filter feed pipe.



3. Install two 20 x 1.5 mm nuts (A) onto the new oil filter feed pipe, and hold one nut with a wrench, then tighten the other nut.

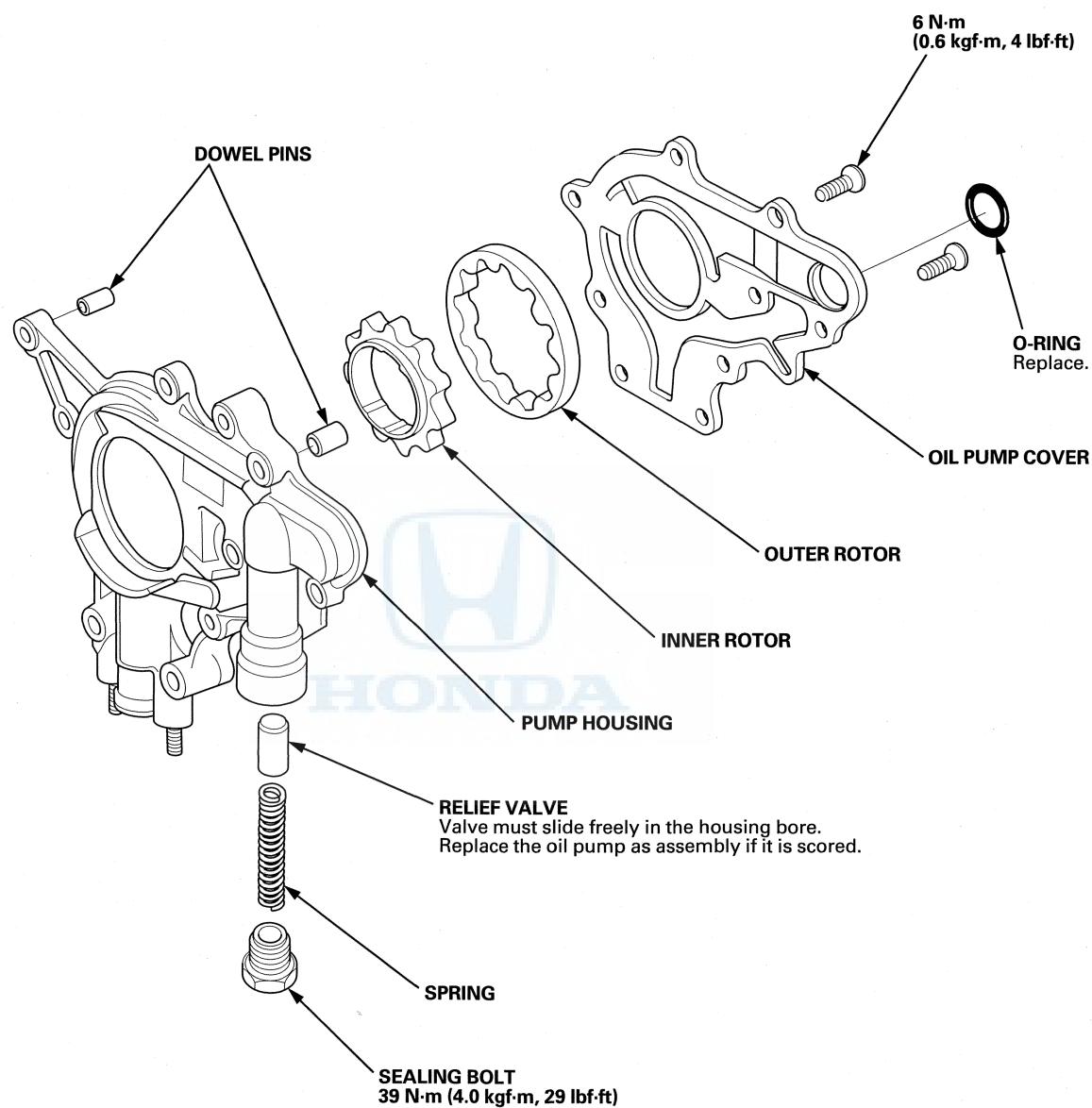


4. Apply new engine oil to the oil filter feed pipe threads, then torque the oil filter feed pipe to 39 N·m (4.0 kgf·m, 29 lbf·ft), then remove the nuts from the oil filter feed pipe.
5. Install the oil filter (see page 8-11).



Oil Pump Overhaul

Exploded View



(cont'd)

Engine Lubrication

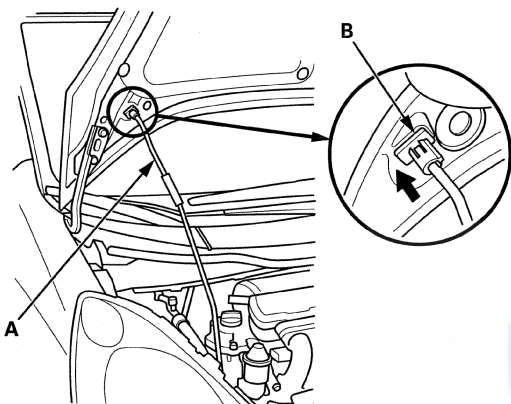
Oil Pump Overhaul (cont'd)

Special Tools Required

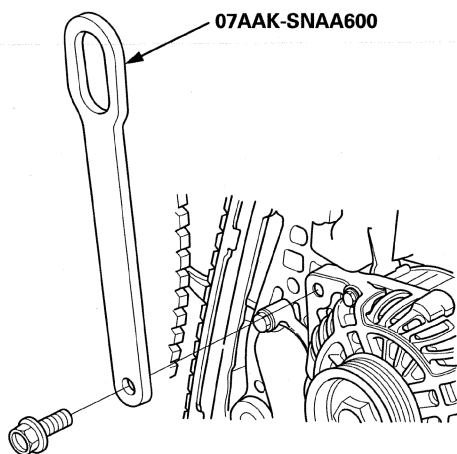
- Support Eyelet 07AAK-SNAA600
- Engine Support Hanger, A and Reds AAR-T1256*
- *: Available through the Honda Tool and Equipment Program 888-424-6857

Removal

1. Open the hood, and secure it with the hood support rod (A) in the wide-open position (B).

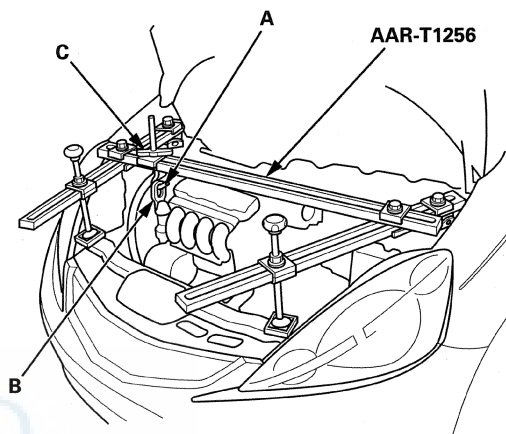


2. Drain the engine oil (see page 8-10).
3. Remove the under-cowl panel (see page 20-185).
4. Support the engine with a jack and a wood block under the oil pan.
5. Remove the cam chain (see page 6-12).
6. Remove the alternator mounting bolt, then install the support eyelet.

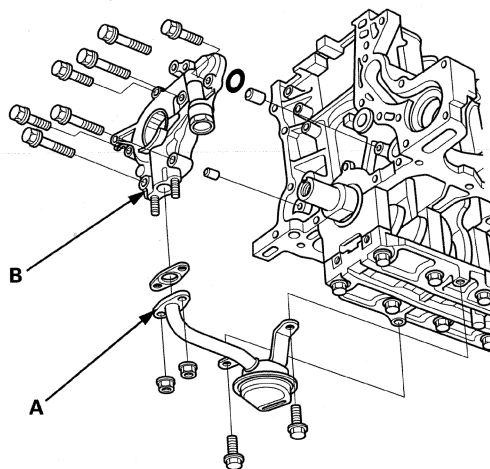


7. Install the engine support hanger (AAR-T1256) onto the vehicle, and attach the hook (A) to the support eyelet (B). Tighten the wing nut (C) by hand, and lift and support the engine/transmission.

NOTE: Be careful when working around the windshield.



8. Remove the jack and the wood block from under the oil pan.
9. Remove the oil pan (see page 7-9).
10. Remove the oil screen (A), then remove the oil pump (B).



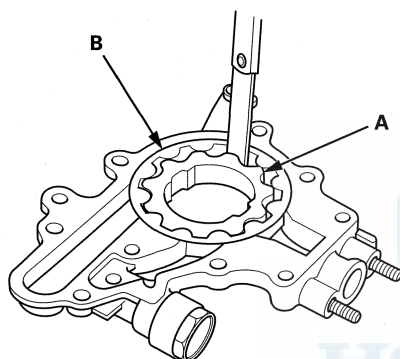


Inspection

NOTE: Refer to the Exploded View if needed during this procedure.

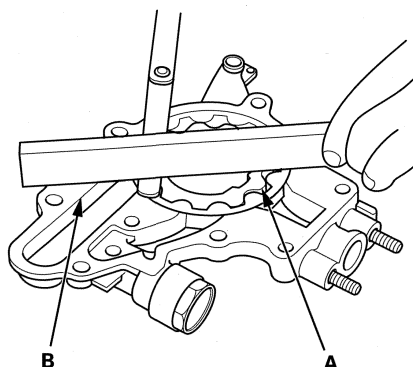
1. Remove the screws from the pump housing, then separate the pump housing and the oil pump cover.
2. Check the inner rotor-to-outer rotor radial clearance between the inner rotor (A) and the outer rotor (B). If the inner rotor-to-outer rotor radial clearance exceeds the service limit, replace the oil pump assembly.

Inner Rotor-to-Outer Rotor Radial Clearance
Standard (New): 0.06–0.16 mm (0.003–0.006 in)
Service Limit: 0.20 mm (0.007 in)



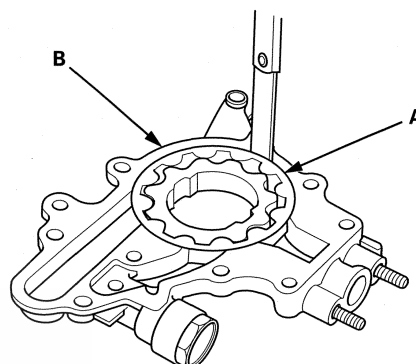
3. Check the pump housing-to-rotor axial clearance between the rotors (A) and the pump housing (B). If the pump housing-to-rotor axial clearance exceeds the service limit, replace the oil pump assembly.

Pump Housing-to-Rotor Axial Clearance
Standard (New): 0.02–0.06 mm (0.001–0.002 in)
Service Limit: 0.15 mm (0.005 in)



4. Check the pump housing-to-outer rotor radial clearance between the outer rotor (A) and the pump housing (B). If the pump housing-to-outer rotor radial clearance exceeds the service limit, replace the oil pump assembly.

Pump Housing-to-Outer Rotor Radial Clearance
Standard (New): 0.100–0.175 mm (0.004–0.006 in)
Service Limit: 0.20 mm (0.007 in)



5. Inspect both rotors and the pump housing for scoring or other damage. Replace the oil pump assembly, if necessary.
6. Check that the oil pump turns freely.

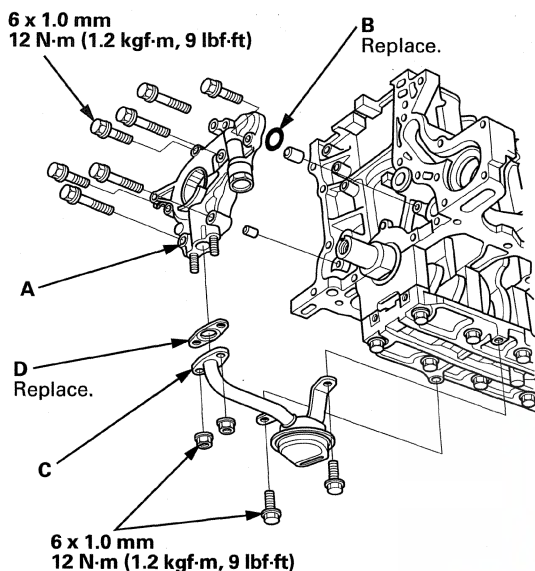
(cont'd)

Engine Lubrication

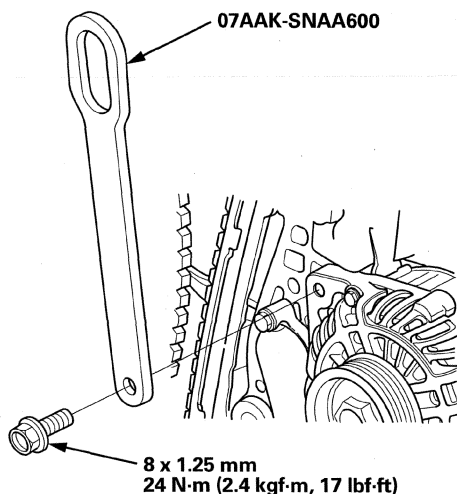
Oil Pump Overhaul (cont'd)

Installation

1. Clean the O-ring groove and the mating surface of the engine block.
2. Install the oil pump (A) with a new O-ring (B).

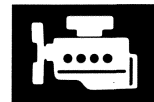


3. Install the oil screen (C) with a new gasket (D).
4. Install the oil pan (see page 7-28).
5. Support the engine with a jack and a wood block under the oil pan.
6. Remove the engine support hanger and the support eyelet, then tighten the alternator mounting bolt.



7. Install the cam chain (see page 6-15).

8. Remove the jack and the wood block from under the oil pan.
9. Install the under-cowl panel (see page 20-185).
10. Refill the engine with engine oil (see step 4 on page 8-10).

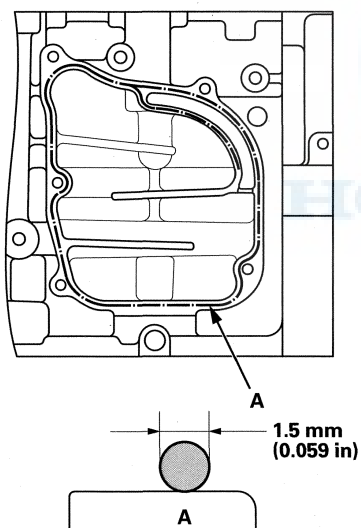


Oil/Air Separator Installation

1. Remove all of the old liquid gasket from the oil/air separator mating surfaces, the bolts, and the bolt holes.
2. Clean and dry the oil/air separator mating surfaces.
3. Apply liquid gasket (P/N 08717-0004, 08718-0003, 08718-0004, or 08718-0009) to the engine block mating surface of the oil/air separator and to the inside edge of the threaded bolt holes. Install the component within 5 minutes of applying the liquid gasket.

NOTE:

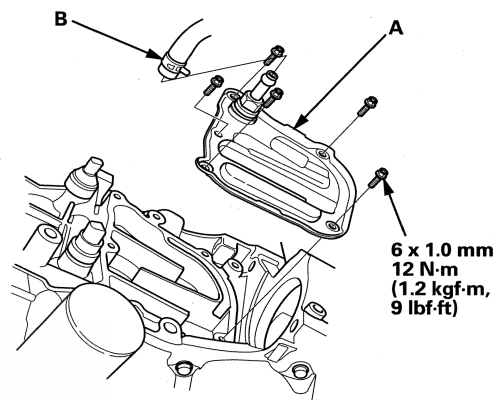
- Apply a 1.5 mm (0.059 in) diameter bead of liquid gasket along the broken line (A).
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.



4. Install the oil/air separator (A).

NOTE:

- Wait at least 30 minutes before filling the engine with oil.
- Do not run the engine for at least 3 hours after installing the oil/air separator.



5. Install the PCV hose (B).



Engine Mechanical

Intake Manifold and Exhaust System

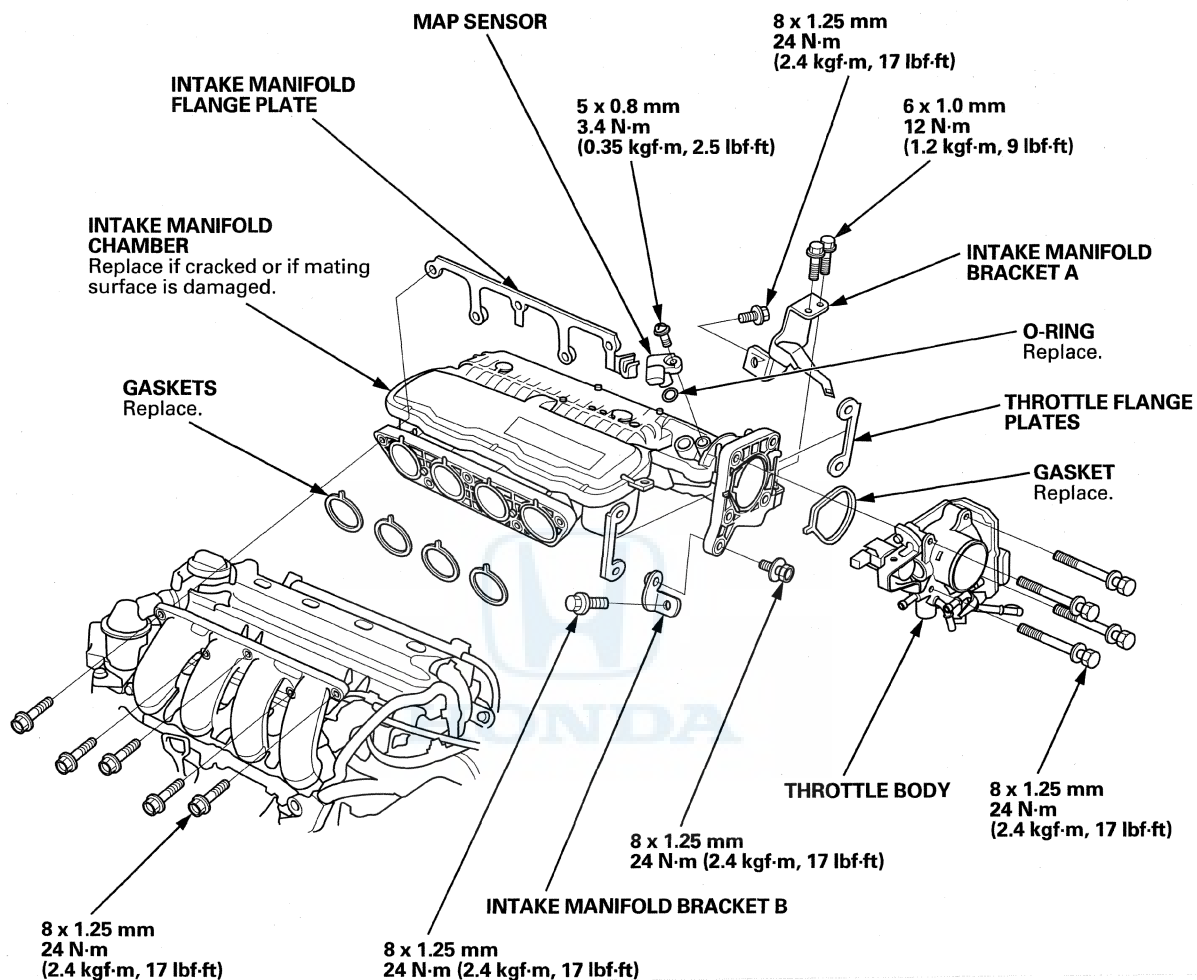
Intake Manifold Chamber Removal and Installation . . .	9-2
Intake Manifold Removal and Installation	9-6
Intake Manifold/Chamber Assembly Removal and Installation	9-8
Exhaust Pipe and Muffler Replacement	9-12

HONDA

Intake Manifold and Exhaust System

Intake Manifold Chamber Removal and Installation

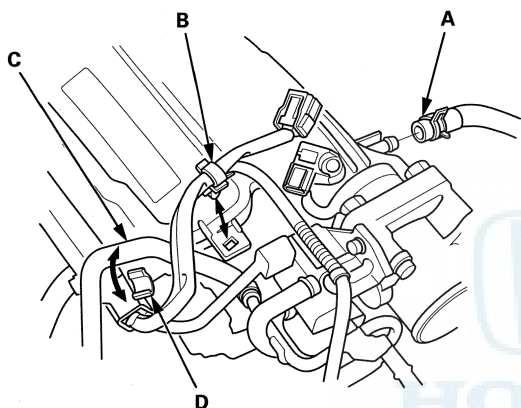
Exploded View



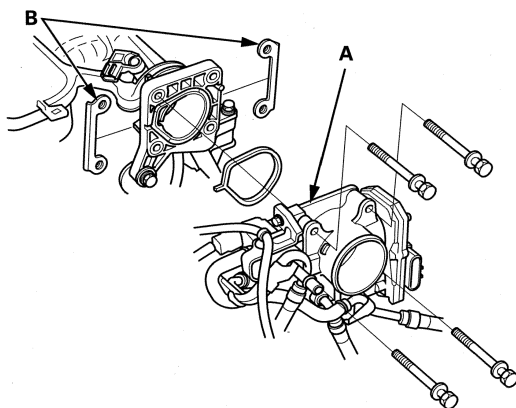


Removal

1. Remove the under-cowl panel (see page 20-185).
2. Remove the air cleaner (see page 11-307).
3. Disconnect the engine wire harness connectors, and remove the wire harness clamps from the intake manifold chamber:
 - Throttle actuator connector
 - MAP sensor connector
4. Disconnect the brake booster vacuum hose (A) and remove the harness clamp (B).

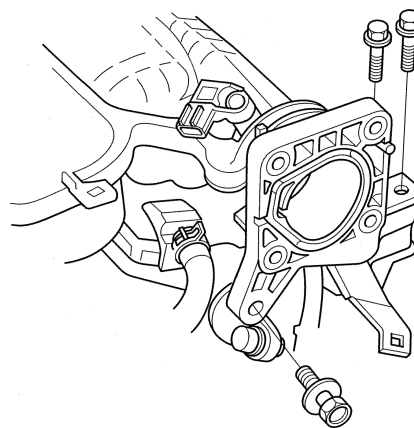


5. Remove the water bypass hose (C) from the clamp (D).
6. Remove the throttle body (A) without disconnecting the water bypass hoses.

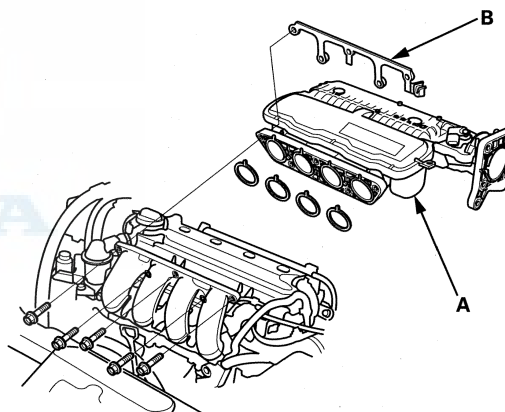


7. Remove the throttle flange plates (B).

8. Remove the intake manifold bracket mounting bolts.



9. Remove the intake manifold chamber (A) and the intake manifold flange plate (B).



10. Disassemble the intake manifold chamber.

NOTE: Refer to the Exploded View if needed during this procedure.

(cont'd)

Intake Manifold and Exhaust System

Intake Manifold Chamber Removal and Installation (cont'd)

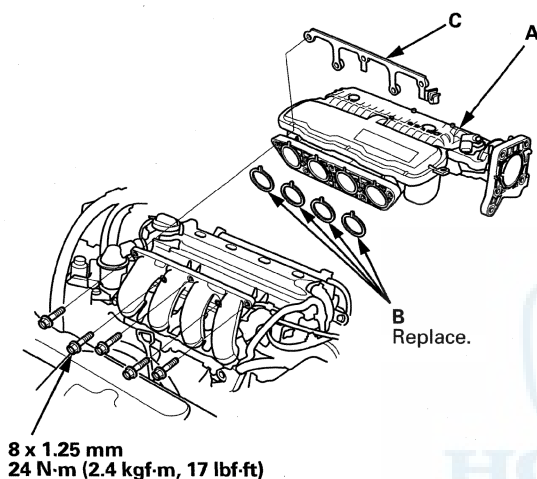
Installation

1. Reassemble the intake manifold chamber.

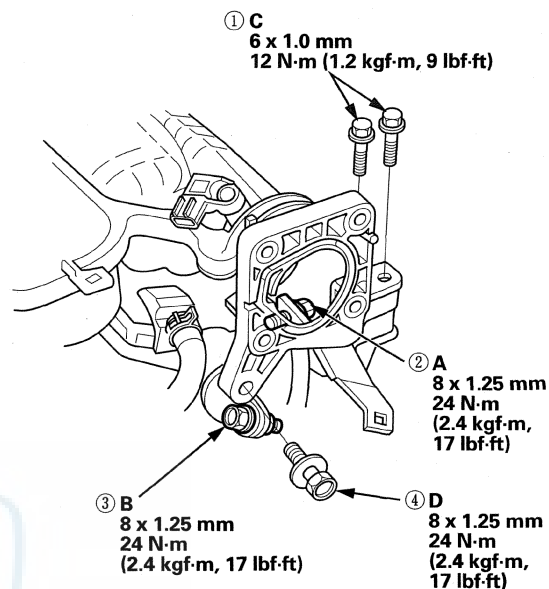
NOTE: Refer to the Exploded View if needed during this procedure.

2. Install the intake manifold chamber (A) with new gaskets (B), and the intake manifold flange plate (C).

NOTE: Tighten the bolts in a crisscross pattern in three steps, beginning with the inner bolt.

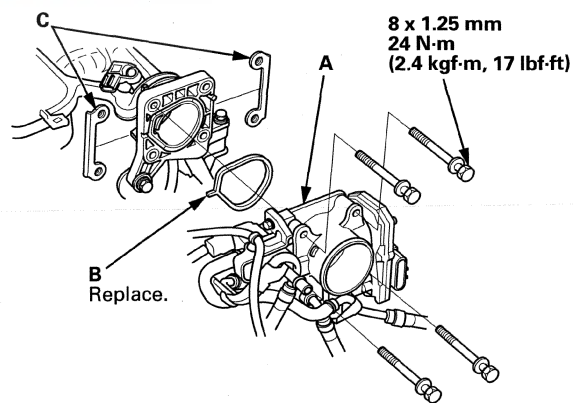


3. Loosen the intake manifold bracket mounting bolts (A, B), then loosely install the intake manifold bracket mounting bolts (C, D).



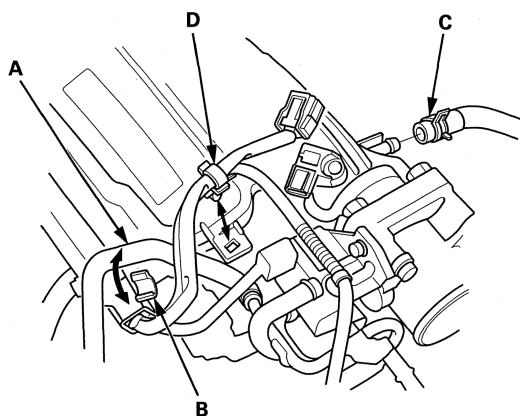
4. Tighten the intake manifold bracket mounting bolts in the numbered sequence shown.

5. Install the throttle body (A) with a new gasket (B), and the throttle flange plates (C).





6. Install the water bypass hose (A) to the clamp (B).



7. Connect the brake booster vacuum hose (C) and install the harness clamp (D).

8. Connect the engine wire harness connectors, and install the wire harness clamps to the intake manifold chamber:

- Throttle actuator connector
- MAP sensor connector

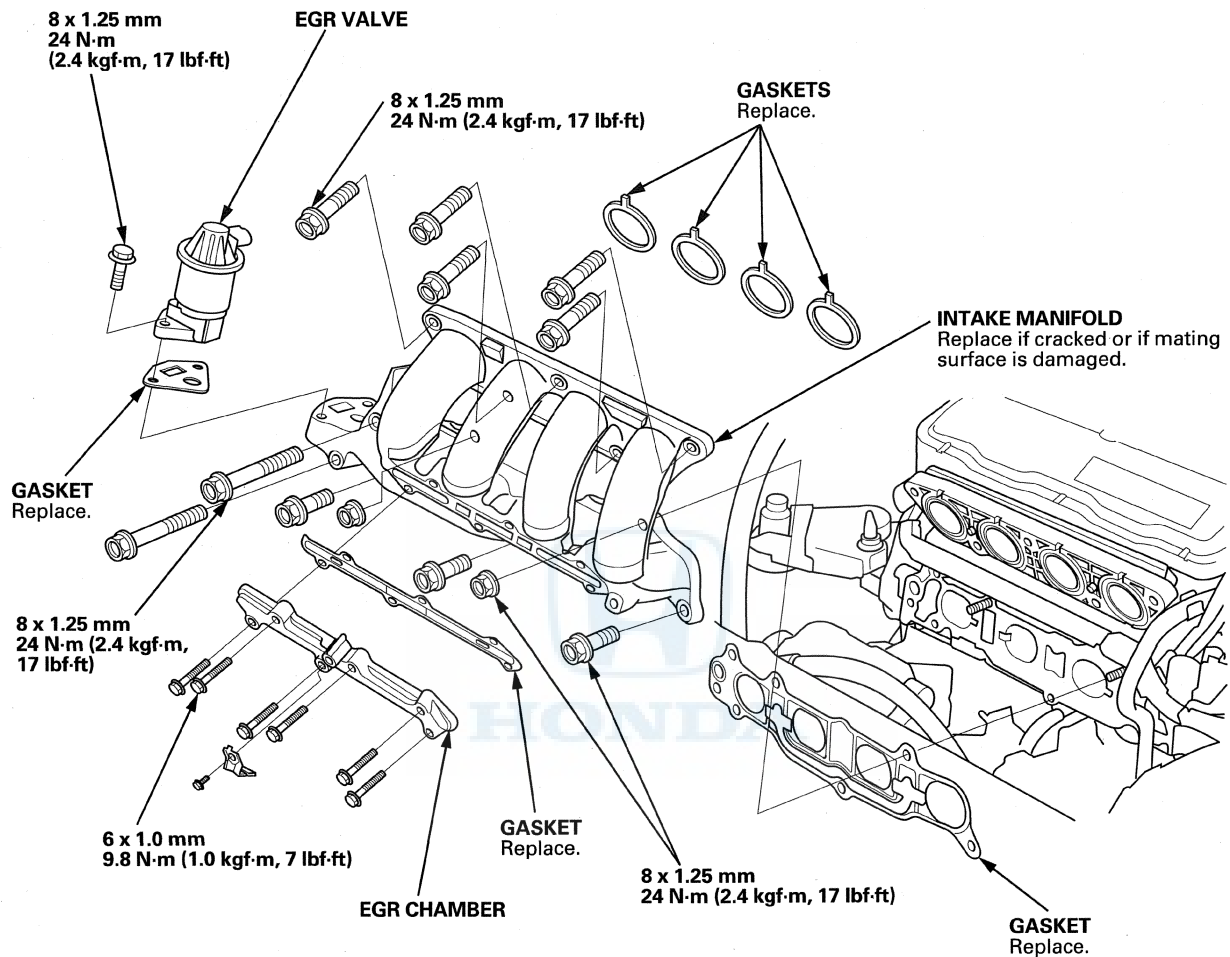
9. Install the air cleaner (see page 11-307).

10. Install the under-cowl panel (see page 20-185).

Intake Manifold and Exhaust System

Intake Manifold Removal and Installation

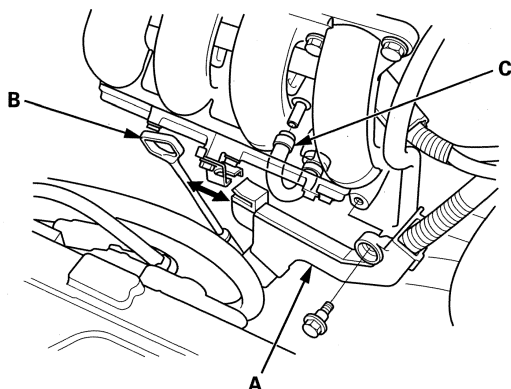
Exploded View



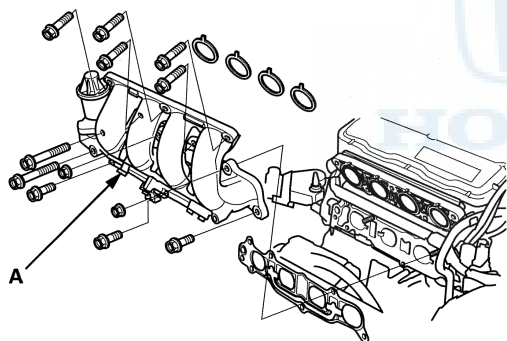


Removal

1. Remove the harness holder (A) and the dipstick (B).



2. Disconnect the PCV hose (C).
3. Disconnect the EGR valve connector.
4. Remove the intake manifold (A).



5. Disassemble the intake manifold.

NOTE: Refer to the Exploded View if needed during this procedure.

Installation

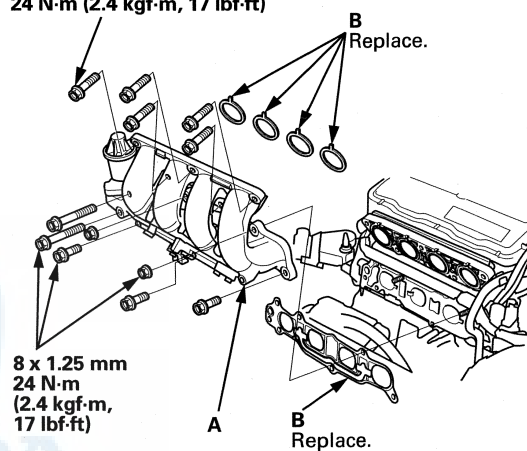
1. Reassemble the intake manifold.

NOTE: Refer to the Exploded View if needed during this procedure.

2. Install the intake manifold (A) with new gaskets (B).

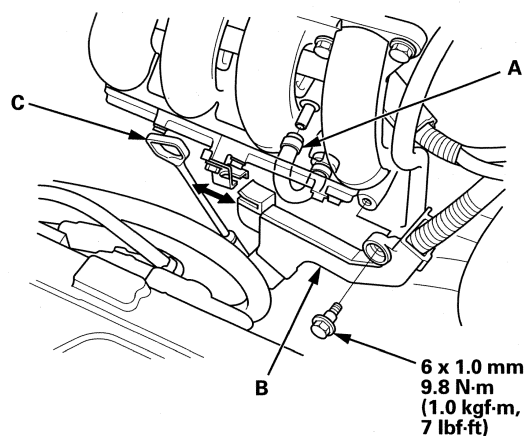
NOTE: Tighten the bolts and nuts in a crisscross pattern in three steps, beginning with the inner bolt.

8 x 1.25 mm
24 N·m (2.4 kgf·m, 17 lbf·ft)



3. Connect the EGR valve connector.

4. Connect the PCV hose (A).

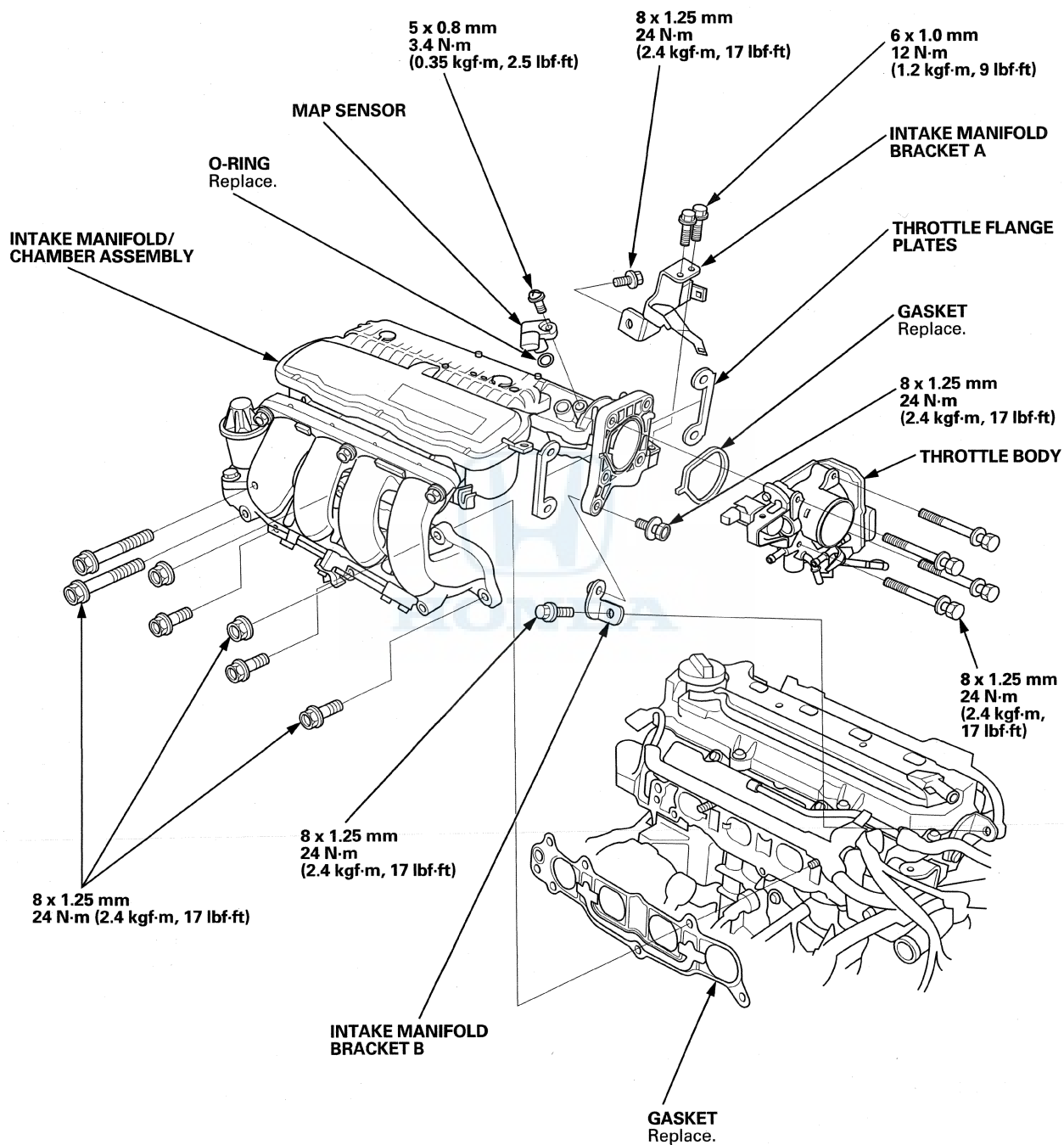


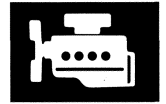
5. Install the harness holder (B) and the dipstick (C).

Intake Manifold and Exhaust System

Intake Manifold/Chamber Assembly Removal and Installation

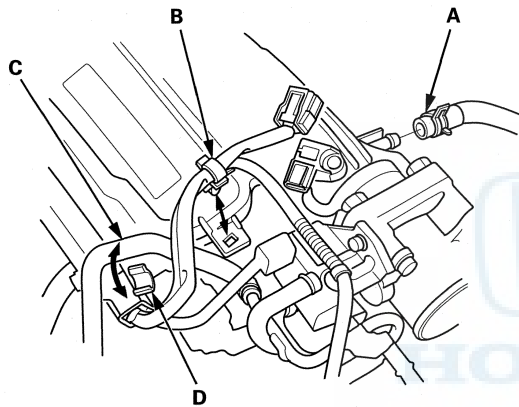
Exploded View



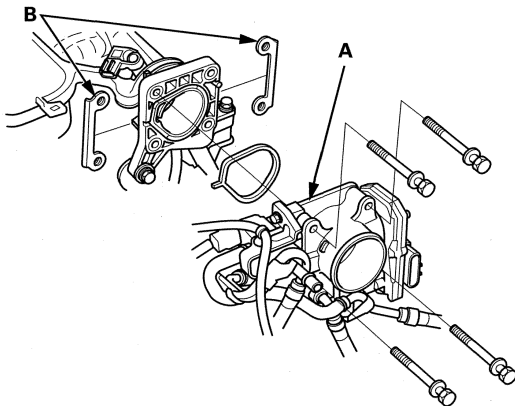


Removal

1. Remove the under-cowl panel (see page 20-185).
2. Remove the air cleaner (see page 11-307).
3. Disconnect the engine wire harness connectors, and remove the wire harness clamps from the intake manifold chamber:
 - Throttle actuator connector
 - MAP sensor connector
 - EGR valve connector
4. Disconnect the brake booster vacuum hose (A) and remove the harness clamp (B).

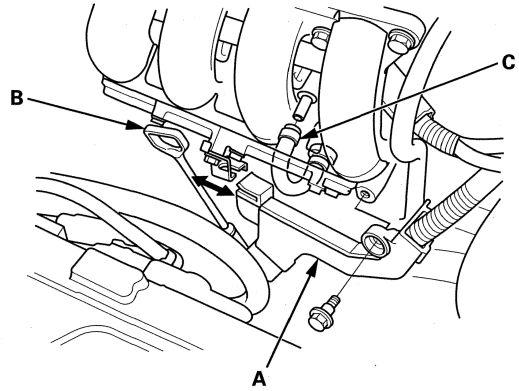


5. Remove the water bypass hose (C) from the clamp (D).
6. Remove the throttle body (A) without disconnecting the water bypass hoses.

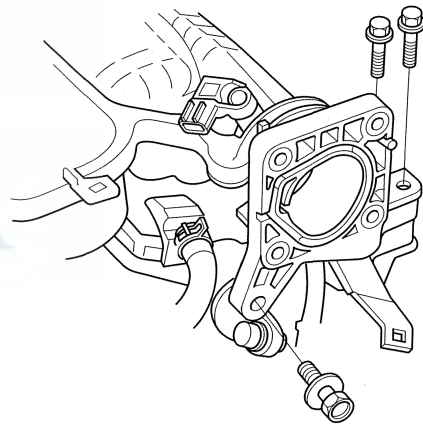


7. Remove the throttle flange plates (B).

8. Remove the harness holder (A) and the dipstick (B).



9. Disconnect the PCV hose (C).
10. Remove the intake manifold bracket mounting bolts.

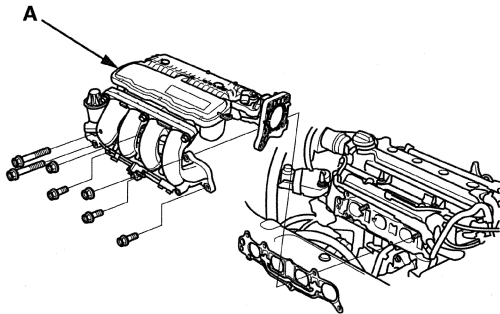


(cont'd)

Intake Manifold and Exhaust System

Intake Manifold/Chamber Assembly Removal and Installation (cont'd)

11. Remove the intake manifold/chamber assembly (A) from the cylinder head.



12. Disassemble the intake manifold/chamber assembly.

NOTE: Refer to the Exploded View if needed during this procedure.

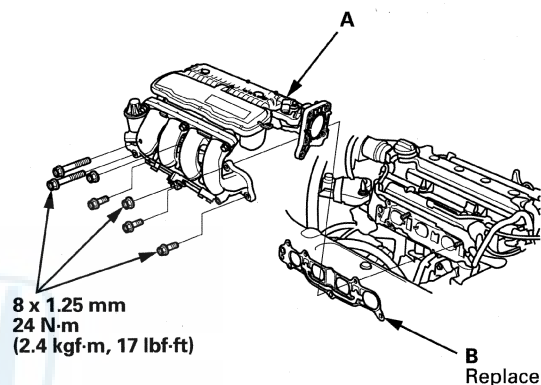
Installation

1. Reassemble the intake manifold/chamber assembly.

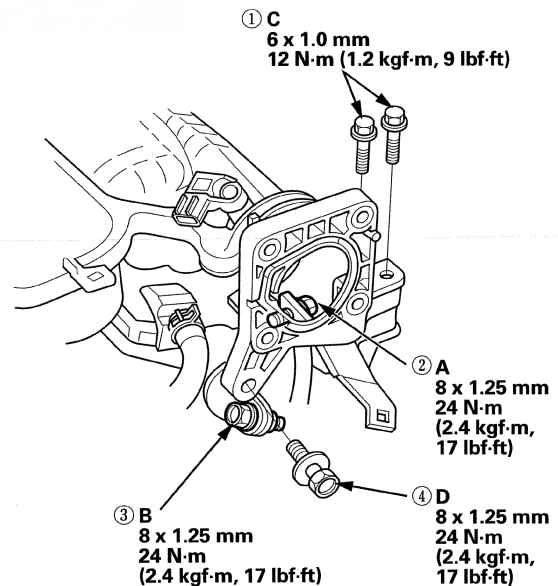
NOTE: Refer to the Exploded View if needed during this procedure.

2. Install the intake manifold/chamber assembly (A) with a new gasket (B).

NOTE: Tighten the bolts and nuts in a crisscross pattern in three steps, beginning with the inner bolt.



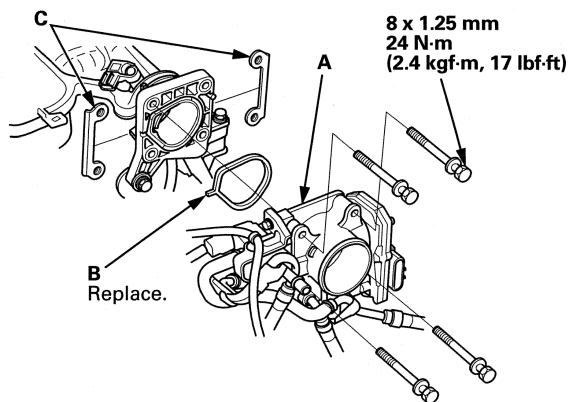
3. Loosen the intake manifold bracket mounting bolts (A, B), then loosely install the intake manifold bracket mounting bolts (C, D).



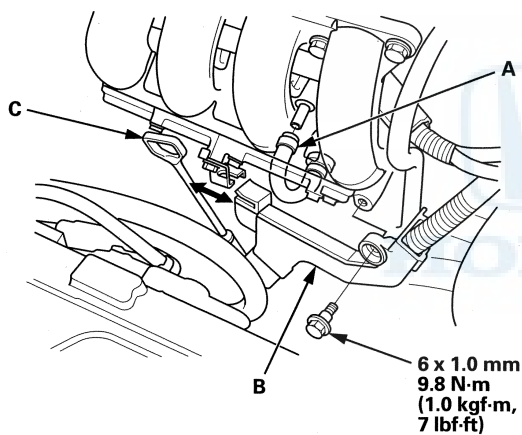
4. Tighten the intake manifold bracket mounting bolts in the numbered sequence shown.



5. Install the throttle body (A) with a new gasket (B), and the throttle flange plates (C).

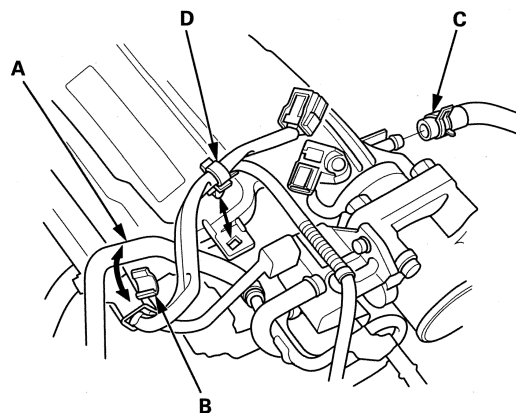


6. Connect the PCV hose (A).



7. Install the harness holder (B) and the dipstick (C).

8. Install the water bypass hose (A) to the clamp (B).



9. Connect the brake booster vacuum hose (C) and install the harness clamp (D).

10. Connect the engine wire harness connectors, and install the wire harness clamps to the intake manifold chamber:

- Throttle actuator connector
- MAP sensor connector
- EGR valve connector

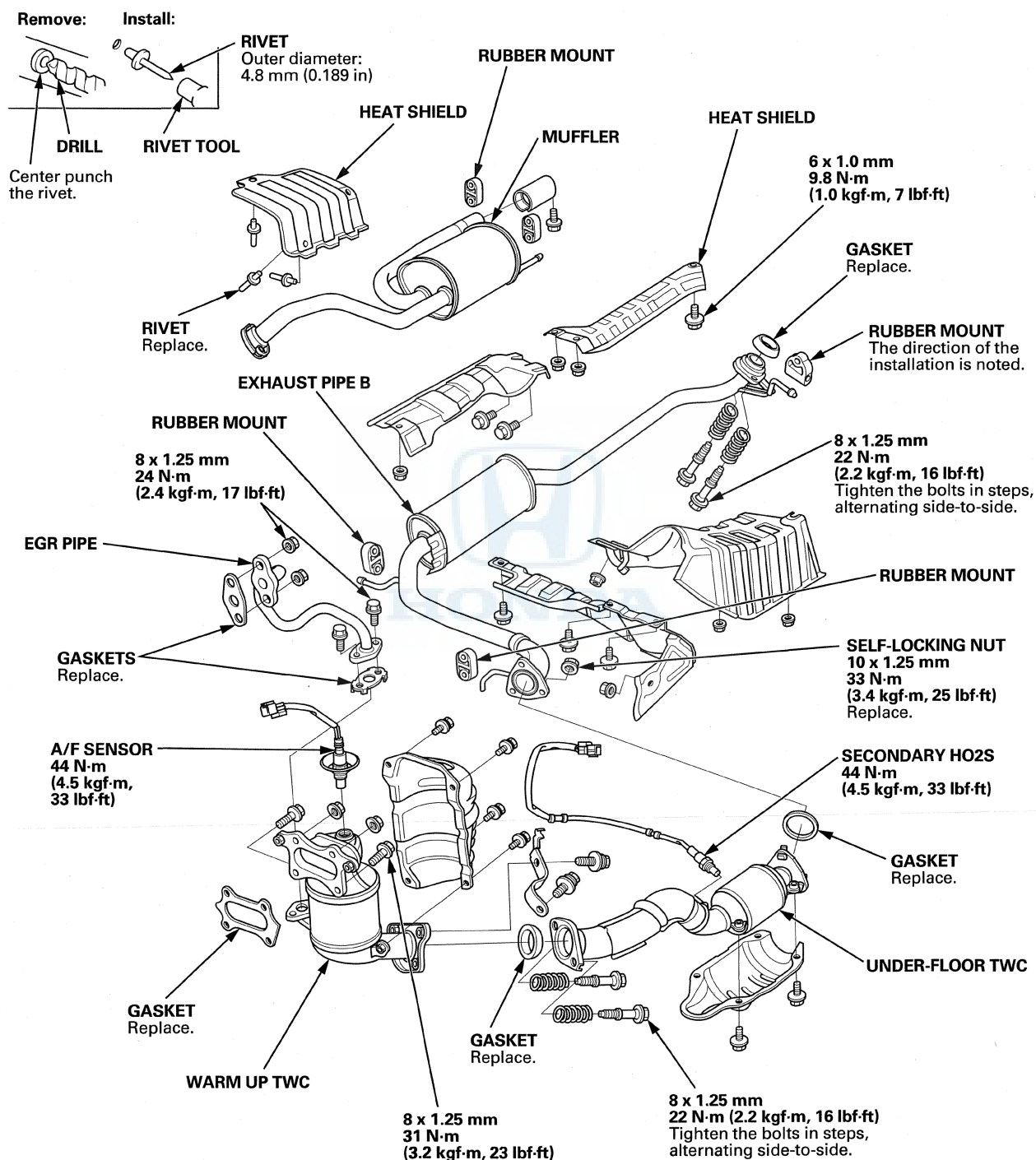
11. Install the air cleaner (see page 11-307).

12. Install the under-cowl panel (see page 20-185).

Intake Manifold and Exhaust System

Exhaust Pipe and Muffler Replacement

NOTE: Use new gaskets and self-locking nuts when reassembling.



Engine Cooling

Cooling System

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Water Outlet Removal and Installation	10-12
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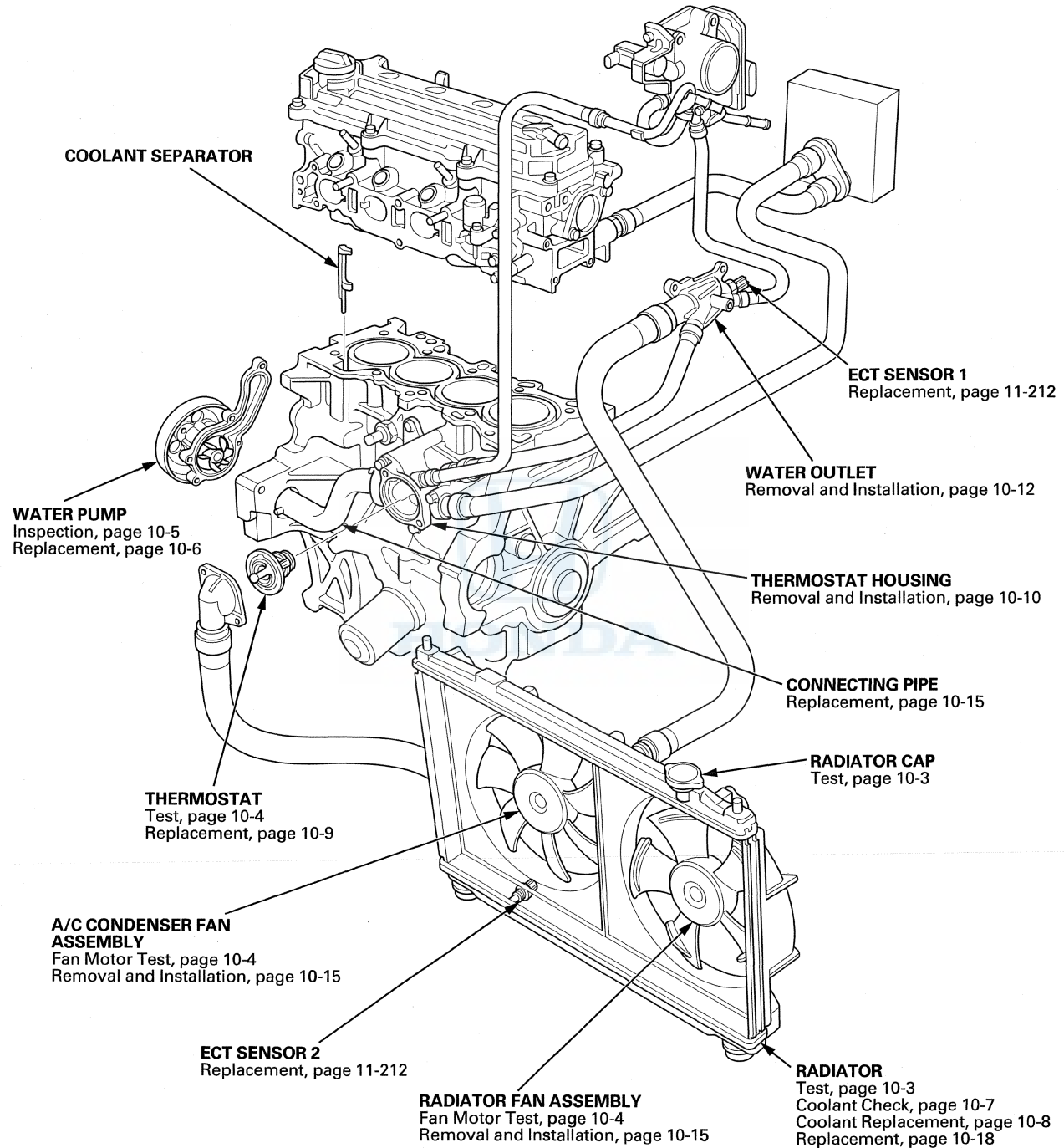
Fan Controls

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Circuit Diagram	10-24
Radiator Fan Circuit Troubleshooting	10-25
Radiator Fan and A/C Condenser Fan Circuit Troubleshooting	10-28



Cooling System

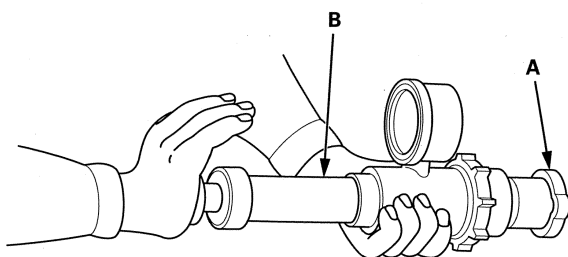
Component Location Index





Radiator Cap Test

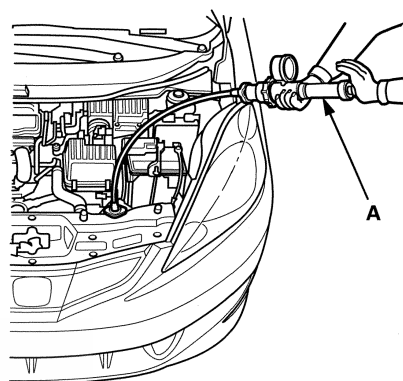
1. Wait until the engine is cool, then carefully remove the radiator cap (A). Wet the radiator cap seal with engine coolant, then install it on a commercially available pressure tester (B).



2. Apply a pressure of 93.3—122.7 kPa (0.951—1.251 kgf/cm², 13.53—17.79 psi).
3. Check for a drop in pressure.
4. If the pressure drops, replace the radiator cap.

Radiator Test

1. Wait until the engine is cool, then carefully remove the radiator cap, and fill the radiator with engine coolant to the base of the filler neck.
2. Attach a commercially available pressure tester (A) to the radiator, and apply a pressure of 93.3—122.7 kPa (0.951—1.251 kgf/cm², 13.53—17.79 psi).

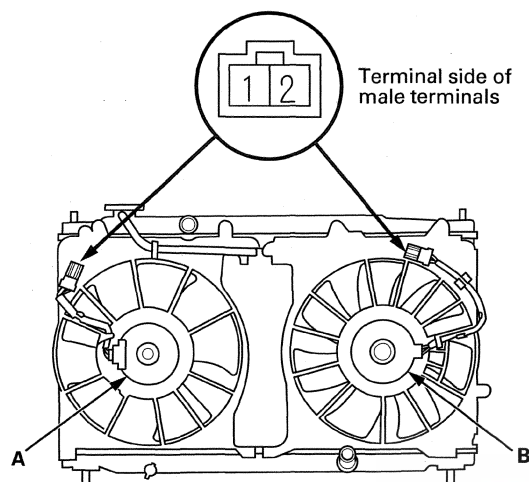


3. Inspect for engine coolant leaks and a drop in pressure.
4. Remove the tester, and reinstall the radiator cap.

Cooling System

Fan Motor Test

1. Disconnect the 2P connectors from the radiator fan motor (A) and the A/C condenser fan motor (B).



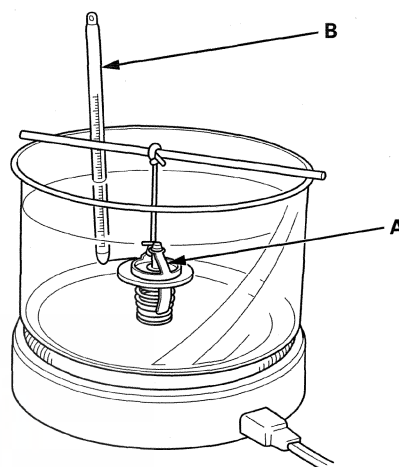
2. Test each motor by connecting battery power to terminal No. 2 and ground to terminal No. 1.
3. If either motor fails to run, or does not run smoothly, replace it (see page 10-15).

Thermostat Test

Replace the thermostat if it is stuck in the open position at room temperature.

To test a closed thermostat:

1. Suspend the thermostat (A) in a container of water. Do not let the thermostat and the thermometer (B) touch the bottom of the hot container.



2. Heat the water, and check the temperature with a thermometer. Check the temperature at which the thermostat first opens, and at which it is fully open.
3. Measure the lift height of the thermostat when it is fully open.

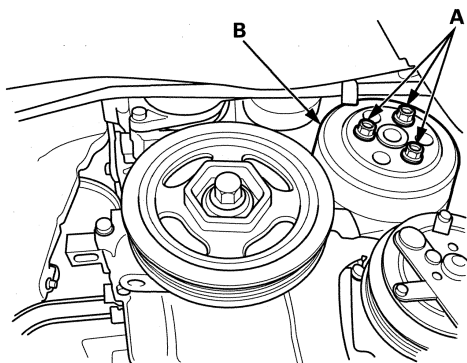
Standard Thermostat

Lift Height: Above 8.0 mm (0.315 in)
Starts Opening: 169—176 °F (76—80 °C)
Fully Open: 194 °F (90 °C)



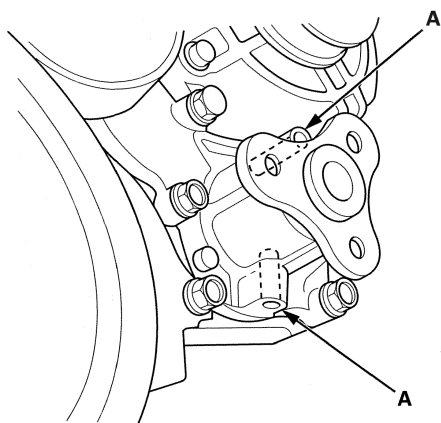
Water Pump Inspection

1. Remove the right front wheel.
2. Remove the splash shield (see page 20-180).
3. Loosen the water pump pulley mounting bolts (A).

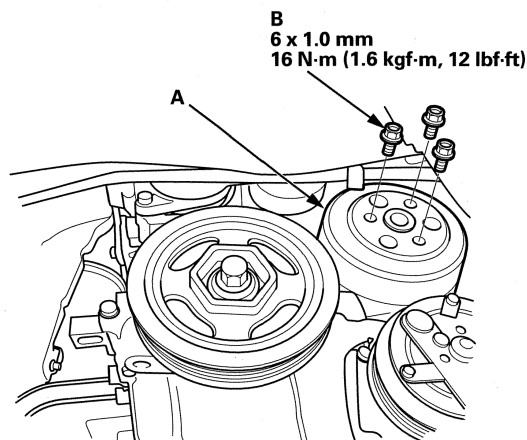


4. Remove the drive belt (see page 4-29).
5. Remove the water pump pulley mounting bolts, then remove the water pump pulley (B).
6. Turn the water pump pulley counterclockwise, and check that it turns freely. If it does not turn freely, replace the water pump (see page 10-6).

NOTE: When you check the water pump, you may see a small amount of “weeping” from the bleed holes (A). This is normal.



7. Install the water pump pulley (A), and loosely install the water pump pulley mounting bolts (B).

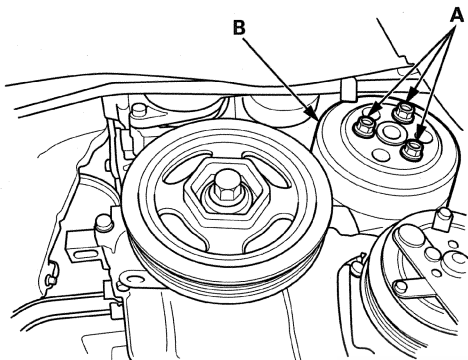


8. Install the drive belt (see page 4-29).
9. Tighten the water pump pulley mounting bolts.
10. Install the splash shield (see page 20-180).
11. Install the right front wheel.

Cooling System

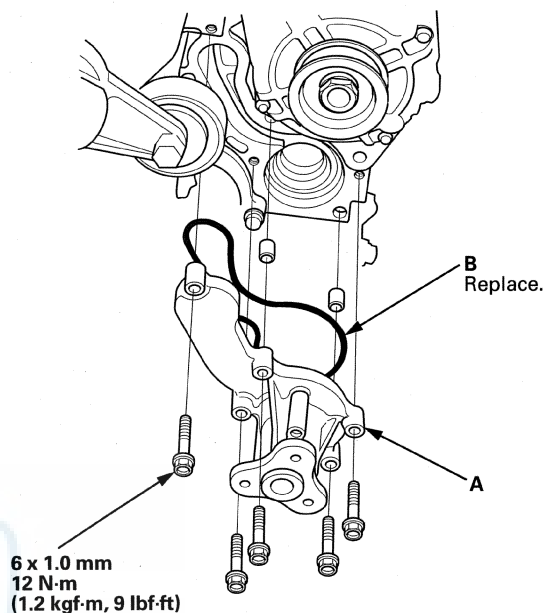
Water Pump Replacement

1. Remove the right front wheel.
2. Remove the splash shield (see page 20-180).
3. Drain the engine coolant (see page 10-8).
4. Loosen the water pump pulley mounting bolts (A).

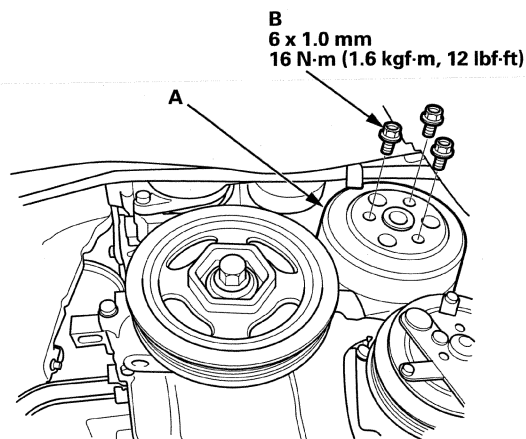


5. Remove the drive belt (see page 4-29).
6. Remove the water pump pulley mounting bolts, then remove the water pump pulley (B).

7. Remove the five bolts securing the water pump (A), then remove the water pump.



8. Inspect and clean the mating surface of the engine block.
9. Install the water pump with a new O-ring (B) in the reverse order of removal.
10. Clean up any spilled engine coolant.
11. Install the water pump pulley (A), and loosely install the water pump pulley mounting bolts (B).



12. Install the drive belt (see page 4-29).
13. Tighten the water pump pulley mounting bolts.
14. Install the splash shield (see page 20-180).

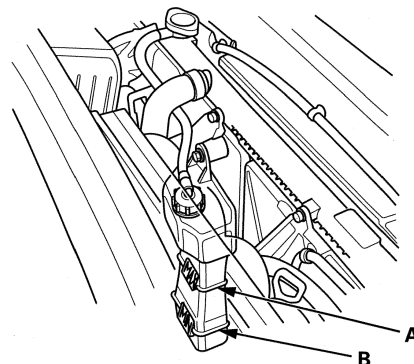


Coolant Check

15. Install the right front wheel.

16. Refill the radiator with engine coolant, and bleed the air from the cooling system (see step 8 on page 10-8).

1. Check the coolant level in the coolant reservoir. Make sure it is between the MAX mark (A) and the MIN mark (B).



2. If the coolant level in the coolant reservoir is at or below the MIN mark, add coolant to bring it between the MIN and MAX marks, then inspect the cooling system for leaks.

3. Check the coolant level in the radiator, and add Honda Long Life Antifreeze/Coolant Type 2 into the radiator up to the base of the filler neck, if needed.

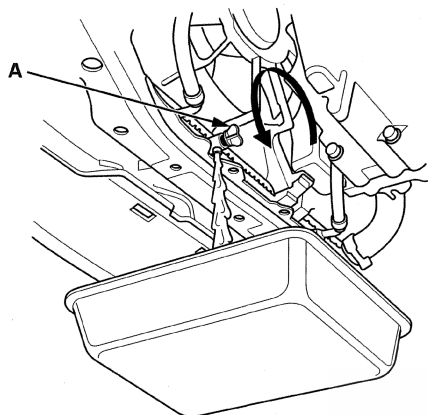
NOTE:

- Always use Honda Long Life Antifreeze/Coolant Type 2. Using a non-Honda coolant can result in corrosion, causing the cooling system to malfunction or fail.
- Honda Long Life Antifreeze/Coolant Type 2 is a mixture of 50% antifreeze and 50% water. Do not add water.

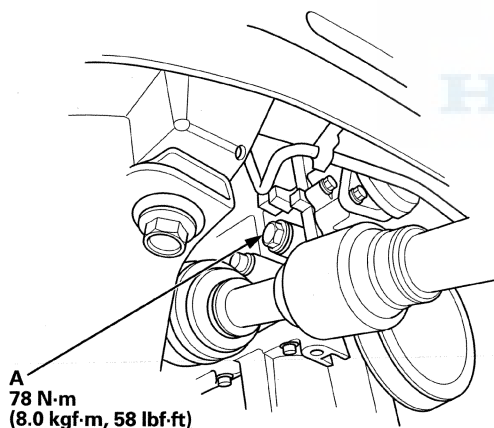
Cooling System

Coolant Replacement

1. Wait until the engine is cool, then carefully remove the radiator cap.
2. Remove the splash shield (see page 20-180).
3. Loosen the drain plug (A), and drain the coolant.

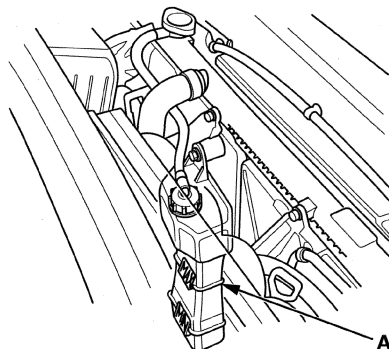


4. Remove the drain bolt (A) located at the rear of the engine block.



5. After the coolant has drained, reinstall the drain bolt with a new washer.
6. Tighten the radiator drain plug securely.
7. Remove, drain, and reinstall the coolant reservoir.

8. Fill the coolant reservoir to the MAX mark (A) with Honda Long Life Antifreeze/Coolant Type 2.



9. Pour Honda Long Life Antifreeze/Coolant Type 2 into the radiator up to the base of the filler neck.

NOTE:

- Always use Honda Long Life Antifreeze/Coolant Type 2. Using a non-Honda coolant can result in corrosion, causing the cooling system to malfunction or fail.
- Honda Long Life Antifreeze/Coolant Type 2 is a mixture of 50 % antifreeze and 50 % water. Do not add water.

Engine Coolant Capacities (Including the coolant reservoir capacity of 0.44 L (0.116 US gal)):

M/T model

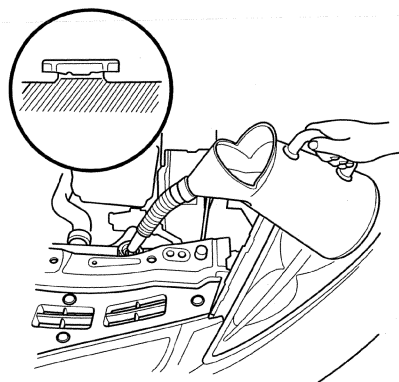
At Coolant Change: 4.37 L (1.154 US gal)

After Engine Overhaul: 4.86 L (1.284 US gal)

A/T model

At Coolant Change: 4.47 L (1.181 US gal)

After Engine Overhaul: 4.96 L (1.310 US gal)



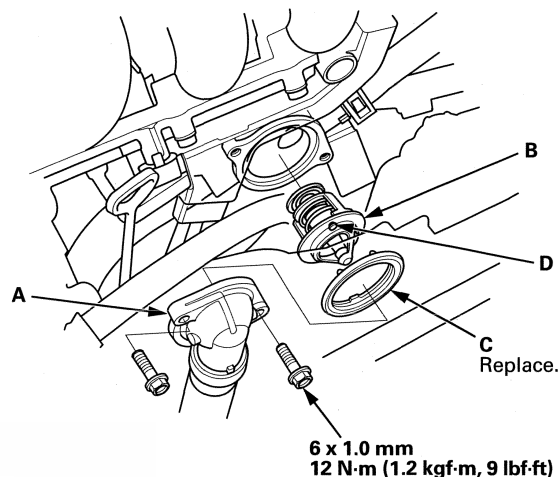


Thermostat Replacement

10. Loosely install the radiator cap.
11. Start the engine, and let it run until it warms up (the radiator fan comes on at least twice).
12. Turn off the engine. Check the level in the radiator, and add the recommended coolant, if needed.
13. Put the radiator cap on tightly, then start the engine again, and check for leaks.
14. Clean up any spilled engine coolant.
15. If the Maintenance Minder required engine coolant replacement, reset the Maintenance Minder (see page 3-4), and this procedure is complete. If the Maintenance Minder did not require engine coolant replacement, go to step 16.
16. Turn the ignition switch to LOCK (0).
17. Connect the HDS to the DLC (see step 2 on page 11-3).
18. Turn the ignition switch to ON (II).
19. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
20. Select GAUGES in the BODY ELECTRICAL with the HDS.
21. Select ADJUSTMENT in the GAUGE with the HDS.
22. Select MAINTENANCE MINDER in the ADJUSTMENT with the HDS.
23. Select RESET in the MAINTENANCE MINDER with the HDS.
24. Select MAINTENANCE SUB ITEM 5 RESET with the HDS.

1. Drain the engine coolant (see page 10-8).

2. Remove the thermostat cover (A), then remove the thermostat (B).



3. Install the thermostat with a new rubber seal (C), then install the thermostat cover.

NOTE: Install the thermostat with the pin (D) up.

4. Refill the radiator with engine coolant, and bleed the air from the cooling system (see step 8 on page 10-8).

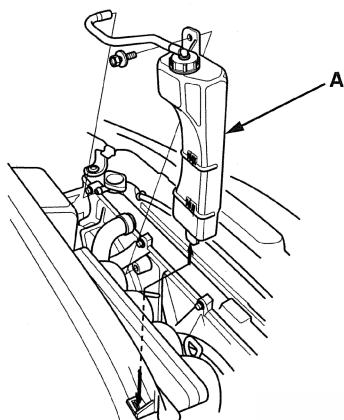
5. Clean up any spilled engine coolant.

Cooling System

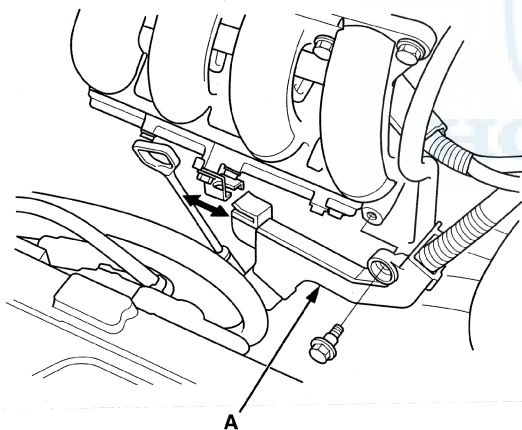
Thermostat Housing Removal and Installation

Removal

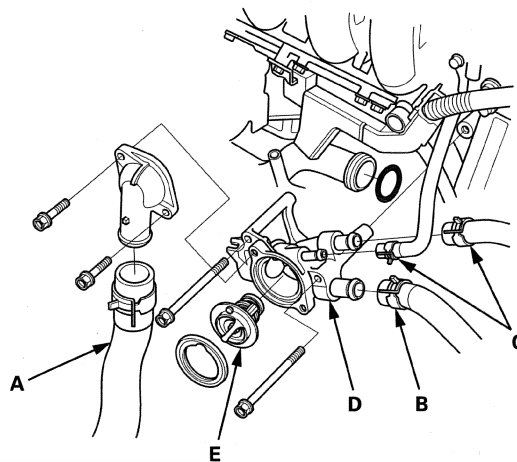
1. Drain the engine coolant (see page 10-8).
2. Remove the coolant reservoir (A).



3. Remove the harness holder (A) from the bracket.



4. Disconnect the lower radiator hose (A), the heater hose (B), and the water bypass hoses (C).

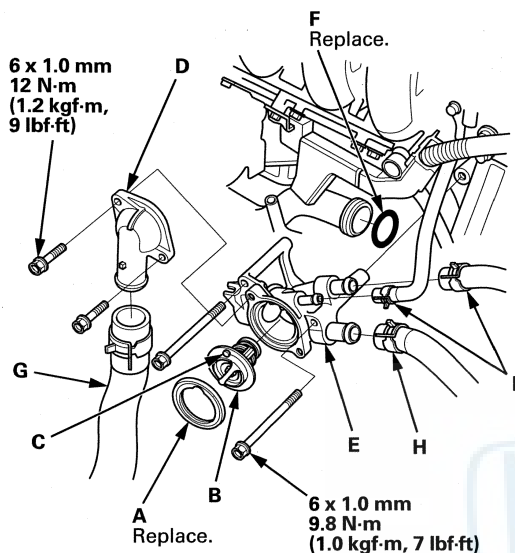


5. Remove the thermostat housing assembly (D), then remove the thermostat (E).

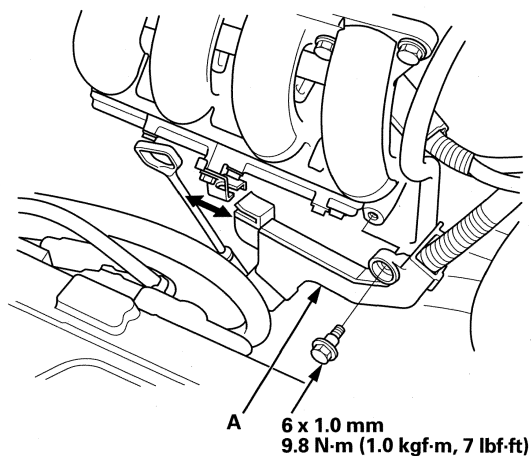


Installation

1. Install a new rubber seal (A) onto the thermostat (B), then install the thermostat with pin (C) up, and install the thermostat cover (D).

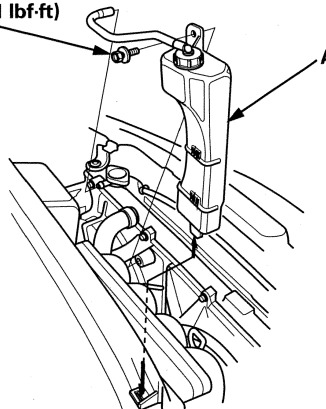


2. Install the thermostat housing assembly (E) with a new O-ring (F).
3. Install the lower radiator hose (G), the heater hose (H), and the water bypass hoses (I).
4. Install the harness holder (A) to the bracket.



5. Install the coolant reservoir (A).

6 x 1.0 mm
6.9 N-m
(0.7 kgf-m, 5.1 lbf-ft)



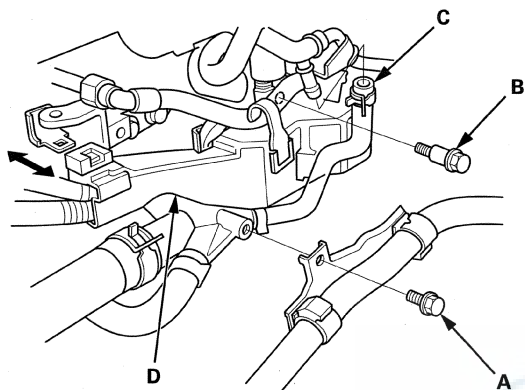
6. Refill the radiator with engine coolant, then bleed the air from the cooling system (see step 8 on page 10-8).
7. Clean up any spilled engine coolant.

Cooling System

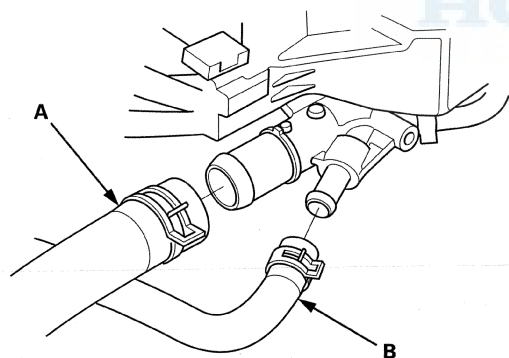
Water Outlet Removal and Installation

Removal

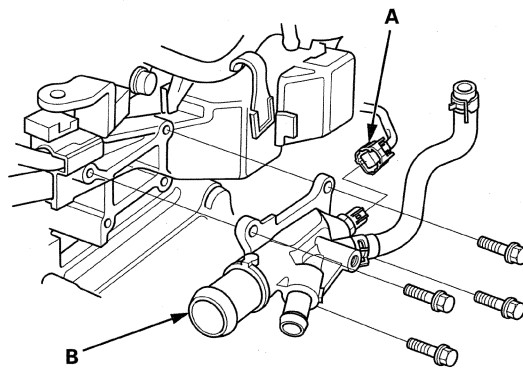
1. Drain the engine coolant (see page 10-8).
2. Remove the air cleaner (see page 11-307).
3. Remove the heater hose clamp bracket mounting bolt (A) and the harness holder mounting bolt (B).



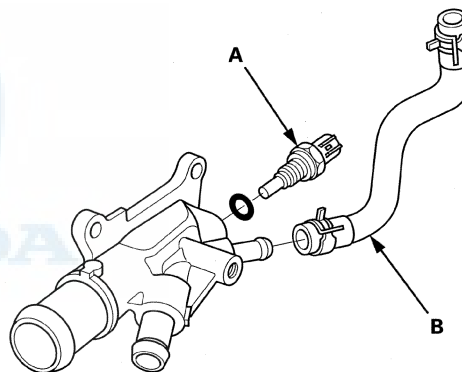
4. Disconnect the water bypass hose (C), then remove the harness holder (D) from the bracket.
5. Disconnect the upper radiator hose (A) and the water bypass hose (B).



6. Disconnect the ECT sensor 1 connector (A), then remove the water outlet (B).



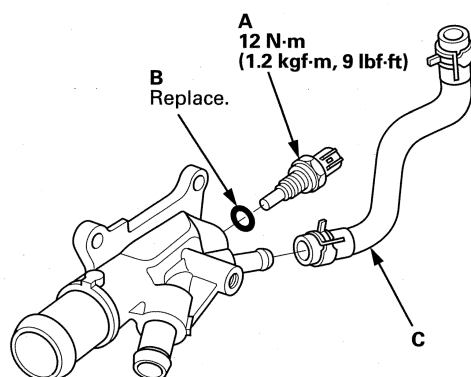
7. Remove ECT sensor 1 (A) and the water bypass hose (B).





Installation

1. Install ECT sensor 1 (A) with a new O-ring (B).

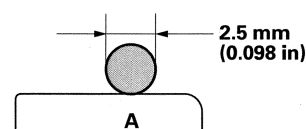
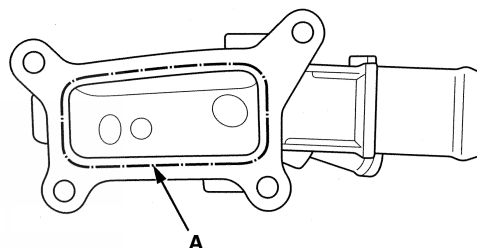


2. Install the water bypass hose (C).
3. Remove all of the old liquid gasket from the water outlet mating surfaces, the bolts, and the bolt holes.
4. Clean and dry the water outlet mating surfaces.

5. Apply liquid gasket (P/N 08717-0004, 08718-0003, 08718-0004, or 08718-0009) to the cylinder head mating surface of the water outlet and to the inside edge of the threaded bolt holes. Install the component within 5 minutes of applying the liquid gasket.

NOTE:

- Apply a 2.5 mm (0.098 in) diameter bead of liquid gasket along the broken line (A).
- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.



(cont'd)

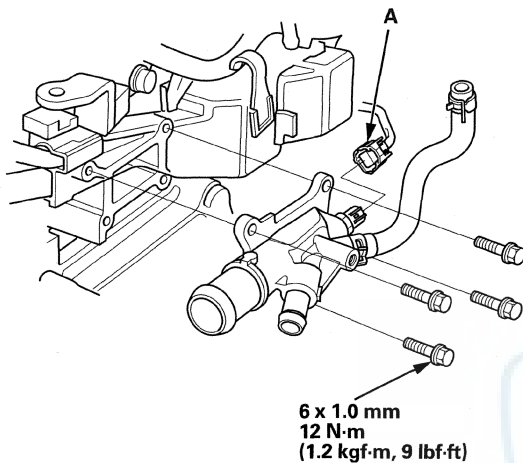
Cooling System

Water Outlet Removal and Installation (cont'd)

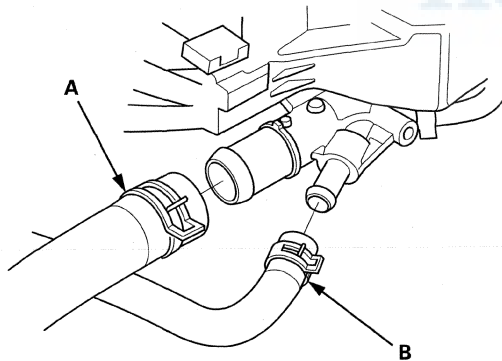
6. Install the water outlet, then connect the ECT sensor 1 connector (A).

NOTE:

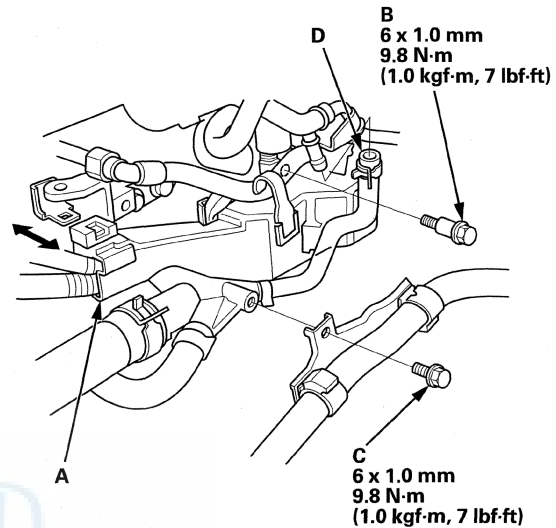
- After assembly, wait at least 30 minutes before filling the engine with coolant.
- Do not run the engine for at least 3 hours after installing the water outlet.



7. Connect the upper radiator hose (A) and the heater hose (B).



8. Install the harness holder (A) to the bracket, then tighten the harness holder mounting bolt (B) and the heater hose clamp bracket mounting bolt (C).



9. Connect the water bypass hose (D).

10. Install the air cleaner (see page 11-307).

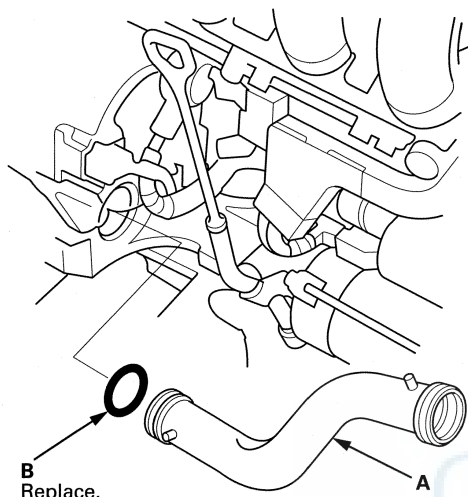
11. Refill the radiator with engine coolant, and bleed the air from the cooling system (see step 8 on page 10-8).

12. Clean up any spilled engine coolant.



Connecting Pipe Replacement

1. Drain the engine coolant (see page 10-8).
2. Remove the thermostat housing (see page 10-10).
3. Remove the connecting pipe (A).

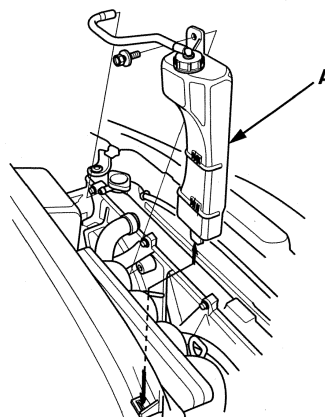


4. Install the connecting pipe with a new O-ring (B).
5. Install the thermostat housing (see page 10-11).
6. Refill the radiator with engine coolant, and bleed the air from the cooling system (see step 8 on page 10-8).
7. Clean up any spilled engine coolant.

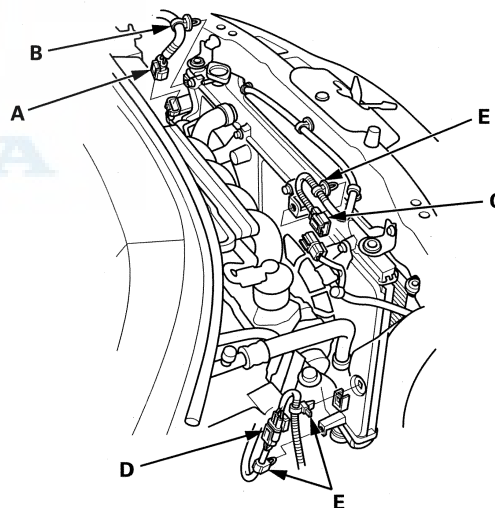
Fan, Fan Motor, and Shroud Removal and Installation

Removal

1. Remove the coolant reservoir (A).



2. Disconnect the radiator fan motor connector (A), then remove the harness clamp (B).



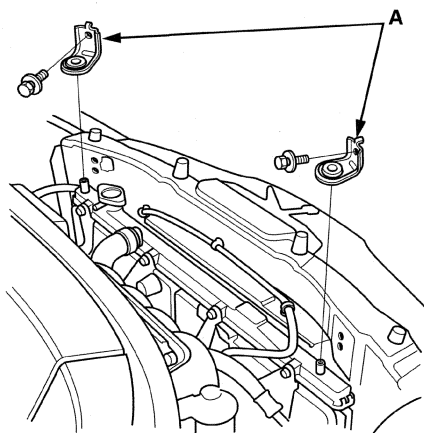
3. With A/C: Disconnect the A/C condenser fan motor connector (C) and the A/C compressor clutch connector (D), then remove the harness clamps (E).

(cont'd)

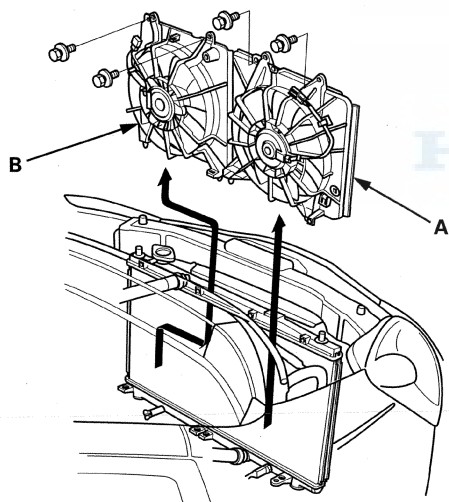
Cooling System

Fan, Fan Motor, and Shroud Removal and Installation (cont'd)

4. Remove the radiator upper brackets (A).

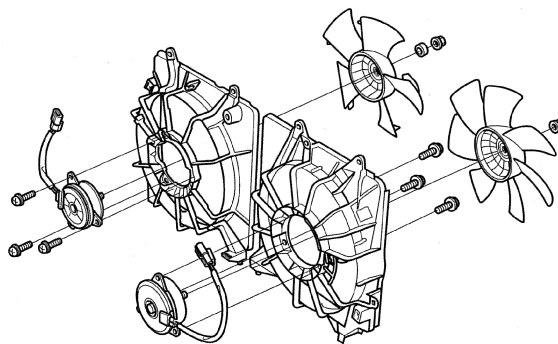


5. With A/C: Remove the A/C condenser fan shroud assembly (A) and the radiator fan shroud assembly (B) from the radiator, then remove the A/C condenser fan shroud assembly from the vehicle.



6. Remove the radiator fan shroud assembly from right side of the engine compartment.

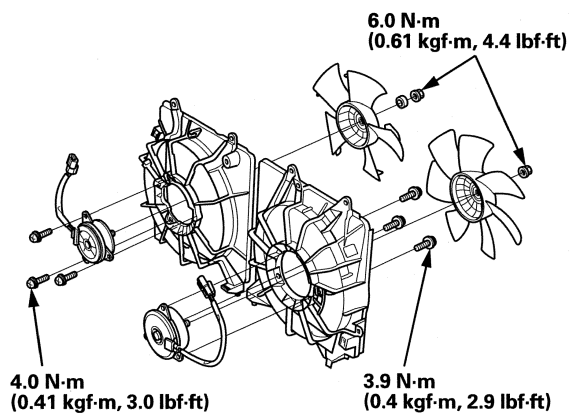
7. Disassemble the fan shrouds.



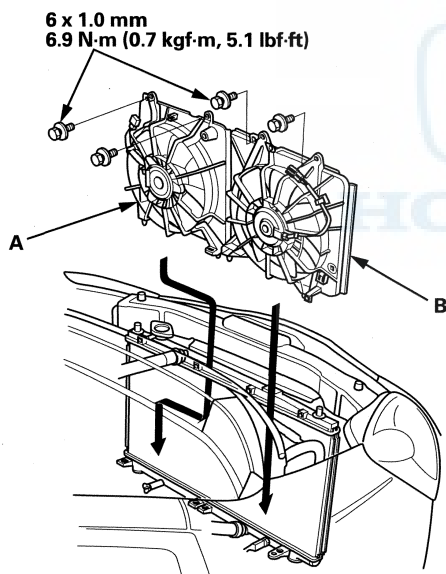


Installation

1. Assemble the fan shrouds.

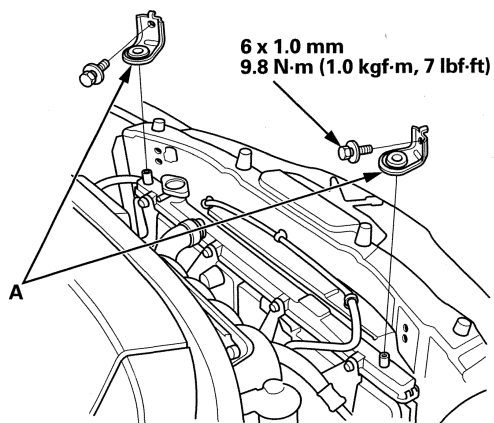


2. Install the radiator fan shroud assembly (A).

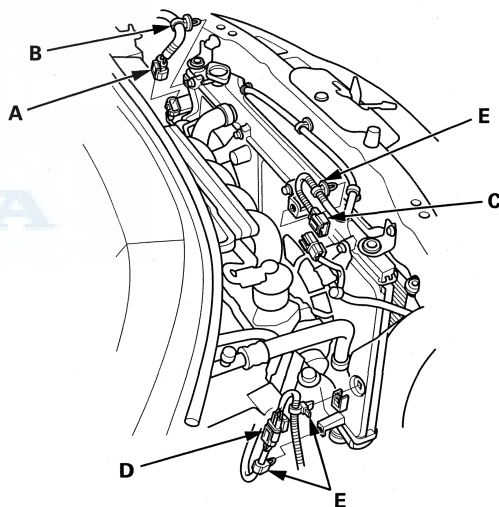


3. With A/C: Install the A/C condenser fan shroud assembly (B).

4. Install the radiator upper brackets (A).



5. Connect the radiator fan motor connector (A), then install the harness clamp (B).



6. With A/C: Connect the A/C condenser fan motor connector (C) and the A/C compressor clutch connector (D), then install the harness clamps (E).

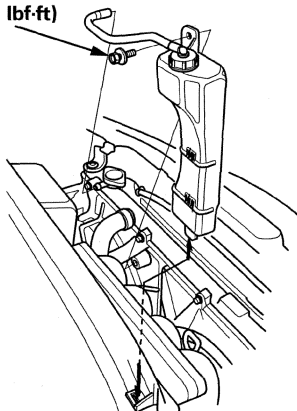
(cont'd)

Cooling System

Fan, Fan Motor, and Shroud Removal and Installation (cont'd)

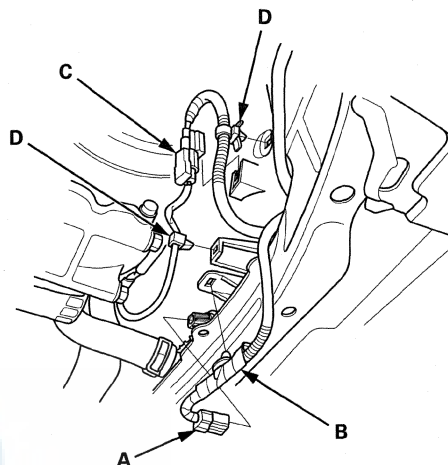
7. Install the coolant reservoir.

6 x 1.0 mm
6.9 N·m
(0.7 kgf·m, 5.1 lbf·ft)

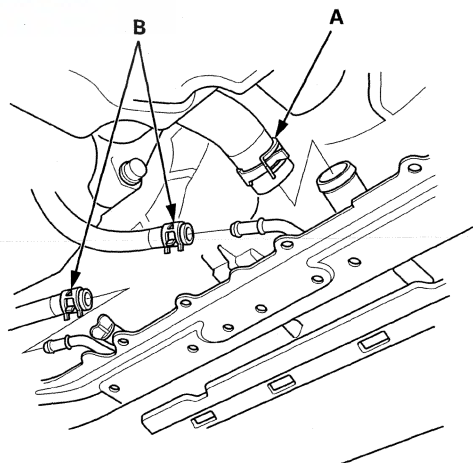


Radiator Replacement

1. Raise the vehicle on the lift.
2. Drain the engine coolant (see page 10-8).
3. Disconnect the ECT sensor 2 connector (A), then remove the harness clamp (B).



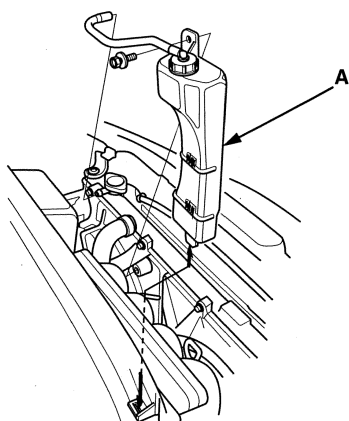
4. With A/C: Remove the A/C compressor clutch connector (C) from the clamp, then remove the harness clamps (D).
5. Disconnect the lower radiator hose (A).



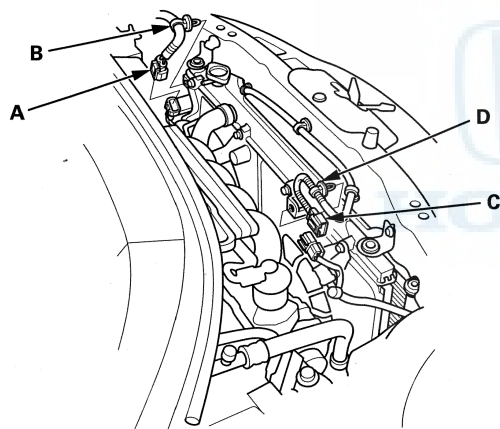
6. A/T model: Disconnect the ATF cooler hoses (B), then plug the hose and line.
7. Lower the vehicle on the lift.



8. Remove the coolant reservoir (A).

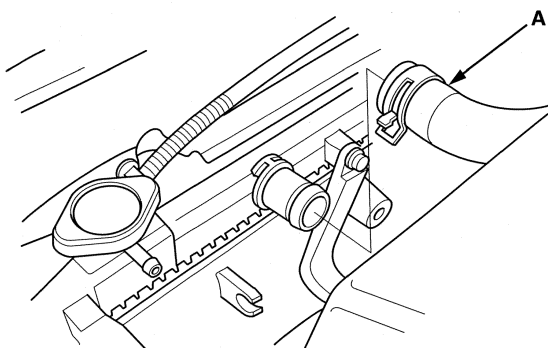


9. Disconnect the radiator fan motor connector (A), then remove the harness clamp (B).

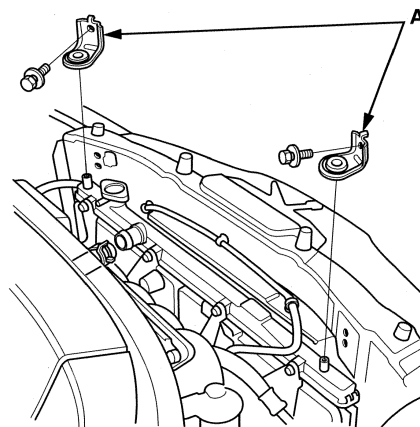


10. With A/C: Disconnect the A/C condenser fan motor connector (C), then remove the harness clamp (D).

11. Disconnect the upper radiator hose (A).



12. Remove the radiator upper brackets (A).

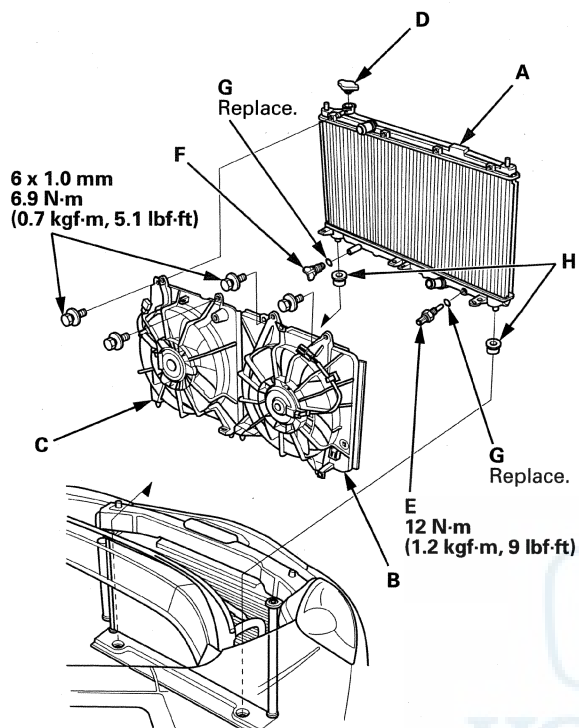


(cont'd)

Cooling System

Radiator Replacement (cont'd)

13. Pull up the radiator (A).



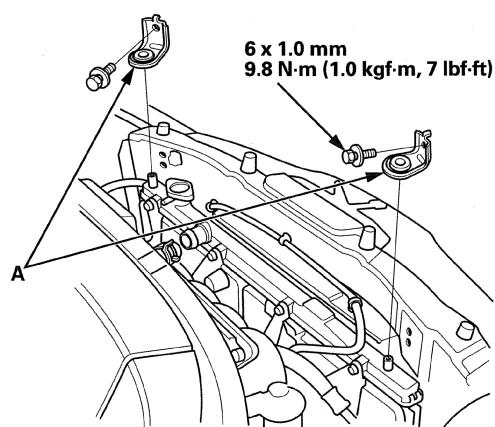
14. With A/C: Remove the A/C condenser fan shroud assembly (B).

15. Remove the radiator fan shroud assembly (C), the radiator cap (D), the ECT sensor 2 (E), and the drain plug (F).

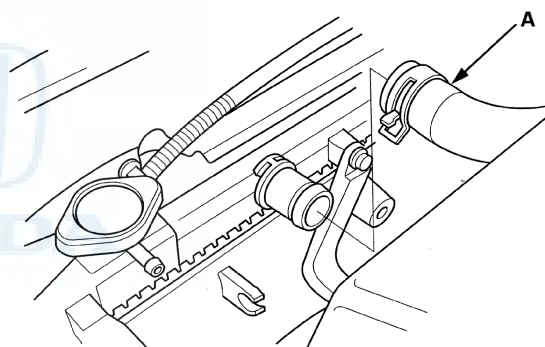
16. Reassemble the radiator with new O-rings (G).

17. Install the radiator. Make sure the lower cushions (H) are set securely.

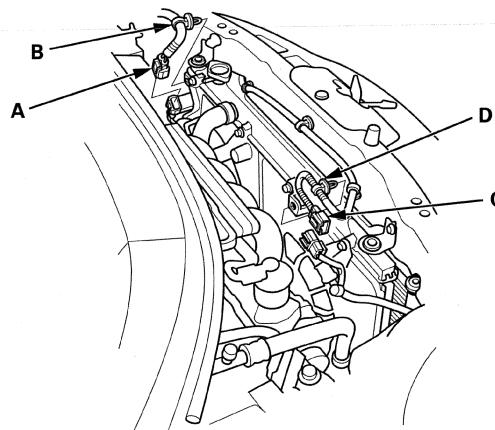
18. Install the radiator upper brackets (A).



19. Connect the upper radiator hose (A).



20. Connect the radiator fan motor connector (A), then install the harness clamp (B).

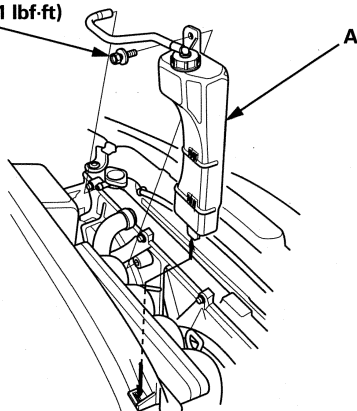


21. With A/C: Connect the A/C condenser fan motor connector (C), then install the harness clamp (D).



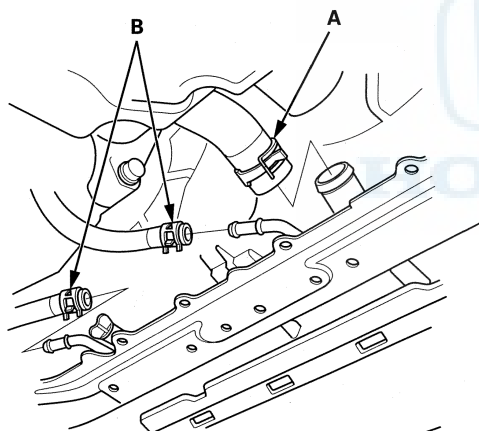
22. Install the coolant reservoir (A).

6 x 1.0 mm
6.9 N·m
(0.7 kgf·m, 5.1 lbf·ft)



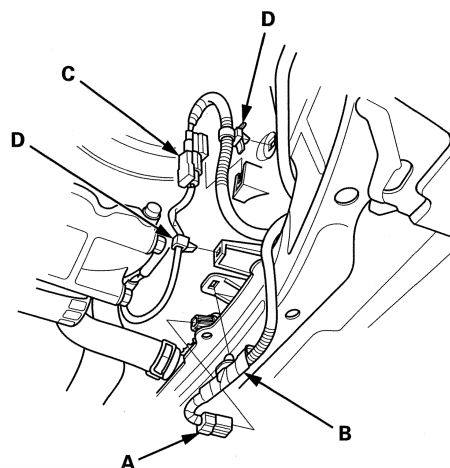
23. Raise the vehicle on the lift.

24. Connect the lower radiator hose (A).



25. A/T model: Remove the plug from the hose and the line, then connect the ATF cooler hoses (B).

26. Connect the ECT sensor 2 connector (A), then install the harness clamp (B).



27. With A/C: Install the A/C compressor clutch connector (C) to the clamp, then install the harness clamps (D).

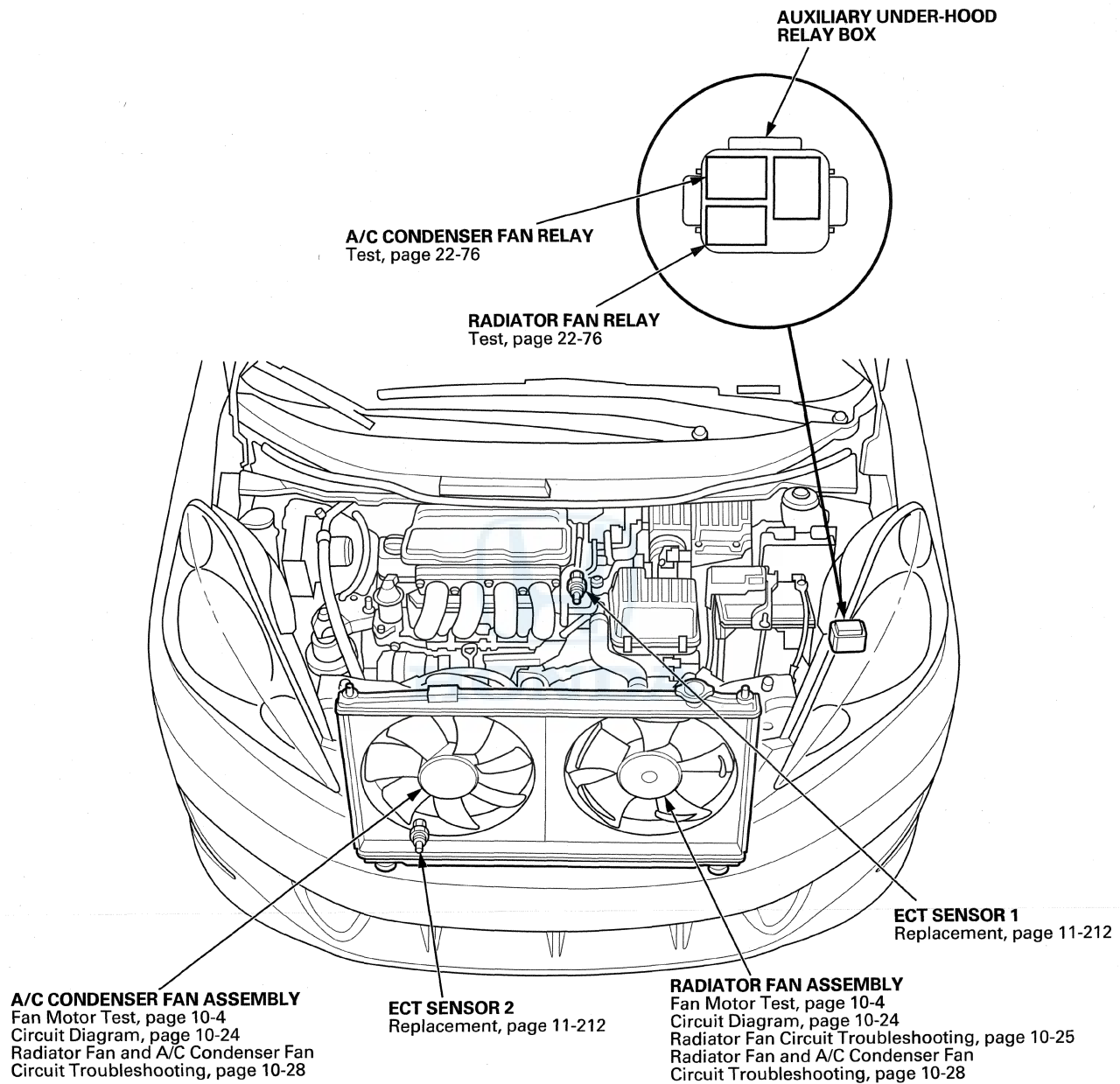
28. Lower the vehicle on the lift.

29. Refill the radiator with engine coolant, and bleed the air from the cooling system (see step 8 on page 10-8).

30. Clean up any spilled engine coolant.

Fan Controls

Component Location Index



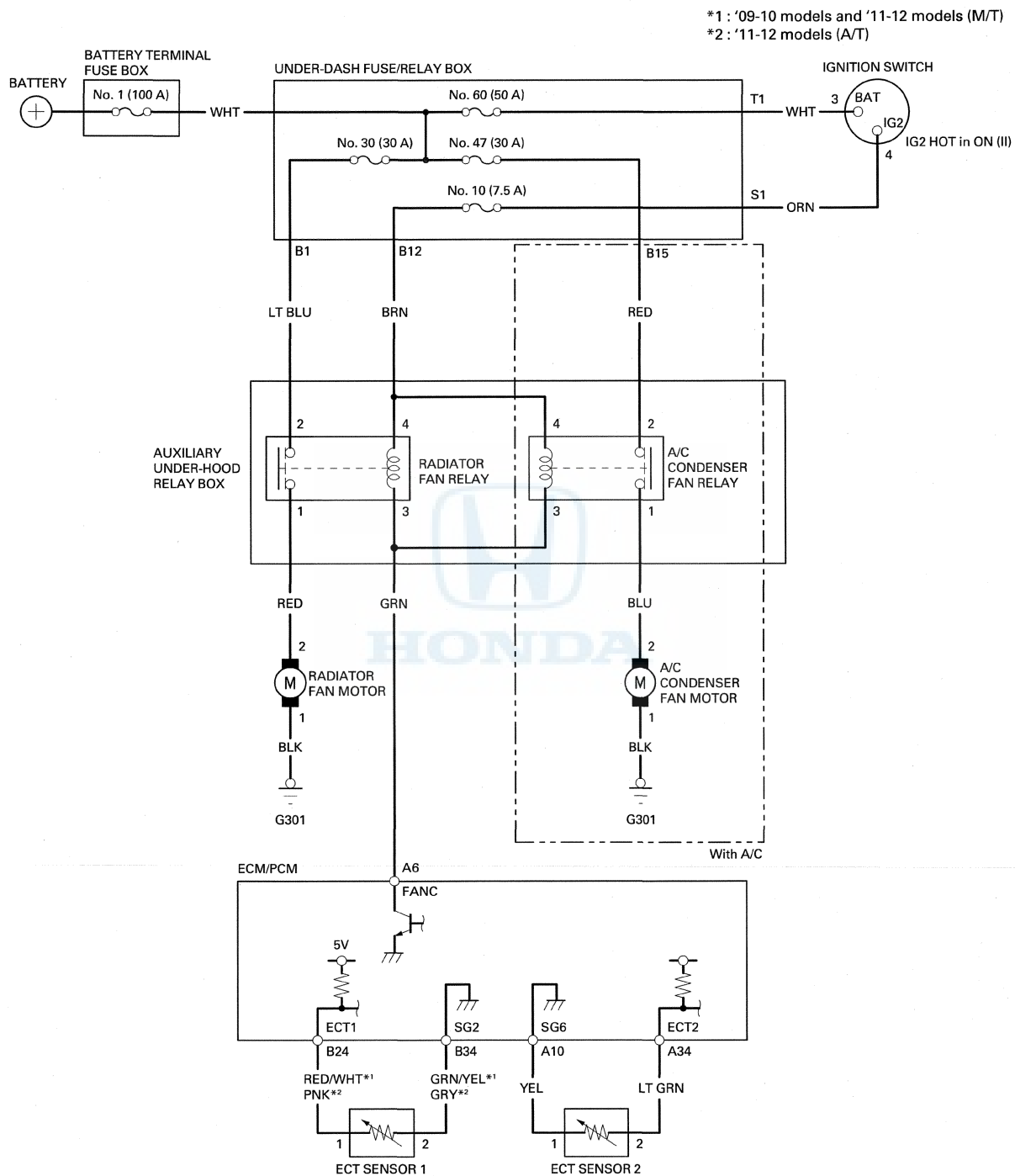


Symptom Troubleshooting Index

Symptom	Diagnostic Procedure	Also check for
Engine overheats	<ol style="list-style-type: none"> 1. Check the coolant level (see page 10-7). 2. Check for any coolant leakage (from gaskets, hoses, O-rings, etc.). 3. Check for dirt, leaves, or insects on radiator and A/C condenser. 4. Check for deteriorated coolant. 5. Check for damaged or deformed fan shroud. 6. Check that the fan motors are operating properly (air should be blowing toward the engine). 7. Inspect the fan motors (see page 10-4) or fan relays (see page 22-76). 8. Check the radiator cap (see page 10-3). 9. Check the thermostat (see page 10-4). 10. Inspect the water pump (see page 10-5). 11. Check for plugged or deteriorated radiator hoses. 12. Check for plugged heater core of hoses. 13. Check for a damaged cylinder head gasket. 	Check the radiator and A/C condenser fan are operating properly.
The radiator fan does not run at all (with A/C)	Radiator fan circuit troubleshooting (see page 10-25).	Check the connectors are properly connected and the terminals are making good contact.
The radiator fan does not run when the engine coolant temperature is above 199 °F (93 °C) (without A/C)	Radiator fan circuit troubleshooting (see page 10-26).	Check the connectors are properly connected and the terminals are making good contact.
The A/C condenser fan does not run at all (with A/C)	A/C condenser fan circuit troubleshooting (see page 21-34).	Check the connectors are properly connected and the terminals are making good contact.
Both the radiator fan and the A/C condenser fan do not run when the engine coolant temperature is above 199 °F (93 °C) (with A/C)	Radiator fan and A/C condenser fan circuit troubleshooting (see page 10-28).	Check the connectors are properly connected and the terminals are making good contact.
The radiator fan runs with the ignition switch in ON (II) and the engine coolant temperature below 194 °F (90 °C)	Remove the radiator fan relay.	Check the connectors are properly connected and the terminals are making good contact.
The A/C condenser fan runs with the ignition switch in ON (II) and the engine coolant temperature below 194 °F (90 °C) (with A/C)	Remove the A/C condenser fan relay.	Check the connectors are properly connected and the terminals are making good contact.
Both the radiator fan and the A/C condenser fan run with the ignition switch in ON (II) and the engine coolant temperature below 194 °F (90 °C) (with A/C)	Check for a short in the wire between the radiator fan 4P socket terminal No. 3 and ECM/PCM connector terminal A6.	Check the connectors are properly connected and the terminals are making good contact.

Fan Controls

Circuit Diagram





Radiator Fan Circuit Troubleshooting

With A/C

1. Check the No. 30 (30 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES—Reinstall the fuse, then go to step 2.

NO—Replace the fuse and recheck. If the fuse blows again, repair the short to ground the No. 30 (30 A) fuse circuit. ■

2. Remove the radiator fan relay, and test it (see page 22-76).

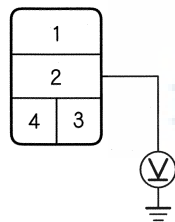
Is the relay OK?

YES—Go to step 3.

NO—Replace the radiator fan relay and recheck. ■

3. Measure the voltage between radiator fan relay 4P socket terminal No. 2 and body ground.

RADIATOR FAN RELAY 4P SOCKET



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 4.

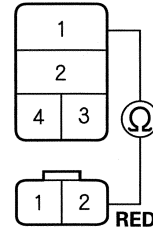
NO—Repair an open in the wire between under-dash fuse/relay box connector B (36P) terminal No. 1 and radiator fan relay 4P socket terminal No. 2. ■

4. Disconnect the radiator fan motor 2P connector.

5. Check for continuity between radiator fan relay 4P socket terminal No. 1 and radiator fan motor 2P connector terminal No. 2.

RADIATOR FAN RELAY 4P SOCKET

Terminal side of female terminals



RADIATOR FAN MOTOR 2P CONNECTOR

Wire side of female terminals

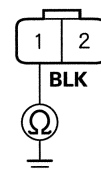
Is there continuity?

YES—Go to step 6.

NO—Repair an open in the wire between radiator fan relay 4P socket terminal No. 1 and radiator fan motor 2P connector terminal No. 2. ■

6. Check for continuity between radiator fan motor 2P connector terminal No. 1 and body ground.

RADIATOR FAN MOTOR 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the radiator fan motor (see page 10-15). ■

NO—Repair an open in the wire between radiator fan motor 2P connector terminal No. 1 and body ground. If the wire is OK, check for a poor ground at G301. ■

(cont'd)

Fan Controls

Radiator Fan Circuit Troubleshooting (cont'd)

Without A/C

1. Check the No. 30 (30 A) fuse, and No. 10 (7.5 A) fuse in the under-dash fuse/relay box.

Are the fuses OK?

YES—Reinstall the fuse, then go to step 2.

NO—Replace the fuse(s) and recheck. If the fuse(s) blow again, repair the short to ground the No. 30 (30 A) fuse, and the No. 10 (7.5 A) fuse circuit. ■

2. Remove the radiator fan relay, and test it (see page 22-76).

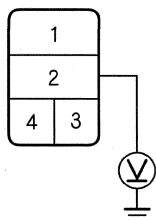
Is the relay OK?

YES—Go to step 3.

NO—Replace the radiator fan relay and recheck. ■

3. Measure the voltage between radiator fan relay 4P socket terminal No. 2 and body ground.

RADIATOR FAN RELAY 4P SOCKET



Terminal side of female terminals

Is there battery voltage?

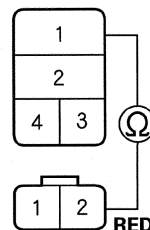
YES—Go to step 4.

NO—Repair an open in the wire between under-dash fuse/relay box connector B (36P) terminal No. 1 and radiator fan relay 4P socket terminal No. 2. ■

4. Disconnect the radiator fan motor 2P connector.

5. Check for continuity between radiator fan relay 4P socket terminal No. 1 and radiator fan motor 2P connector terminal No. 2.

RADIATOR FAN RELAY 4P SOCKET
Terminal side of female terminals



RADIATOR FAN MOTOR 2P CONNECTOR
Wire side of female terminals

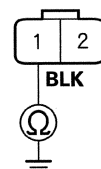
Is there continuity?

YES—Go to step 6.

NO—Repair an open in the wire between radiator fan relay 4P socket terminal No. 1 and radiator fan motor 2P connector terminal No. 2. ■

6. Check for continuity between radiator fan motor 2P connector terminal No. 1 and body ground.

RADIATOR FAN MOTOR 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 7.

NO—Repair an open in the wire between radiator fan motor 2P connector terminal No. 1 and body ground. If the wire is OK, check for a poor ground at G301 (see page 22-26). ■

7. Test the fan motor (see page 10-4).

Is the fan motor OK?

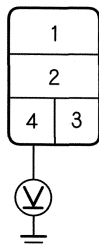
YES—Go to step 8.

NO—Replace the fan motor (see page 10-15). ■



8. Turn the ignition switch to ON (II).
9. Measure the voltage between radiator fan relay 4P socket terminal No. 4 and body ground.

RADIATOR FAN RELAY 4P SOCKET



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 10.

NO—Repair an open in the wire between under-dash fuse/relay box connector B (36P) terminal No. 12 and radiator fan relay 4P socket terminal No. 4. ■

10. Turn the ignition switch to LOCK (0).
11. Connect the HDS to the DLC (see step 2 on page 11-3).
12. Turn the ignition switch to ON (II).
13. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
14. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).

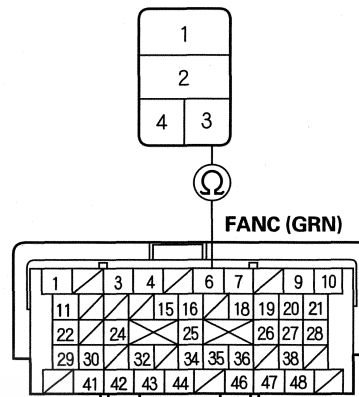
NOTE: This step must be done to protect the ECM/PCM from damage.

15. Disconnect ECM/PCM connector A (49P).

16. Check for continuity between radiator fan relay 4P socket terminal No. 3 and ECM/PCM connector terminal A6.

RADIATOR FAN RELAY 4P SOCKET

Terminal side of female terminals



ECM/PCM CONNECTOR A (49P)

Terminal side of female terminals

Is there continuity?

YES—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indicator goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

NO—Repair an open in the wire between radiator fan relay 4P socket terminal No. 3 and ECM/PCM connector terminal A6. ■

Fan Controls

Radiator Fan and A/C Condenser Fan Circuit Troubleshooting

NOTE:

For additional circuit troubleshooting, refer to Radiator Fan Circuit Troubleshooting (see page 10-25) and A/C Condenser Fan Circuit Troubleshooting (see page 21-34).

1. Check the No. 10 (7.5 A) fuse in the under-dash fuse/relay box.

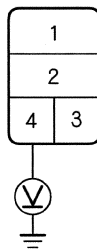
Is the fuse OK?

YES—Go to step 2.

NO—Replace the fuse and recheck. If the fuse blow again, repair the short to ground the No. 10 (7.5 A) fuse circuit. ■

2. Remove the radiator fan relay.
3. Turn the ignition switch to ON (II).
4. Measure the voltage between radiator fan relay 4P socket terminal No. 4 and body ground.

RADIATOR FAN RELAY 4P SOCKET



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 5.

NO—Repair an open in the wire between under-dash fuse/relay box connector B (36P) terminal No. 12 and radiator fan relay 4P socket terminal No. 4. ■

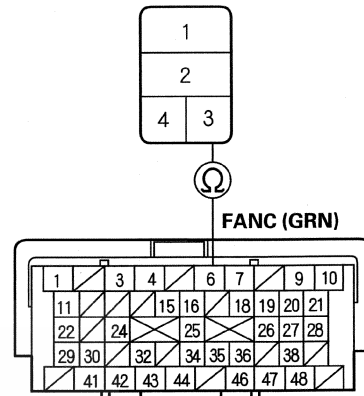
5. Turn the ignition switch to LOCK (0).
6. Connect the HDS to the DLC (see step 2 on page 11-3).
7. Turn the ignition switch to ON (II).
8. Make sure the HDS communicates with the vehicle and the ECM/PCM. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
9. Jump the SCS line with the HDS, then turn the ignition switch to LOCK (0).

NOTE: This step must be done to protect the ECM/PCM from damage.

10. Disconnect ECM/PCM connector A (49P).

11. Check for continuity between radiator fan relay 4P socket terminal No. 3 and ECM/PCM connector terminal A6.

RADIATOR FAN RELAY 4P SOCKET
Terminal side of female terminals



ECM/PCM CONNECTOR A (49P)
Terminal side of female terminals

Is there continuity?

YES—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indicator goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

NO—Repair an open in the wire between radiator fan relay 4P socket terminal No. 3 and ECM/PCM connector terminal A6. ■

Fuel and Emissions

Fuel and Emissions Systems

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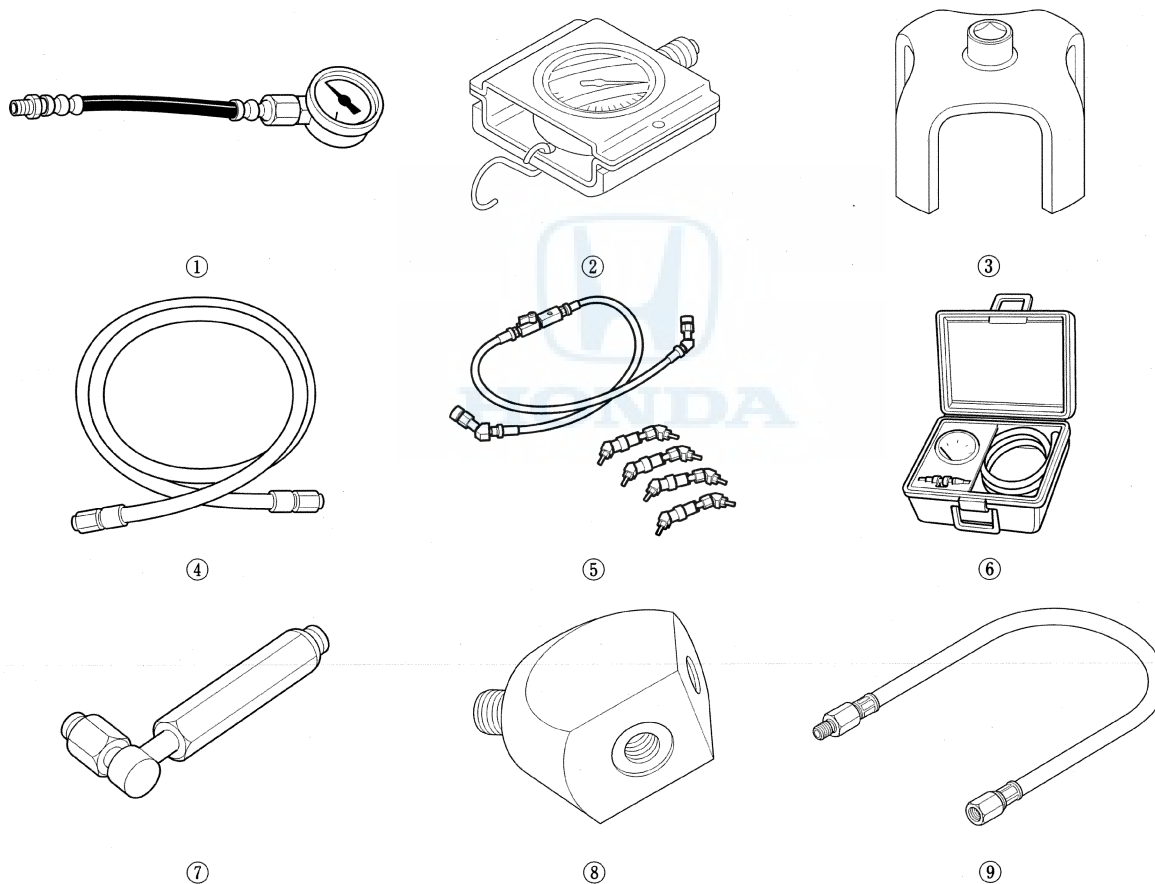
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Fuel and Emissions Systems

Special Tools

Ref.No.	Tool Number	Description	Qty
①	07406-004000B	Fuel Pressure Gauge	1
②	07406-0070301	A/T Low Pressure Gauge w/Panel	1
③	07AAA-S0XA100	Fuel Sender Wrench	1
④	07AAJ-PY4A100	AT Pressure Test Hose	1
⑤	07AAJ-S6MA150	Fuel Pressure Gauge Attachment Set	1
⑥	07JAZ-001000B	Vacuum/Pressure Gauge, 0-4 In.Hg,	1
⑦	07MAJ-PY40120	A/T Pressure Adapter	1
⑧	07NAJ-P07010A	Pressure Gauge Adapter	1
⑨	07ZAJ-S5AA200	Oil Pressure Hose	1





General Troubleshooting Information

Intermittent Failures

The term intermittent failure means a system may have had a failure, but it checks OK now. If the malfunction indicator lamp (MIL) on the dash does not come on, check for poor connections or loose terminals at all connectors related to the circuit that you are troubleshooting. If the MIL was on but then went out, the original problem may have been intermittent.

Service Information

Periodically, new engine control module/powertrain control module (ECM/PCM) software or new service procedures may become available. Always check online for the latest software or service information related to the DTCs or symptoms you are troubleshooting.

Opens and Shorts

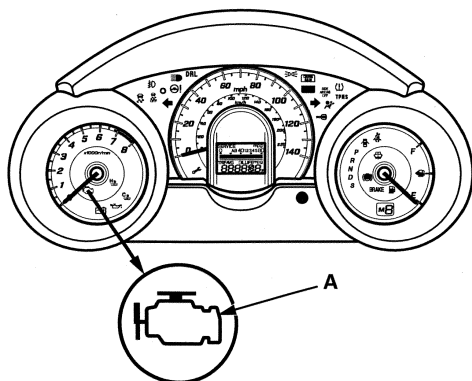
Open and short are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple terms, this usually means something won't work at all. With complex electronics (such as ECMs or PCMs) this can sometimes mean something works, but not the way it's supposed to.

How to Use the HDS (Honda Diagnostic System)

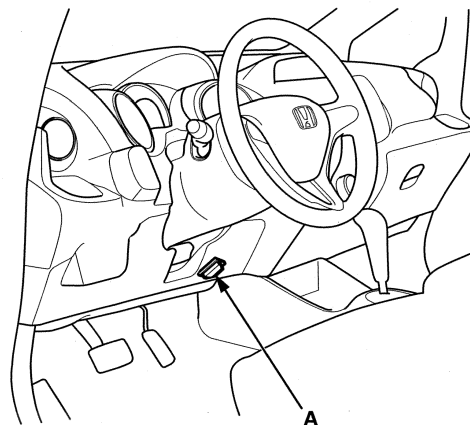
If the MIL (malfunction indicator lamp) has come on

1. Start the engine, and check the MIL (A).

NOTE: If the ignition switch is turned to ON (II), and the engine is not started, the MIL stays on for 15–20 seconds (see page 11-63).



2. If the MIL stays on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting (see page 11-193).
5. Check the diagnostic trouble code (DTC) and note it. Also check the freeze data and/or on-board snapshot data, and download any data found. Then refer to the indicated DTC's troubleshooting, and begin the appropriate troubleshooting procedure.

NOTE:

- Freeze data indicates the engine conditions when the first system malfunction, misfire, or fuel trim malfunction that activated the MIL was detected.
 - The HDS can read the DTC, freeze data, on-board snapshot, current data, and other engine control module (ECM) or powertrain control module (PCM) data.
 - For specific operations, refer to the user's manual that came with the HDS.
6. If no DTCs are found, go to MIL troubleshooting (see page 11-192).

(cont'd)

Fuel and Emissions Systems

General Troubleshooting Information (cont'd)

If the MIL did not stay on

If the MIL did not stay on but there is a drivability problem, do the symptom troubleshooting.

If you can't duplicate the DTC

Some of the troubleshooting requires you to reset the ECM/PCM and try to duplicate the DTC. If the problem is intermittent and you can't duplicate the code, do not continue through the procedure. To do so will only result in confusion and possibly, a needlessly replaced ECM/PCM.

HDS Clear Command

The ECM/PCM stores various specific data to correct the system even if there is no electrical power, such as when the battery negative terminal is disconnected. Stored data based on failed parts should be cleared by using the CLEAR COMMAND of the HDS, if parts are replaced.

The HDS has three kinds of clear commands to meet this purpose. They are DTC clear, ECM/PCM reset, and CKP pattern clear. The DTC clear command erases all stored DTCs, freeze data, on-board snapshot, and readiness codes. This must be done with the HDS after reproducing the DTC during troubleshooting.

The ECM/PCM reset command erases all stored DTCs, freeze data, on-board snapshot, readiness codes, and all specific data to correct the system except CKP pattern. If the CKP pattern data in the ECM/PCM was cleared, you must do the CKP pattern learn procedure. The CKP pattern clear command erases only CKP pattern data. This command is for repair of a misfire or the CKP sensor.

Scan Tool Clear Command

If you are using a generic scan tool to clear commands, be aware that there is only one setting for clearing the ECM/PCM, and it clears all commands at the same time (CKP pattern learn, idle learn, readiness codes, freeze data, on-board snapshot, and DTCs). After you clear all commands, you then need to do these procedures, in this order: ECM/PCM idle learn procedure (see page 11-268); CKP pattern learn procedure; test-drive to set readiness codes to complete (see page 11-63).

DTC Clear

1. Clear the DTC with the HDS while the engine is stopped.
2. Turn the ignition switch to LOCK (0).
3. Turn the ignition switch to ON (II), and wait 30 seconds.
4. Turn the ignition switch to LOCK (0), and disconnect the HDS from the DLC.

ECM/PCM Reset

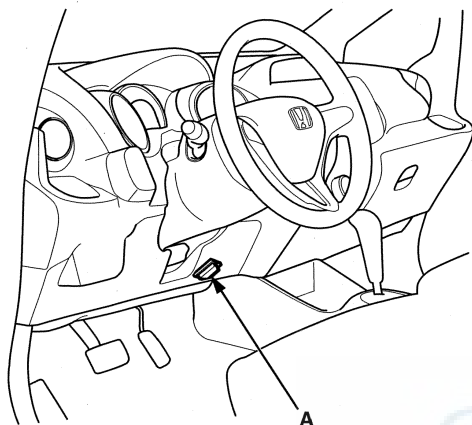
1. Reset the ECM/PCM with the HDS while the engine is stopped.
2. Turn the ignition switch to LOCK (0).
3. Turn the ignition switch to ON (II), and wait 30 seconds.
4. Turn the ignition switch to LOCK (0), and disconnect the HDS from the DLC.
5. Do the ECM/PCM idle learn procedure (see page 11-268).



CKP Pattern Clear/CKP Pattern Learn

Clear/Learn Procedure (with the HDS)

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting (see page 11-193).
4. Select CRANK PATTERN in the ADJUSTMENT MENU with the HDS.
5. Select CRANK PATTERN LEARNING with the HDS, and follow the screen prompts.

Learn Procedure (without the HDS)

1. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
2. Test-drive the vehicle on a level road: Decelerate (with the throttle fully closed) from an engine speed of 2,500 rpm down to 1,000 rpm, with the A/T in 2, or the M/T in 2nd.
3. Repeat step 2 several times.
4. Turn the ignition switch to LOCK (0).
5. Turn the ignition switch to ON (II), and wait 30 seconds.

How to End a Troubleshooting Session (required after any troubleshooting)

1. Reset the ECM/PCM with the HDS.
2. Do the ECM/PCM idle learn procedure (see page 11-268).
3. Turn the ignition switch to LOCK (0).
4. Disconnect the HDS from the DLC.

NOTE: The ECM/PCM is part of the immobilizer system. If you replace the ECM/PCM, you must use the HDS to instruct the new ECM/PCM and the immobilizer-keyless control unit to recognize each other's unique serial code.

(cont'd)

Fuel and Emissions Systems

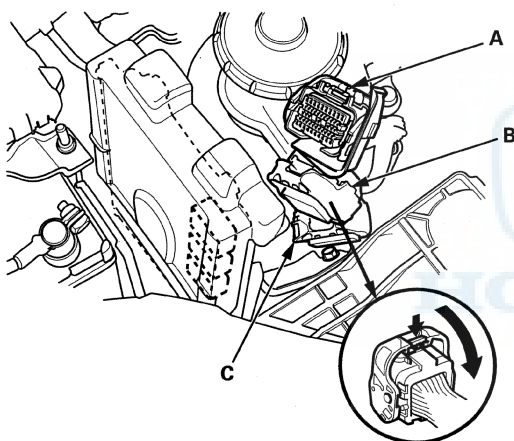
General Troubleshooting Information (cont'd)

How to Troubleshoot Circuits at the ECM/PCM Connectors

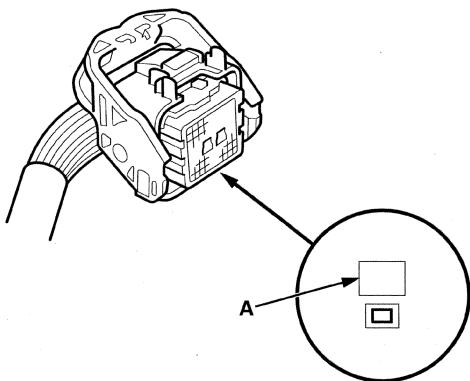
NOTE: The ECM/PCM overwrites data and monitors the EVAP system for up to an hour after the ignition switch is turned to ACCESSORY (I) or LOCK (0). Jumping the SCS line after turning the ignition switch to ACCESSORY (I) or LOCK (0) cancels this function. Disconnecting the ECM/PCM during this function, without jumping the SCS line first, can damage the ECM/PCM.

1. Jump the SCS line with the HDS.
2. Disconnect ECM/PCM connectors A, B, and C.

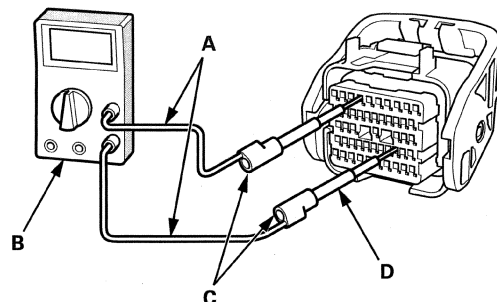
NOTE: ECM/PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embossed on them for identification.



3. When diagnosis/troubleshooting is done at an ECM/PCM connector, use the terminal test port (A) above the terminal you need to check.



4. Connect one side of the patch cord terminals (A) to a commercially available digital multimeter (B), and connect the other side of the patch cord terminals (C) to a commercially available banana jack (Pomona Electronics Tool No. 3563 or equivalent) (D).



5. Gently insert the pin probe (male) at the test port from the terminal side. Do not force the tips into the terminal test ports.

NOTICE

- For accurate results, always use the pin probe (male).
- To prevent damage to the connector terminals, do not insert test equipment probes, paper clips, or other substitutes, as they can damage the terminals. Damaged terminals cause a poor connection and an incorrect measurement.
- Do not puncture the insulation on a wire. Punctures can cause poor or intermittent electrical connections.



Substituting the ECM/PCM

Special Tools Required

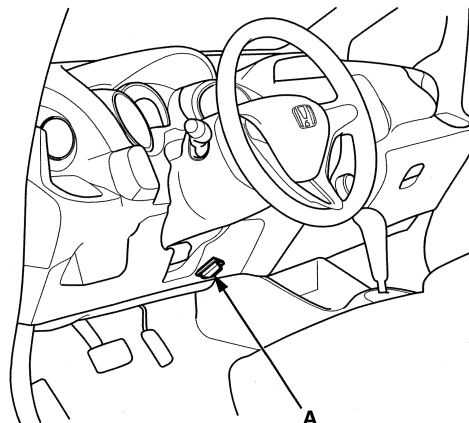
- Honda diagnostic system (HDS) tablet tester
- Honda Interface Module (HIM) and an iN workstation with the latest HDS software version
- HDS pocket tester
- GNA600 and an iN workstation with the latest HDS software version
- MVCI unit with the latest control module (CM) update software installed

Any one of the above updating tools can be used.

NOTE:

- Use this procedure when you have to substitute a known-good ECM/PCM during troubleshooting procedures.
- Make sure the HDS/iN workstation or the MVCI has the latest HDS software version.

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting (see page 11-193). If you are returning from DLC circuit troubleshooting, skip steps 4 and 5, and clean the throttle body after substituting the ECM/PCM (see page 11-306).
4. Select the INSPECTION MENU with the HDS.
5. Select the ETCS TEST, then select the TP POSITION CHECK, and follow the screen prompts.

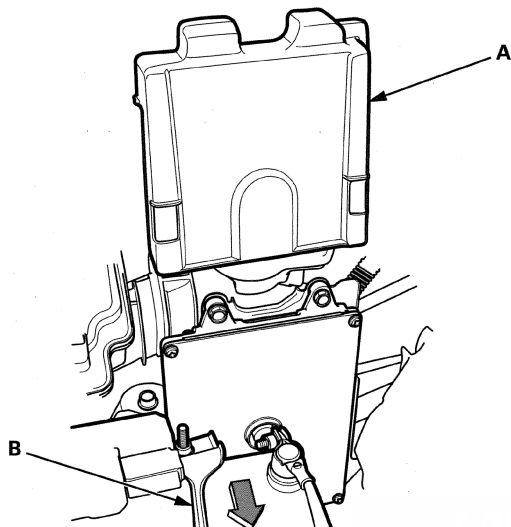
NOTE: If the TP POSITION CHECK indicates FAILED, continue this procedure.
6. Jump the SCS line with the HDS.
7. Turn the ignition switch to LOCK (0).

(cont'd)

Fuel and Emissions Systems

General Troubleshooting Information (cont'd)

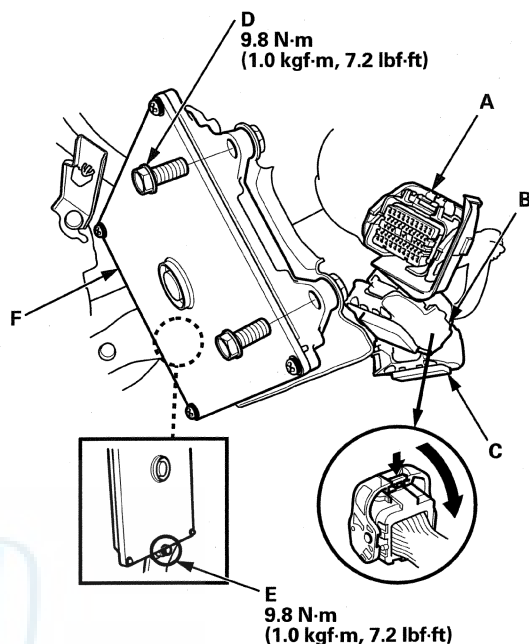
8. Remove the ECM/PCM cover (A).



9. Remove the battery setting plate (B), then reposition the battery away from the ECM/PCM.

NOTE: Do not disconnect the battery terminals.

10. Remove the bolts (D), and loosen the bolt (E).



11. Disconnect ECM/PCM connectors A, B, and C, then remove the ECM/PCM (F).

NOTE: ECM/PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embossed on them for identification.

12. Install a known-good ECM/PCM in the reverse order of removal.



13. Turn the ignition switch to ON (II).

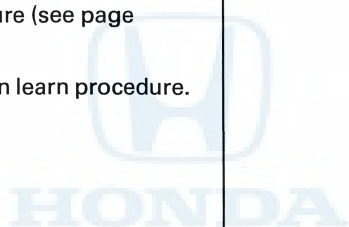
NOTE: DTC P0630 (VIN Not Programmed or Mismatch) may be stored because the VIN has not been programmed into the ECM/PCM; ignore it, and continue this procedure.

14. Manually input the VIN to the ECM/PCM with the HDS.
15. Select the IMMOBI SYSTEM with the HDS.
16. Enter the immobilizer ECM/PCM code that you got from the iN, and use the ECM/PCM replacement procedure in the HDS; it allows you to start the engine.
17. If the TP POSITION CHECK failed in step 5, clean the throttle body (see page 11-306).
18. Reset the ECM/PCM with the HDS.
19. Update the ECM/PCM if it does not have the latest software (see page 11-213).
20. Do the ECM/PCM idle learn procedure (see page 11-268).
21. Do the CKP pattern clear/CKP pattern learn procedure.

OBD Status

The OBD status shows the current system status of each DTC and all of the parameters. This function is used to see if the repair was successfully completed. The results of diagnostic tests for the DTC are displayed as:

- **PASSED:** The on board diagnosis is successfully finished.
- **FAILED:** The on board diagnosis has finished but failed.
- **EXECUTING:** The vehicle is in the enable criteria conditions of the DTC, and the on board diagnosis is running.
- **NOT COMPLETED:** The on board diagnosis was running but is out of the enable conditions for the DTC.
- **OUT OF CONDITION:** The vehicle has stayed out of the enable conditions of the DTC.



Fuel and Emissions Systems

DTC Troubleshooting Index

DTC (MIL indication*)	Two Drive Cycle Detection	Detection Item	MIL	Note
P0101 (50)	○	Mass Air Flow (MAF) Sensor Circuit Range/Performance Problem	ON	DTC Troubleshooting (see page 11-69)
P0102 (50)	—	Mass Air Flow (MAF) Sensor Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-70)
P0103 (50)	—	Mass Air Flow (MAF) Sensor Circuit High Voltage	ON	DTC Troubleshooting (see page 11-72)
P0107 (3)	—	Manifold Absolute Pressure (MAP) Sensor Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-74)
P0108 (3)	—	Manifold Absolute Pressure (MAP) Sensor Circuit High Voltage	ON	DTC Troubleshooting (see page 11-76)
P0111 (10)	○	Intake Air Temperature (IAT) Sensor Circuit Range/Performance Problem	ON	DTC Troubleshooting (see page 11-78)
P0112 (10)	○	Intake Air Temperature (IAT) Sensor Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-79)
P0113 (10)	○	Intake Air Temperature (IAT) Sensor Circuit High Voltage	ON	DTC Troubleshooting (see page 11-80)
P0116 (86)	○	Engine Coolant Temperature (ECT) Sensor 1 Range/Performance Problem	ON	DTC Troubleshooting (see page 11-82)
P0117 (6)	—	Engine Coolant Temperature (ECT) Sensor 1 Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-83)
P0118 (6)	—	Engine Coolant Temperature (ECT) Sensor 1 Circuit High Voltage	ON	DTC Troubleshooting (see page 11-85)
P0122 (7)	—	Throttle Position (TP) Sensor A Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-219)
P0123 (7)	—	Throttle Position (TP) Sensor A Circuit High Voltage	ON	DTC Troubleshooting (see page 11-221)
P0125 (86)	○	Engine Coolant Temperature (ECT) Sensor 1 Malfunction/Slow Response	ON	DTC Troubleshooting (see page 11-87)
P0128 (87)	○	Cooling System Malfunction	ON	DTC Troubleshooting (see page 11-87)
P0133 (61)* ⁷ P0133* ⁸	○	Air Fuel Ratio (A/F) Sensor (Sensor 1) Malfunction/Slow Response	ON	DTC Troubleshooting (see page 11-89)
P0134 (41)	○	Air Fuel Ratio (A/F) Sensor (Sensor 1) Heater System Malfunction	ON	DTC Troubleshooting (see page 11-90)
P0135 (41)	○	Air Fuel Ratio (A/F) Sensor (Sensor 1) Heater Circuit Malfunction	ON	DTC Troubleshooting (see page 11-91)
P0137 (63)* ⁵	○	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-94)
P0137 (63)* ⁶	○	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-96)
P0138 (63)	○	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Circuit High Voltage	ON	DTC Troubleshooting (see page 11-98)
P0139 (63)	○	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Slow Response	ON	DTC Troubleshooting (see page 11-101)
P0141 (65)	○	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Heater Circuit Malfunction	ON	DTC Troubleshooting (see page 11-102)
P0171 (45)	○	Fuel System Too Lean	ON	DTC Troubleshooting (see page 11-105)
P0172 (45)	○	Fuel System Too Rich	ON	DTC Troubleshooting (see page 11-105)
P0201 (71)* ⁶	—	No. 1 Cylinder Injector Circuit Malfunction	ON	DTC Troubleshooting (see page 11-106)
P0202 (72)* ⁶	—	No. 2 Cylinder Injector Circuit Malfunction	ON	DTC Troubleshooting (see page 11-106)

NOTE: The above DTCs are indicated when the PGM-FI system is selected with the HDS. Some automatic transmission DTCs cause the MIL to come on. If the MIL is on and no DTCs are indicated in the PGM-FI system, select the A/T system, and check for automatic transmission DTCs.

*: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS. Some DTCs do not cause the MIL to blink when the SCS line is jumped. The last four characters of these DTCs are shown in the gauge display.

*5: '09-10 models

*6: '11-12 models

*7: '09-10 models and '12 model

*8: '11 model



DTC (MIL indication*)	Two Drive Cycle Detection	Detection Item	MIL	Note
P0203 (73)* ⁶	—	No. 3 Cylinder Injector Circuit Malfunction	ON	DTC Troubleshooting (see page 11-106)
P0204 (74)* ⁶	—	No. 4 Cylinder Injector Circuit Malfunction	ON	DTC Troubleshooting (see page 11-106)
P0222 (7)	—	Throttle Position (TP) Sensor B Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-223)
P0223 (7)	—	Throttle Position (TP) Sensor B Circuit High Voltage	ON	DTC Troubleshooting (see page 11-225)
P0300 (75* ⁵ , 211* ⁶) and any combination of the following: P0301 (71) P0302 (72) P0303 (73) P0304 (74)	○	Random Misfire Detected	ON	DTC Troubleshooting (see page 11-109)
P0301 (71)* ⁵	○	No. 1 Cylinder Misfire Detected	ON	DTC Troubleshooting (see page 11-111)
P0301 (71)* ⁶	○	No. 1 Cylinder Misfire Detected	ON	DTC Troubleshooting (see page 11-117)
P0302 (72)* ⁵	○	No. 2 Cylinder Misfire Detected	ON	DTC Troubleshooting (see page 11-111)
P0302 (72)* ⁶	○	No. 2 Cylinder Misfire Detected	ON	DTC Troubleshooting (see page 11-117)
P0303 (73)* ⁵	○	No. 3 Cylinder Misfire Detected	ON	DTC Troubleshooting (see page 11-111)
P0303 (73)* ⁶	○	No. 3 Cylinder Misfire Detected	ON	DTC Troubleshooting (see page 11-117)
P0304 (74)* ⁵	○	No. 4 Cylinder Misfire Detected	ON	DTC Troubleshooting (see page 11-111)
P0304 (74)* ⁶	○	No. 4 Cylinder Misfire Detected	ON	DTC Troubleshooting (see page 11-117)
P0325 (23)	○	Knock Sensor Circuit Malfunction	ON	DTC Troubleshooting (see page 11-120)
P0335 (4)	—	Crankshaft Position (CKP) Sensor No Signal	ON	DTC Troubleshooting (see page 11-122)
P0339 (4)	—	Crankshaft Position (CKP) Sensor Circuit Intermittent Interruption	ON	DTC Troubleshooting (see page 11-125)
P0351 (71)	—	No. 1 Cylinder Ignition Coil Circuit Malfunction	ON	DTC Troubleshooting (see page 11-126)
P0352 (72)	—	No. 2 Cylinder Ignition Coil Circuit Malfunction	ON	DTC Troubleshooting (see page 11-126)
P0353 (73)	—	No. 3 Cylinder Ignition Coil Circuit Malfunction	ON	DTC Troubleshooting (see page 11-126)
P0354 (74)	—	No. 4 Cylinder Ignition Coil Circuit Malfunction	ON	DTC Troubleshooting (see page 11-126)
P0365 (8)	—	Camshaft Position (CMP) Sensor Circuit No Signal	ON	DTC Troubleshooting (see page 11-129)
P0369 (8)	—	Camshaft Position (CMP) Sensor Circuit Intermittent Interruption	ON	DTC Troubleshooting (see page 11-131)
P0400 (80)	○	Exhaust Gas Recirculation (EGR) System Leak Detected	ON	DTC Troubleshooting (see page 11-317)
P0401 (80)	○	Exhaust Gas Recirculation (EGR) Insufficient Flow	ON	DTC Troubleshooting (see page 11-318)
P0404 (12)	○	Exhaust Gas Recirculation (EGR) Valve Circuit Range/Performance Problem	ON	DTC Troubleshooting (see page 11-319)

NOTE: The above DTCs are indicated when the PGM-FI system is selected with the HDS. Some automatic transmission DTCs cause the MIL to come on. If the MIL is on and no DTCs are indicated in the PGM-FI system, select the A/T system, and check for automatic transmission DTCs.

*: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS. Some DTCs do not cause the MIL to blink when the SCS line is jumped. The last four characters of these DTCs are shown in the gauge display.

*5: '09-10 models

*6: '11-12 models

(cont'd)

Fuel and Emissions Systems

DTC Troubleshooting Index (cont'd)

DTC (MIL indication*)	Two Drive Cycle Detection	Detection Item	MIL	Note
P0406 (12)	○	Exhaust Gas Recirculation (EGR) Valve Position Sensor Circuit High Voltage	ON	DTC Troubleshooting (see page 11-322)
P0420 (67)	○	Catalyst System Efficiency Below Threshold	ON	DTC Troubleshooting (see page 11-313)
P0443 (92)	○	Evaporative Emission (EVAP) Canister Purge Valve Circuit Malfunction	ON	DTC Troubleshooting (see page 11-332)
P0451 (91)	○	Fuel Tank Pressure (FTP) Sensor Circuit Range/Performance Problem	ON	DTC Troubleshooting (see page 11-335)
P0452 (91)	○	Fuel Tank Pressure (FTP) Sensor Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-336)
P0453 (91)	○	Fuel Tank Pressure (FTP) Sensor Circuit High Voltage	ON	DTC Troubleshooting (see page 11-338)
P0455 (90)	○	Evaporative Emission (EVAP) System Large Leak Detected	ON	DTC Troubleshooting (see page 11-341)
P0456 (90)	○	Evaporative Emission (EVAP) System Very Small Leak Detected	ON	DTC Troubleshooting (see page 11-341)
P0461	—	Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Range/Performance Problem	OFF	DTC Troubleshooting (see page 11-271)
P0462	○	Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Low Voltage	OFF	DTC Troubleshooting (see page 11-271)
P0463	○	Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit High Voltage	OFF	DTC Troubleshooting (see page 11-273)
P0496 (92)	○	Evaporative Emission (EVAP) System High Purge Flow Detected	ON	DTC Troubleshooting (see page 11-344)
P0497 (90)	○	Evaporative Emission (EVAP) System Low Purge Flow Detected	ON	DTC Troubleshooting (see page 11-345)
P0498 (117)	○	Evaporative Emission (EVAP) Canister Vent Shut Valve Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-347)
P0499 (117)	○	Evaporative Emission (EVAP) Canister Vent Shut Valve Circuit High Voltage	ON	DTC Troubleshooting (see page 11-350)
P0506 (14)	○	Idle Control System RPM Lower Than Expected	ON	DTC Troubleshooting (see page 11-262)
P0507 (14)	○	Idle Control System RPM Higher Than Expected	ON	DTC Troubleshooting (see page 11-263)
P050A (167)	○	Cold Start Idle Air Control System Performance Problem	ON	DTC Troubleshooting (see page 11-132)
P050B (167)	○	Cold Start Ignition Timing Control System Performance Problem	ON	DTC Troubleshooting (see page 11-134)
P0562	—	Charging System Low Voltage	OFF	DTC Troubleshooting (see page 11-136)
P0563	○	Engine Control Module (ECM)/Powertrain Control Module (PCM) Power Source Circuit Unexpected Voltage	OFF	DTC Troubleshooting (see page 11-137)
P0602 (196)	—	Engine Control Module (ECM)/Powertrain Control Module (PCM) Programming Error	ON	DTC Troubleshooting (see page 11-139)
P0606 (-)	—	Engine Control Module (ECM)/Powertrain Control Module (PCM) Processor Malfunction	ON	DTC Troubleshooting (see page 11-140)
P060A (131)*1	—	Powertrain Control Module (PCM) (A/T System) Internal Control Module Malfunction	ON	DTC Troubleshooting (see page 11-140)
P062F (131)	—	Engine Control Module (ECM)/Powertrain Control Module (PCM) Internal Control Module Keep Alive Memory (KAM) Error	ON	DTC Troubleshooting (see page 11-141)
P0630 (139)	—	VIN Not Programmed or Mismatch	ON	DTC Troubleshooting (see page 11-141)
P0685 (135)	○	Engine Control Module (ECM)/Powertrain Control Module (PCM) Power Control Circuit/Internal Circuit Malfunction	ON	DTC Troubleshooting (see page 11-142)
P0720 (122)*2	○	Output Shaft (Countershaft) Speed Sensor Circuit Malfunction	ON	DTC Troubleshooting (see page 11-143)
P1109 (13)	○	Barometric Pressure (BARO) Sensor Circuit Out of Range High	ON	DTC Troubleshooting (see page 11-146)

NOTE: The above DTCs are indicated when the PGM-FI system is selected with the HDS. Some automatic transmission DTCs cause the MIL to come on. If the MIL is on and no DTCs are indicated in the PGM-FI system, select the A/T system, and check for automatic transmission DTCs.

*: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS. Some DTCs do not cause the MIL to blink when the SCS line is jumped. The last four characters of these DTCs are shown in the gauge display.

*1: A/T

*2: M/T



DTC (MIL indication*)	Two Drive Cycle Detection	Detection Item	MIL	Note
P1116 (86)	○	Engine Coolant Temperature (ECT) Sensor 1 Circuit Range/Performance Problem	ON	DTC Troubleshooting (see page 11-146)
P1128 (5)	○	Manifold Absolute Pressure (MAP) Sensor Signal Lower Than Expected	ON	DTC Troubleshooting (see page 11-148)
P1129 (5)	○	Manifold Absolute Pressure (MAP) Sensor Signal Higher Than Expected	ON	DTC Troubleshooting (see page 11-149)
P1157 (48)	○	Air Fuel Ratio (A/F) Sensor (Sensor 1) AFS Circuit High Voltage	ON	DTC Troubleshooting (see page 11-150)
P1172 (61)	○	Air Fuel Ratio (A/F) Sensor (Sensor 1) Circuit Out of Range High	ON	DTC Troubleshooting (see page 11-152)
P1297	○	Electrical Load Detector (ELD) Circuit Low Voltage	OFF	DTC Troubleshooting (see page 11-153)
P1298	○	Electrical Load Detector (ELD) Circuit High Voltage	OFF	DTC Troubleshooting (see page 11-154)
P1454 (91)	○	Fuel Tank Pressure (FTP) Sensor Range/Performance Problem	ON	DTC Troubleshooting (see page 11-350)
P1458 (91)*6	○	Fuel Tank Pressure (FTP) Sensor Circuit Range/Performance Problem	ON	DTC Troubleshooting (see page 11-353)
P145C (90)	○	Evaporative Emission (EVAP) System Purge Flow Malfunction	ON	DTC Troubleshooting (see page 11-356)
P1549	—	Charging System High Voltage	OFF	DTC Troubleshooting (see page 11-156)
P1658 (40)	—	Electronic Throttle Control System (ETCS) Control Relay ON Malfunction	ON	DTC Troubleshooting (see page 11-227)
P1659 (40)	—	Electronic Throttle Control System (ETCS) Control Relay OFF Malfunction	ON	DTC Troubleshooting (see page 11-228)
P1683 (40)	—	Throttle Valve Default Position Spring Performance Problem	ON	DTC Troubleshooting (see page 11-231)
P1684 (40)	—	Throttle Valve Return Spring Performance Problem	ON	DTC Troubleshooting (see page 11-232)
P16BB	—	Alternator B Terminal Circuit Low Voltage	OFF	DTC Troubleshooting (see page 11-156)
P16BC	—	Alternator FR Terminal Circuit/IGP Circuit Low Voltage	OFF	DTC Troubleshooting (see page 11-157)
P2101 (40)	—	Electronic Throttle Control System (ETCS) Malfunction	ON	DTC Troubleshooting (see page 11-233)
P2118 (40)	—	Throttle Actuator Current Range/Performance Problem	ON	DTC Troubleshooting (see page 11-235)
P2122 (37)	—	Accelerator Pedal Position (APP) Sensor A (Throttle Position (TP) Sensor D) Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-237)
P2123 (37)	—	Accelerator Pedal Position (APP) Sensor A (Throttle Position (TP) Sensor D) Circuit High Voltage	ON	DTC Troubleshooting (see page 11-240)
P2127 (37)	—	Accelerator Pedal Position (APP) Sensor B (Throttle Position (TP) Sensor E) Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-241)
P2128 (37)	—	Accelerator Pedal Position (APP) Sensor B (Throttle Position (TP) Sensor E) Circuit High Voltage	ON	DTC Troubleshooting (see page 11-244)
P2135 (7)	—	Throttle Position (TP) Sensor A/B Incorrect Voltage Correlation	ON	DTC Troubleshooting (see page 11-245)
P2138 (37)	—	Accelerator Pedal Position (APP) Sensor A/B (Throttle Position (TP) Sensor D/E) Incorrect Voltage Correlation	ON	DTC Troubleshooting (see page 11-247)
P2176 (40)	—	Throttle Actuator Control System Idle Position Not Learned	ON	DTC Troubleshooting (see page 11-248)
P2183 (192)	○	Engine Coolant Temperature (ECT) Sensor 2 Range/Performance Problem	ON	DTC Troubleshooting (see page 11-160)

NOTE: The above DTCs are indicated when the PGM-FI system is selected with the HDS. Some automatic transmission DTCs cause the MIL to come on. If the MIL is on and no DTCs are indicated in the PGM-FI system, select the A/T system, and check for automatic transmission DTCs.

*: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS. Some DTCs do not cause the MIL to blink when the SCS line is jumped. The last four characters of these DTCs are shown in the gauge display.

*6: '11-12 models

(cont'd)

Fuel and Emissions Systems

DTC Troubleshooting Index (cont'd)

DTC (MIL indication*)	Two Drive Cycle Detection	Detection Item	MIL	Note
P2184 (192)	○	Engine Coolant Temperature (ECT) Sensor 2 Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-161)
P2185 (192)	○	Engine Coolant Temperature (ECT) Sensor 2 Circuit High Voltage	ON	DTC Troubleshooting (see page 11-162)
P2195 (48)	○	Air Fuel Ratio (A/F) Sensor (Sensor 1) Signal Stuck Lean	ON	DTC Troubleshooting (see page 11-164)
P219A (45)*6	○	Air-Fuel Ratio Variation of Cylinders	ON	DTC Troubleshooting (see page 11-166)
P2227 (13)	○	Barometric Pressure (BARO) Sensor Range/Performance Problem	ON	DTC Troubleshooting (see page 11-168)
P2228 (13)	○	Barometric Pressure (BARO) Sensor Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-169)
P2229 (13)	○	Barometric Pressure (BARO) Sensor Circuit High Voltage	ON	DTC Troubleshooting (see page 11-170)
P2238 (48)	○	Air Fuel Ratio (A/F) Sensor (Sensor 1) AFS+ Line Low Voltage	ON	DTC Troubleshooting (see page 11-170)
P2252 (48)	○	Air Fuel Ratio (A/F) Sensor (Sensor 1) AFS- Line Low Voltage	ON	DTC Troubleshooting (see page 11-172)
P2270 (63)*6	○	Secondary Heated Oxygen Sensor (Secondary HO2S (Sensor 2)) Circuit Signal Stuck Lean	ON	DTC Troubleshooting (see page 11-173)
P2413 (12)	○	Exhaust Gas Recirculation (EGR) System Malfunction	ON	DTC Troubleshooting (see page 11-323)
P2422 (117)	○	Evaporative Emission (EVAP) Canister Vent Shut Valve Stuck Closed Malfunction	ON	DTC Troubleshooting (see page 11-350)
P2610 (132)	—	Engine Control Module (ECM)/Powertrain Control Module (PCM) Ignition Off Internal Timer Malfunction	ON	DTC Troubleshooting (see page 11-174)
P2646 (22)	—	Rocker Arm Oil Pressure Switch Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-252)
P2647 (22)	—	Rocker Arm Oil Pressure Switch Circuit High Voltage	ON	DTC Troubleshooting (see page 11-254)
P2648 (21)	—	Rocker Arm Oil Control Solenoid Circuit Low Voltage	ON	DTC Troubleshooting (see page 11-256)
P2649 (21)	—	Rocker Arm Oil Control Solenoid Circuit High Voltage	ON	DTC Troubleshooting (see page 11-257)
P2A00 (61)	○	Air Fuel Ratio (A/F) Sensor (Sensor 1) Range/Performance Problem	ON	DTC Troubleshooting (see page 11-175)
U0029 (126)	—	F-CAN Malfunction (BUS-OFF (Engine Control Module (ECM)/Powertrain Control Module (PCM)))	ON	DTC Troubleshooting (see page 11-176)
U0121*3	—	F-CAN Malfunction (Engine Control Module (ECM)/Powertrain Control Module (PCM)-ABS Modulator-Control Unit)	OFF	DTC Troubleshooting (see page 11-176)
U0122*4	—	F-CAN Malfunction (Engine Control Module (ECM)/Powertrain Control Module (PCM)-VSA Modulator-Control Unit)	OFF	DTC Troubleshooting (see page 11-178)
U0131	—	F-CAN Malfunction (Engine Control Module (ECM)/Powertrain Control Module (PCM)-EPS Control Unit)	OFF	DTC Troubleshooting (see page 11-179)
U0155 (126)	—	F-CAN Malfunction (Engine Control Module (ECM)/Powertrain Control Module (PCM)-Gauge Control Module)	ON	DTC Troubleshooting (see page 11-181)
U0300 (131)*1	—	PGM-FI System and A/T System Program Version Mismatch	ON	DTC Troubleshooting (see page 11-182)

NOTE: The above DTCs are indicated when the PGM-FI system is selected with the HDS. Some automatic transmission DTCs cause the MIL to come on. If the MIL is on and no DTCs are indicated in the PGM-FI system, select the A/T system, and check for automatic transmission DTCs.

*: These DTCs are indicated by a blinking MIL when the SCS line is jumped with the HDS. Some DTCs do not cause the MIL to blink when the SCS line is jumped. The last four characters of these DTCs are shown in the gauge display.

*1: A/T

*3: With ABS

*4: With VSA

*6: '11-12 models



Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check for a diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure	Also check for
Engine will not start (MIL works OK, no DTCs set)	<ol style="list-style-type: none"> 1. Test the battery (see page 22-68). 2. Test the starter (see page 4-9). 3. Check the fuel pressure (see page 11-282). 4. Troubleshoot the fuel pump circuit (see page 11-276). 	<ul style="list-style-type: none"> • Low compression • No ignition spark • Restricted exhaust system • Intake vacuum leaks • Locked up engine • Broken cam chain • Fuel contamination
Engine will not start, and HDS does not communicate with the ECM/PCM (MIL comes on and stays on)	Troubleshoot the DLC circuit (see page 11-193).	<ul style="list-style-type: none"> • No power to ECM/PCM • No ground to ECM/PCM • Short in reference voltage circuit
MIL comes on and stays on, or never comes on at all, no DTCs set	Troubleshoot the MIL circuit (see page 11-192).	
Engine will not start (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system (see page 22-328).	
Engine starts but stalls immediately (MIL works OK, no DTCs set, immobilizer indicator stays on or flashes)	Check the immobilizer system (see page 22-328).	<ul style="list-style-type: none"> • Low compression • Intake vacuum leaks • Weak spark • Low fuel pressure
Engine is hard to start (MIL works OK, no DTCs set)	<ol style="list-style-type: none"> 1. Test the battery (see page 22-68). 2. Check the fuel pressure (see page 11-282). 3. Clean the throttle body (see page 11-306). 	<ul style="list-style-type: none"> • Low compression • Intake vacuum leaks • Fuel contamination • Weak spark
Cold fast idle too low (MIL works OK, no DTCs set)	<ol style="list-style-type: none"> 1. Do the ECM/PCM idle learn procedure (see page 11-268). 2. Check the idle speed (see page 11-267). 3. Clean the throttle body (see page 11-306). 	<ul style="list-style-type: none"> • Incorrect valve adjustment • Fuel contamination
Cold fast idle too high (MIL works OK, no DTCs set)	<ol style="list-style-type: none"> 1. Do the ECM/PCM idle learn procedure (see page 11-268). 2. Check the idle speed (see page 11-267). 3. Test the throttle body (see page 11-306). 	<ul style="list-style-type: none"> • Intake vacuum leaks • Incorrect valve adjustment
Idle speed fluctuates (MIL works OK, no DTCs set)	<ol style="list-style-type: none"> 1. Do the ECM/PCM idle learn procedure (see page 11-268). 2. Check the idle speed (see page 11-267). 3. Test the throttle body (see page 11-306). 4. Troubleshoot the A/C signal circuit (see page 11-264). 	<ul style="list-style-type: none"> • Incorrect valve timing or clearance adjustment • Intake vacuum leaks
After warming up, idle speed is below specification without load (MIL works OK, no DTCs set)	<ol style="list-style-type: none"> 1. Troubleshoot the alternator FR signal circuit (see page 11-265). 2. Test the throttle body (see page 11-306). 	
After warming up, idle speed is above specification without load (MIL works OK, no DTCs set)	<ol style="list-style-type: none"> 1. Troubleshoot the alternator FR signal circuit (see page 11-265). 2. Inspect the APP sensor (see page 11-250). 	

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Fuel and Emissions Systems

Symptom Troubleshooting Index (cont'd)

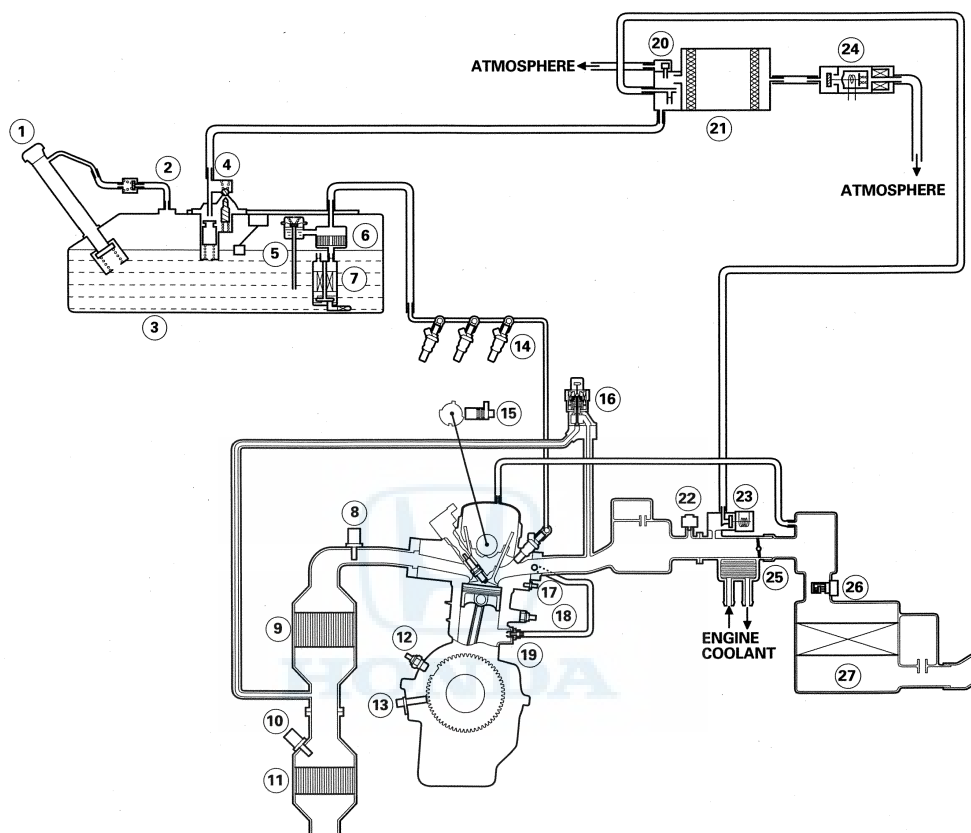
Symptom	Diagnostic procedure	Also check for
Low power (MIL works OK, no DTCs set)	Check the fuel pressure (see page 11-282).	<ul style="list-style-type: none"> • Low compression • Incorrect camshaft timing • Incorrect engine oil level • Exhaust restriction • Fuel contamination
Engine stalls (MIL works OK, no DTCs set)	<ol style="list-style-type: none"> 1. Do the ECM/PCM idle learn procedure (see page 11-268). 2. Check the fuel pressure (see page 11-282). 3. Check the idle speed (see page 11-267). 4. Troubleshoot the brake pedal position switch signal circuit (see page 11-266). 	<ul style="list-style-type: none"> • Intake vacuum leaks • Faulty harness and sensor connections • Fuel contamination
Difficult to refuel (MIL works OK, no DTCs set)	<ol style="list-style-type: none"> 1. Inspect the breather line and the suction line (see page 11-285). 2. Check the fuel tank vapor control valve hose between the EVAP canister and the fuel tank. 3. Inspect the fuel filler neck for restrictions. 4. Replace the fuel tank unit (see page 11-295). 5. Replace the fuel tank (see page 11-299). 	<ul style="list-style-type: none"> • Malfunctioning gas station filling nozzle. • Faulty fuel tank vapor control valve
Fuel overflows during refueling (No DTCs set)	<ol style="list-style-type: none"> 1. Inspect the fuel filler neck for restrictions. 2. Replace the fuel tank unit (see page 11-295). 3. Replace the fuel tank (see page 11-299). 	Malfunctioning gas station filling nozzle.
Fuel cap warning message stays on (MIL works OK, no DTCs set)	Troubleshoot the fuel cap warning message system (see page 11-356).	EVAP vacuum leak
HDS does not communicate with the ECM/PCM or the vehicle	Troubleshoot the DLC circuit (see page 11-193).	



System Description

Fuel and Emissions Systems Diagram

System Diagram



- ① FUEL FILL CAP
- ② FUEL TANK VAPOR RECIRCULATION TUBE
- ③ FUEL TANK
- ④ FUEL TANK VAPOR CONTROL VALVE
- ⑤ FUEL PRESSURE REGULATOR
- ⑥ FUEL FILTER
- ⑦ FUEL PUMP
- ⑧ AIR FUEL RATIO (A/F) SENSOR (SENSOR 1)
- ⑨ WARM UP THREE WAY CATALYTIC CONVERTER (WU-TWC)
- ⑩ SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO₂S) (SENSOR 2)
- ⑪ UNDER FLOOR THREE WAY CATALYTIC CONVERTER (TWC)
- ⑫ OIL PRESSURE SWITCH
- ⑬ CRANKSHAFT POSITION (CKP) SENSOR
- ⑭ INJECTOR

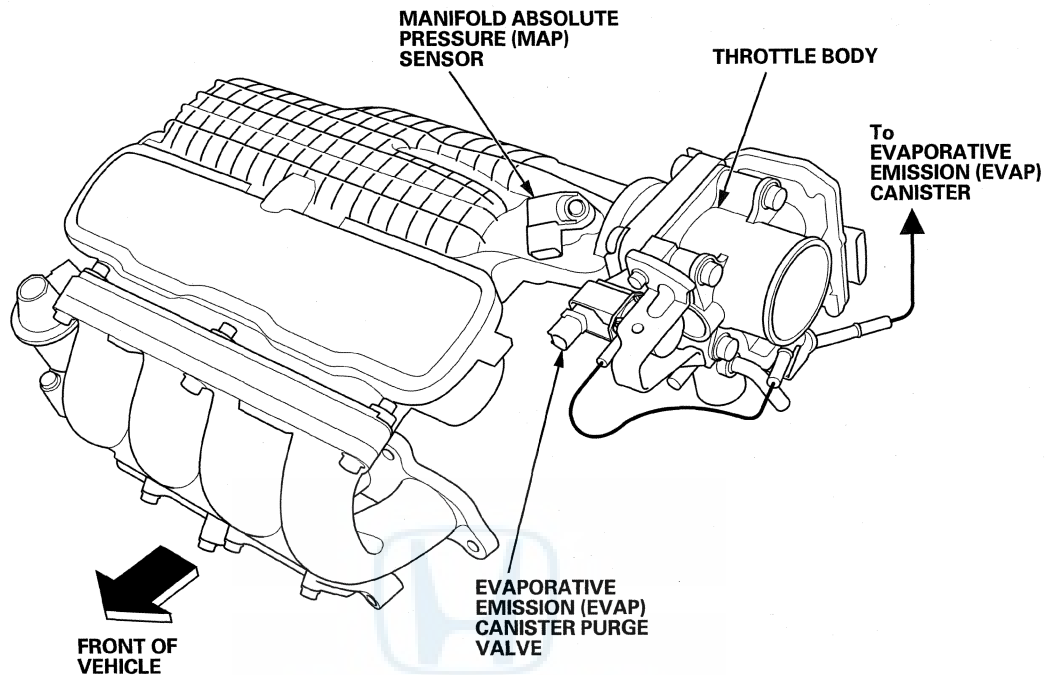
- ⑮ CAMSHAFT POSITION (CMP) SENSOR
- ⑯ EXHAUST GAS RECIRCULATION (EGR) VALVE and POSITION SENSOR
- ⑰ ENGINE COOLANT TEMPERATURE (ECT) SENSOR 1
- ⑱ KNOCK SENSOR
- ⑲ POSITIVE CRANKCASE VENTILATION (PCV) VALVE
- ⑳ FUEL TANK PRESSURE (FTP) SENSOR
- ㉑ EVAPORATIVE EMISSION (EVAP) CANISTER
- ㉒ MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR
- ㉓ EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE
- ㉔ EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE
- ㉕ THROTTLE BODY
- ㉖ MASS AIR FLOW (MAF) SENSOR/INTAKE AIR TEMPERATURE (IAT) SENSOR
- ㉗ AIR CLEANER

(cont'd)

Fuel and Emissions Systems

System Description (cont'd)

Vacuum Hose Routing





Electronic Control Systems

The functions of the fuel and emission control systems are managed by the engine control module (ECM) on vehicles with manual transmissions or the powertrain control module (PCM) on vehicles with automatic transmissions.

Self-diagnosis

The ECM/PCM detects the failure of a signal from a sensor or from another control unit and stores a Pending DTC or a Confirmed DTC. Depending on the failure, a Confirmed DTC is stored in either the first or the second drive cycle. When a Confirmed DTC is stored, the ECM/PCM turns on the malfunction indicator lamp (MIL) by a signal sent to the gauge control module via F-CAN.

● One Drive Cycle Detection Method

When an abnormality occurs in the signal from a sensor or from another control unit, the ECM/PCM stores a Confirmed DTC for the failure and turns on the MIL immediately.

● Two Drive Cycle Detection Method

When an abnormality occurs in the signal from a sensor or from another control unit in the first drive cycle, the ECM/PCM stores a Pending DTC. The MIL does not come on at this time. If the failure continues in the second drive cycle, the ECM/PCM stores a Confirmed DTC and turns on the MIL.

Fail-safe Function

When an abnormality occurs in the signal from a sensor or from another control unit, the ECM/PCM ignores that signal and substitutes a pre-programmed value for it that allows the engine to continue running. This causes a DTC to be stored and the MIL to come on.

MIL Bulb Check and Readiness Code Condition

When the ignition switch is turned to ON (II), the ECM/PCM turns on the MIL via the F-CAN circuit for about 15 to 20 seconds to check the bulb condition. If any readiness codes are not set to complete, the MIL flashes five times. If all readiness codes are set to complete, the MIL goes off.

Self Shut Down (SSD) Mode

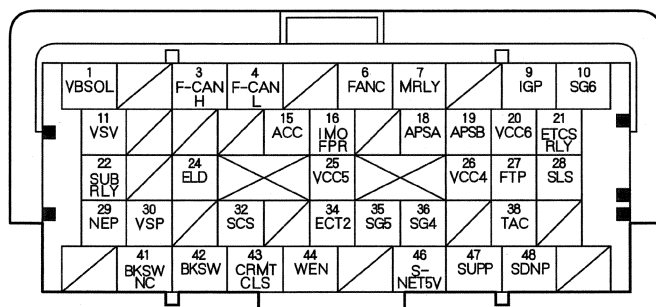
After the ignition switch is turned to ACCESSORY (I) or to LOCK (0), the ECM/PCM stays on for up to an hour. If an ECM/PCM connector is disconnected during this time, the ECM/PCM may be damaged. To cancel this mode, disconnect the negative cable from the battery, or jump the SCS line with the HDS after the ignition switch is turned to ACCESSORY (I) or LOCK (0).

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Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Inputs and Outputs at ECM/PCM Connector A () (49P)



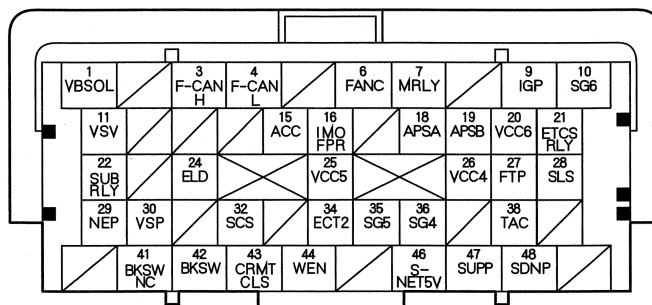
Terminal side of female terminals

Terminal number	Wire color	Terminal name	Description	Signal
1*	BRN	VBSOL (POWER SOURCE FOR SOLENOID VALVES)	Power source for solenoid valves	With ignition switch ON (II): battery voltage
3	WHT	F-CAN H (CAN COMMUNICATION SIGNAL HIGH)	Sends communication signal	With ignition switch ON (II): about 2.5 V (pulses)
4	RED	F-CAN L (CAN COMMUNICATION SIGNAL LOW)	Sends communication signal	With ignition switch ON (II): about 2.5 V (pulses)
6	GRN	FANC (RADIATOR FAN CONTROL)	Drives radiator fan relay or A/C condenser fan relay	With radiator fan or A/C condenser fan running: about 0 V With radiator fan or A/C condenser fan stopped: battery voltage
7	BLU	MRLY (PGM-FI MAIN RELAY 1)	Drives PGM-FI main relay 1	With ignition switch ON (II): about 0 V With ignition switch in LOCK (0): battery voltage
9	LT GRN	IGP (POWER SOURCE)	Power source for ECM/PCM circuit	With ignition switch ON (II): battery voltage
10	YEL	SG6 (SENSOR GROUND)	Sensor ground	Less than 0.2 V at all times
11	RED	VSV (EVAPORATIVE EMISSION (EVAP) CANISTER VENT SHUT VALVE)	Drives EVAP canister vent shut valve	With ignition switch ON (II): battery voltage
15	PNK	ACC (A/C COMPRESSOR CLUTCH RELAY)	Drives A/C compressor clutch relay	With compressor ON: about 0 V With compressor OFF: battery voltage
16	BRN	IMOFPR (IMMOBILIZER FUEL PUMP RELAY)	Drives PGM-FI main relay 2	About 0 V for 2 seconds after turning ignition switch ON (II), then battery voltage With the engine running: about 0 V
18	ORN	APSA (ACCELERATOR PEDAL POSITION (APP) SENSOR A)	Detects APP sensor A signal	With ignition switch ON (II) and accelerator pedal pressed: about 4.5 V With ignition switch ON (II) and accelerator pedal released: about 1.0 V
19	LT BLU	APSB (ACCELERATOR PEDAL POSITION (APP) SENSOR B)	Detects APP sensor B signal	With ignition switch ON (II) and accelerator pedal pressed: about 2.3 V With ignition switch ON (II) and accelerator pedal released: about 0.5 V
20	WHT	VCC6 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
21	RED	ETCSRLY (ELECTRONIC THROTTLE CONTROL SYSTEM (ETCS) CONTROL RELAY)	Drives electronic throttle control system (ETCS) control relay	With ignition switch ON (II): about 0 V
22	ORN	SUBRLY (PGM-FI SUBRELAY)	Drives A/F sensor relay	With ignition switch ON (II): about 0 V
24	PNK	ELD (ELECTRICAL LOAD DETECTOR (ELD))	Detects ELD signal	With ignition switch ON (II): about 0.1–4.8 V (depending on electrical load)

*1: A/T



ECM/PCM Inputs and Outputs at ECM/PCM Connector A () (49P)



Terminal side of female terminals

Terminal number	Wire color	Terminal name	Description	Signal
25	GRY	VCC5 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
26	BRN	VCC4 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
27	LT GRN	FTP (FUEL TANK PRESSURE (FTP) SENSOR)	Detects FTP sensor signal	With ignition switch ON (II): about 2.5 V
28 ^{*1}	PNK	SLS (SHIFT LOCK SOLENOID)	Drives shift lock solenoid	With ignition switch ON (II), in P, brake pedal pressed, and accelerator released: about 0 V
29	LT BLU	NEP (ENGINE SPEED PULSE)	Outputs engine speed pulse	With engine running: pulses
30	BLU	VSP (VEHICLE SPEED SIGNAL OUTPUT)	Sends vehicle speed sensor signal	Depending on vehicle speed: pulses
32	YEL	SCS (SERVICE CHECK SIGNAL)	Detects service check signal	With service check signal shorted using the HDS: about 0 V With service check signal opened: about 5.0 V
34	LT GRN	ECT2 (ENGINE COOLANT TEMPERATURE (ECT) SENSOR 2)	Detects ECT sensor 2 signal	With ignition switch ON (II): about 0.1–4.8 V (depending on engine coolant temperature)
35	WHT	SG5 (SENSOR GROUND)	Sensor ground	Less than 0.2 V at all times
36	BLU	SG4 (SENSOR GROUND)	Sensor ground	Less than 0.2 V at all times
38	ORN	TAC (EVAPORATOR TEMPERATURE SENSOR)	Detects evaporator sensor signal	With ignition switch ON (II): about 0.1–4.8 V (depending on evaporator temperature)
41 ^{*2}	BRN	BKSWNC (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With ignition switch ON (II) and brake pedal released: battery voltage With ignition switch ON (II) and brake pedal pressed: about 0 V
42	LT GRN	BKSW (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With brake pedal released: about 0 V With brake pedal pressed: battery voltage

*1: A/T

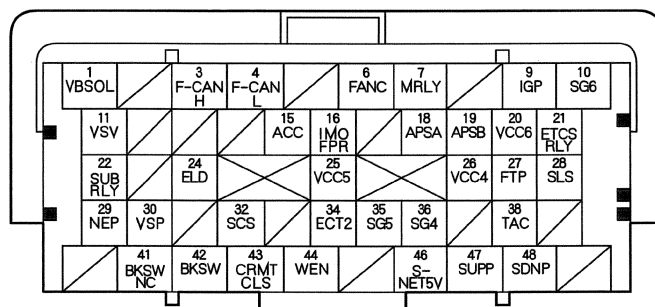
*2: With cruise control

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Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Inputs and Outputs at ECM/PCM Connector A () (49P)



Terminal side of female terminals

Terminal number	Wire color	Terminal name	Description	Signal
43 ^{*3}	PUR	CRMTCLS (CRUISE CLUTCH PEDAL POSITION SIGNAL)	Detects cruise clutch pedal position switch signal	With ignition switch ON (II) and clutch pedal released: about 0 V With ignition switch ON (II) and clutch pedal pressed: battery voltage
44 ^{*9}	RED	WEN (WRITE ENABLE SIGNAL)	Detects write enable signal	With ignition switch ON (II): about 0 V
46	GRN	S-NET5V (SERIAL COMMUNICATION FOR IMMOBILIZER)	Sends serial communication signal	With ignition switch ON (II): pulses With key removed from ignition switch: about 0–5.0 V
47 ^{*4}	YEL	SUPP (PADDLE SHIFTER+ UPSHIFT SWITCH)	Detects paddle shifter+ (upshift switch) signal	With ignition switch ON (II): • With paddle shifter+ (upshift switch) pressed: about 0 V • With paddle shifter+ (upshift switch) released: battery voltage
48 ^{*4}	LT BLU	SDNP (PADDLE SHIFTER– DOWNSHIFT SWITCH)	Detects paddle shifter– (downshift switch) signal	With ignition switch ON (II): • With paddle shifter– (downshift switch) pressed: about 0 V • With paddle shifter– (downshift switch) released: battery voltage

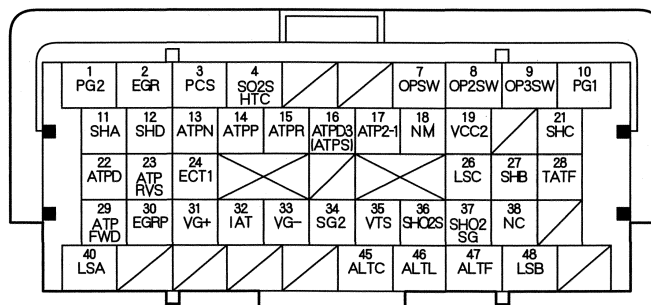
*3: M/T with cruise control

*4: A/T (with paddle shifter)

*9: '09-10 models



ECM/PCM Inputs and Outputs at ECM/PCM Connector B (△) (49P)



Terminal side of female terminals

Terminal number	Wire color	Terminal name	Description	Signal
1	BRN ^{*6} BLK ^{*7}	PG2 (POWER GROUND)	Ground circuit for ECM/PCM circuit	Less than 0.2 V at all times
2	BLU/RED ^{*6} LT BLU ^{*7}	EGR (EXHAUST GAS RECIRCULATION (EGR) VALVE)	Drives EGR valve	With EGR operating: duty controlled With EGR not operating: about 0 V
3	YEL/BLU ^{*6} RED ^{*7}	PCS (EVAPORATIVE EMISSION (EVAP) CANISTER PURGE VALVE)	Drives EVAP canister purge valve	With engine running, engine coolant below 140 °F (60 °C): battery voltage With engine running, engine coolant above 140 °F (60 °C): duty controlled
4	BLK/WHT ^{*6} GRN ^{*7}	SO2SHTC (SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) HEATER (SENSOR 2))	Drives secondary HO2S heater (sensor 2)	With ignition switch ON (II): battery voltage With warmed up engine running: duty controlled
7	YEL/RED ^{*6} TAN ^{*7}	OPSW (OIL PRESSURE SWITCH)	Detects engine oil pressure signal	With ignition switch in LOCK (0): about 0 V With engine running: battery voltage
8 ^{*1}	BLU/RED ^{*6} BLU ^{*7}	OP2SW (TRANSMISSION FLUID PRESSURE SWITCH A (2ND CLUTCH))	Detects transmission fluid pressure switch A (2nd clutch) input signal	With ignition switch ON (II): • Without 2nd clutch pressure: about 5.0 V • With 2nd clutch pressure: about 0 V
9 ^{*1}	BLU/WHT ^{*6} PNK ^{*7}	OP3SW (TRANSMISSION FLUID PRESSURE SWITCH B (3RD CLUTCH))	Detects transmission fluid pressure switch B (3rd clutch) input signal	With ignition switch ON (II): • Without 3rd clutch pressure: about 5.0 V • With 3rd clutch pressure: about 0 V
10	BLK	PG1 (POWER GROUND)	Ground circuit for ECM/PCM circuit	Less than 0.2 V at all times
11 ^{*1}	BLU/BLK ^{*6} LT GRN ^{*7}	SHA (SHIFT SOLENOID VALVE A)	Drives shift solenoid valve A	With engine running in D (in 2nd and 4th gears), S (in 2nd and 4th gears), D3 (in 2nd gear), and 2: battery voltage With engine running in P, R, N, 1, D (in 1st, 3rd, and 5th gears), S (in 1st, 3rd, and 5th gears), and D3 (in 1st and 3rd gears): about 0 V
12 ^{*1}	GRN/RED ^{*6} RED ^{*7}	SHD (SHIFT SOLENOID VALVE D)	Drives shift solenoid valve D	With engine running in P and R: battery voltage With engine running in N: about 0 V
13 ^{*1}	RED/BLK ^{*6} WHT ^{*7}	ATPN (TRANSMISSION RANGE SWITCH IN N)	Detects transmission range switch N position input signal	With ignition switch ON (II) in N: about 0 V With ignition switch ON (II) in any position other than N: battery voltage
14 ^{*1}	BLU/BLK ^{*6} GRN ^{*7}	ATPP (TRANSMISSION RANGE SWITCH IN P)	Detects transmission range switch P position input signal	With ignition switch ON (II) in P: about 0 V With ignition switch ON (II) in any position other than P: battery voltage
15 ^{*1}	WHT ^{*6} PUR ^{*7}	ATPR (TRANSMISSION RANGE SWITCH IN R)	Detects transmission range switch R position input signal	With ignition switch ON (II) in R: about 0 V With ignition switch ON (II) in any position other than R: battery voltage

*1: A/T

*6: '09-10 models and '11-12 models (M/T)

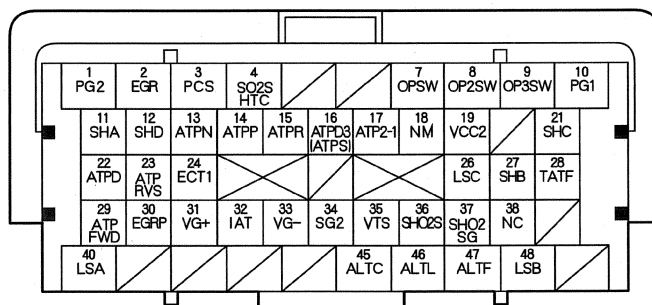
*7: '11-12 models (A/T)

(cont'd)

Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Inputs and Outputs at ECM/PCM Connector B (△) (49P)



Terminal side of female terminals

Terminal number	Wire color	Terminal name	Description	Signal
16 ^{*5}	RED ^{*6} LT BLU ^{*7}	ATPD3 (TRANSMISSION RANGE SWITCH IN D3)	Detects transmission range switch D3 position input signal	With ignition switch ON (II) in D3: about 0 V With ignition switch ON (II) in any position other than D3: battery voltage
16 ^{*4}	RED ^{*6} LT BLU ^{*7}	ATPS (TRANSMISSION RANGE SWITCH IN S)	Detects transmission range switch S position input signal	With ignition switch ON (II) in S: about 0 V With ignition switch ON (II) in any position other than S: battery voltage
17 ^{*5}	BLU	ATP2-1 (TRANSMISSION RANGE SWITCH 2-1)	Detects transmission range switch 2 and 1 position input signal	With ignition switch ON (II) in 2 and 1: about 0 V With ignition switch ON (II) in any position other than 2 and 1: battery voltage
18 ^{*1}	WHT/RED ^{*6} RED ^{*7}	NM (INPUT SHAFT (MAINSHAFT) SPEED SENSOR)	Detects input shaft (mainshaft) speed sensor signal	With ignition switch ON (II): about 0 V or about 5.0 V With engine running in N: pulses
19	YEL/BLU ^{*6} TAN ^{*7}	VCC2 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5.0 V
21 ^{*1}	GRN ^{*6} BLU ^{*7}	SHC (SHIFT SOLENOID VALVE C)	Drives shift solenoid valve C	With engine running in R, D (in 3rd and 4th gears), S (in 3rd and 4th gears), and D3 (in 3rd gear): battery voltage With engine running in P, N, 2, 1, D (in 1st, 2nd, and 5th gears), S (in 1st, 2nd, and 5th gears), and D3 (in 1st and 2nd gears): about 0 V
22 ^{*1}	PNK	ATPD (TRANSMISSION RANGE SWITCH IN D)	Detects transmission range switch D position input signal	With ignition switch ON (II) in D: about 0 V With ignition switch ON (II) in any position other than D: battery voltage
23 ^{*1}	YEL	ATPRVS (TRANSMISSION RANGE SWITCH IN RVS)	Detects transmission range switch R position input signal	With ignition switch ON (II) in R: about 0 V With ignition switch ON (II) in any position other than R: battery voltage
24	RED/WHT ^{*6} PNK ^{*7}	ECT1 (ENGINE COOLANT TEMPERATURE (ECT) SENSOR 1)	Detects ECT sensor 1 signal	With ignition switch ON (II): about 0.1–4.8 V (depending on engine coolant temperature)
26 ^{*1}	BLU/YEL ^{*6} RED ^{*7}	LSC (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C)	Drives A/T clutch pressure control solenoid valve C	With ignition switch ON (II): duty controlled
27 ^{*1}	GRN/WHT ^{*6} PUR ^{*7}	SHB (SHIFT SOLENOID VALVE B)	Drives shift solenoid valve B	With engine running in R, 1, D (in 1st, 4th, and 5th gears), S (in 1st, 4th, and 5th gears), and D3 (in 1st gear): battery voltage With engine running in P, N, 2, D (in 2nd and 3rd gears), S (in 2nd and 3rd gears), and D3 (in 2nd and 3rd gears): about 0 V
28 ^{*1}	RED/YEL ^{*6} WHT ^{*7}	TATF (ATF TEMPERATURE SENSOR)	Detects ATF temperature signal	With ignition switch ON (II): about 0.2–4.0 V (depending on ATF temperature)

*1: A/T

*4: A/T (with paddle shifter)

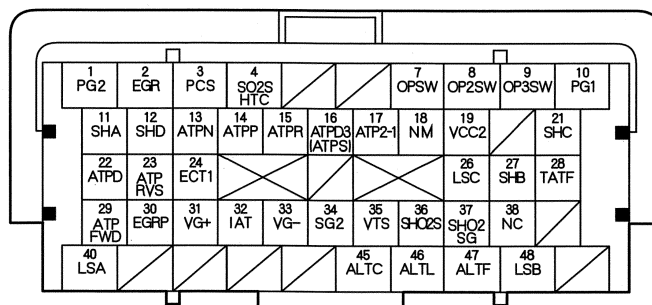
*5: A/T (without paddle shifter)

*6: '09-10 models and '11-12 models (M/T)

*7: '11-12 models (A/T)



ECM/PCM Inputs and Outputs at ECM/PCM Connector B (△) (49P)



Terminal side of female terminals

Terminal number	Wire color	Terminal name	Description	Signal
29 ^{*1}	BLU/YEL ^{*6} TAN ^{*7}	ATPFWD (TRANSMISSION RANGE SWITCH IN FWD)	Detects transmission range switch D, D3, 2, and S position input signals	With ignition switch ON (II) in D, D3, 2, and S: about 0 V With ignition switch ON (II) in any position other than D, D3, 2, and S: battery voltage
30	WHT/BLK ^{*6} PUR ^{*7}	EGRP (EXHAUST GAS RECIRCULATION (EGR) VALVE POSITION SENSOR)	Detects EGR valve position sensor signal	With engine running: about 1.2–3.5 V (depending on EGR valve)
31	RED/GRN ^{*6} GRN ^{*7}	VG+ (MASS AIR FLOW (MAF) SENSOR +SIDE)	Detects MAF sensor signal	At idle with warmed up engine and no electrical load: about 1.7 V
32	RED/YEL ^{*6} TAN ^{*7}	IAT (INTAKE AIR TEMPERATURE (IAT) SENSOR)	Detects IAT sensor signal	With ignition switch ON (II): about 0.1–4.0 V
33	BLK/RED ^{*6} PUR ^{*7}	VG– (MASS AIR FLOW (MAF) SENSOR –SIDE)	Ground for MAF sensor signal	Less than 0.2 V at all times
34	GRN/YEL ^{*6} GRY ^{*7}	SG2 (SENSOR GROUND)	Sensor ground	Less than 0.2 V at all times
35	GRN/YEL ^{*6} LT GRN ^{*7}	VTS (ROCKER ARM OIL CONTROL SOLENOID)	Drives rocker arm oil control solenoid	At idle: about 0 V
36	WHT/RED ^{*9} PNK ^{*8}	SHO2S (SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) SENSOR 2)	Detects secondary HO2S (sensor 2) signal	With throttle fully opened at idle, and warmed up engine: above 0.6 V With throttle quickly closed: below 0.4 V
37 ^{*8}	BLU	SHO2SG (SECONDARY HEATED OXYGEN SENSOR (SECONDARY HO2S) SENSOR 2 GROUND)	Ground for secondary HO2S (sensor 2)	Less than 0.2 V at all times
38	BLK/WHT ^{*6} LT BLU ^{*7}	NC (OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR)	Detects output shaft (countershaft) speed sensor signal	With ignition switch ON (II): about 0 V or about 5.0 V Driving: pulses
40 ^{*1}	RED/BLK ^{*6} LT BLU ^{*7}	LSA (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A)	Drives A/T clutch pressure control solenoid valve A	With ignition switch ON (II): duty controlled
45	WHT/GRN ^{*6} GRN ^{*7}	ALTC (ALTERNATOR CONTROL)	Sends alternator control signal	With warmed up engine running: about 5.0 V (depending on electrical load)
46	WHT/BLU ^{*6} LT BLU ^{*7}	ALTL (ALTERNATOR L SIGNAL)	Detects alternator L signal	With ignition switch ON (II): about 0 V With engine running: battery voltage
47	WHT/RED ^{*6} RED ^{*7}	ALTF (ALTERNATOR FR SIGNAL)	Detects alternator FR signal	With engine running: about 2.6–3.7 V (depending on electrical load)
48 ^{*1}	BRN/WHT ^{*6} YEL ^{*7}	LSB (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B)	Drives A/T clutch pressure control solenoid valve B	With ignition switch ON (II): duty controlled

*1: A/T

*6: '09-10 models and '11-12 models (M/T)

*7: '11-12 models (A/T)

*8: '11-12 models

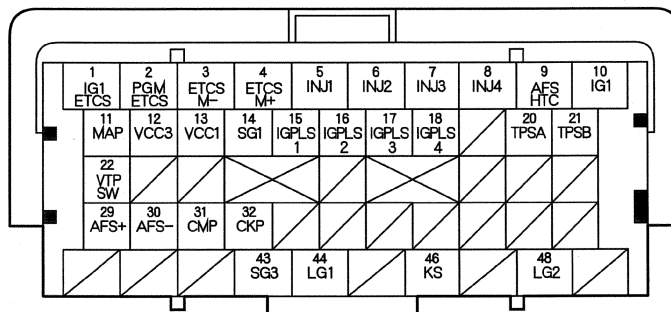
*9: '09-10 models

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Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Inputs and Outputs at ECM/PCM Connector C (○) (49P)



Terminal side of female terminals

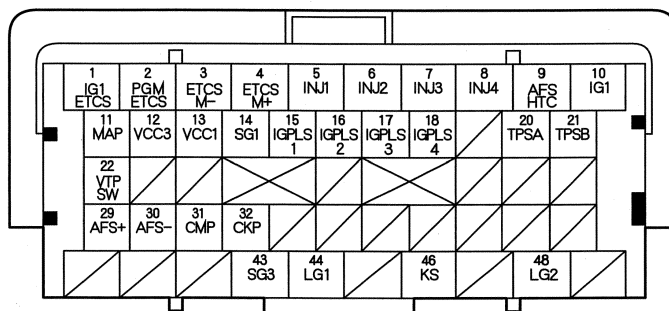
Terminal number	Wire color	Terminal name	Description	Signal
1	WHT ^{*6} PNK ^{*7}	IG1ETCS (IGNITION SIGNAL ETCS)	Detects ignition signal	With ignition switch ON (II): battery voltage
2	BRN ^{*6} BLK ^{*7}	PGMETCS (POWER GROUND ETCS)	Ground circuit for ECM/PCM circuit	Less than 0.2 V at all times
3	YEL	ETCSM- (THROTTLE ACTUATOR -SIDE)	Ground for throttle actuator	With ignition switch ON (II) and accelerator pedal released: about 0 V With ignition switch ON (II) and accelerator pedal pressed: about 1.8 V
4	YEL/RED ^{*6} TAN ^{*7}	ETCSM+ (THROTTLE ACTUATOR +SIDE)	Drives throttle actuator	About 1.5 V immediately after turning ignition switch ON (II), then about 0 V
5	BRN ^{*6} LT GRN ^{*7}	INJ1 (No. 1 INJECTOR)	Drives No. 1 injector	At idle: duty controlled With ignition switch ON (II): battery voltage
6	RED ^{*6} TAN ^{*7}	INJ2 (No. 2 INJECTOR)	Drives No. 2 injector	
7	BLU	INJ3 (No. 3 INJECTOR)	Drives No. 3 injector	
8	YEL ^{*6} RED ^{*7}	INJ4 (No. 4 INJECTOR)	Drives No. 4 injector	
9	GRN	AFSHTC (AIR FUEL RATIO (A/F) SENSOR HEATER CONTROL (SENSOR 1))	Drives A/F sensor heater (sensor 1)	With ignition switch ON (II): battery voltage With warmed up engine running: duty controlled
10	BLK/RED ^{*6} TAN ^{*7}	IG1 (IGNITION SIGNAL)	Detects ignition signal	With ignition switch ON (II): battery voltage
11	GRN/RED ^{*6} PUR ^{*7}	MAP (MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR)	Detects MAP sensor signal	With ignition switch ON (II): about 3.0 V At idle: about 1.0 V (depending on engine speed)
12	BLU ^{*6} WHT ^{*7}	VCC3 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
13	YEL/RED ^{*6} PNK ^{*7}	VCC1 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
14	GRN/WHT ^{*6} BLU ^{*7}	SG1 (SENSOR GROUND)	Sensor ground	Less than 0.2 V at all times
15	WHT	IGPLS1 (No. 1 IGNITION COIL PULSE)	Drives No. 1 ignition coil	With ignition switch ON (II): about 0 V With engine running: pulses
16	WHT/GRN ^{*6} GRN ^{*7}	IGPLS2 (No. 2 IGNITION COIL PULSE)	Drives No. 2 ignition coil	
17	WHT/BLK ^{*6} TAN ^{*7}	IGPLS3 (No. 3 IGNITION COIL PULSE)	Drives No. 3 ignition coil	
18	WHT/BLU ^{*6} LT BLU ^{*7}	IGPLS4 (No. 4 IGNITION COIL PULSE)	Drives No. 4 ignition coil	

*6: '09-10 models and '11-12 models (M/T)

*7: '11-12 models (A/T)



ECM/PCM Inputs and Outputs at ECM/PCM Connector C (○) (49P)



Terminal side of female terminals

Terminal number	Wire color	Terminal name	Description	Signal
20	RED/BLK ^{*6} PUR ^{*7}	TPSA (THROTTLE POSITION (TP) SENSOR A)	Detects TP sensor A signal	With ignition switch ON (II) and accelerator pedal released: about 0.8 V With ignition switch ON (II) and accelerator pedal pressed: about 3.9 V
21	RED	TPSB (THROTTLE POSITION (TP) SENSOR B)	Detects TP sensor B signal	With ignition switch ON (II) and accelerator pedal released: about 1.7 V With ignition switch ON (II) and accelerator pedal pressed: about 4.1 V
22	BLU/BLK ^{*6} BLU ^{*7}	VTPSW (ROCKER ARM OIL PRESSURE SWITCH)	Detects rocker arm oil pressure switch signal	At idle: about 0 V
29	RED ^{*6} PNK ^{*7}	AFS+ (AIR FUEL RATIO (A/F) SENSOR (SENSOR 1) +SIDE)	Detects A/F sensor (sensor 1) signal	At idle: about 2.2 V
30	RED/YEL ^{*6} TAN ^{*7}	AFS- (AIR FUEL RATIO (A/F) SENSOR (SENSOR 1) -SIDE)	Detects A/F sensor (sensor 1) signal	At idle: about 1.8 V
31	GRN	CMP (CAMSHAFT POSITION (CMP) SENSOR)	Detects CMP sensor signal	With engine running: pulses
32	BLU	CKP (CRANKSHAFT POSITION (CKP) SENSOR)	Detects CKP sensor signal	With engine running: pulses
43	GRN ^{*6} BLU ^{*7}	SG3 (SENSOR GROUND)	Sensor ground	Less than 0.2 V at all times
44	BRN/YEL ^{*6} BRN ^{*7}	LG1 (LOGIC GROUND)	Ground circuit for ECM/PCM circuit	Less than 0.2 V at all times
46	RED/BLU ^{*9} WHT ^{*8}	KS (KNOCK SENSOR)	Detects knock sensor signal	With engine knocking: pulses
48	BRN/YEL ^{*6} BRN ^{*7}	LG2 (LOGIC GROUND)	Ground circuit for ECM/PCM circuit	Less than 0.2 V at all times

*6: '09-10 models and '11-12 models (M/T)

*7: '11-12 models (A/T)

*8: '11-12 models

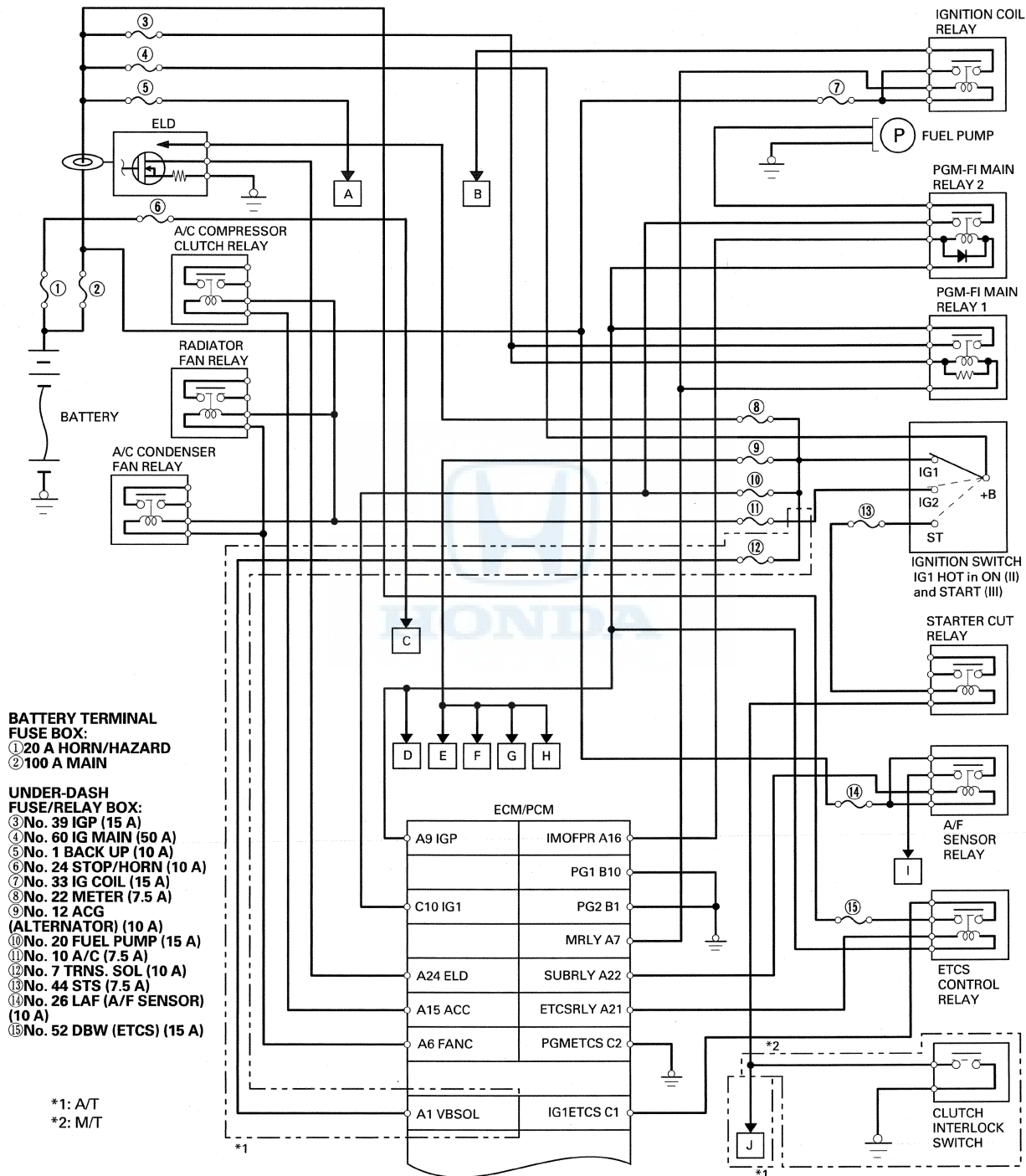
*9: '09-10 models

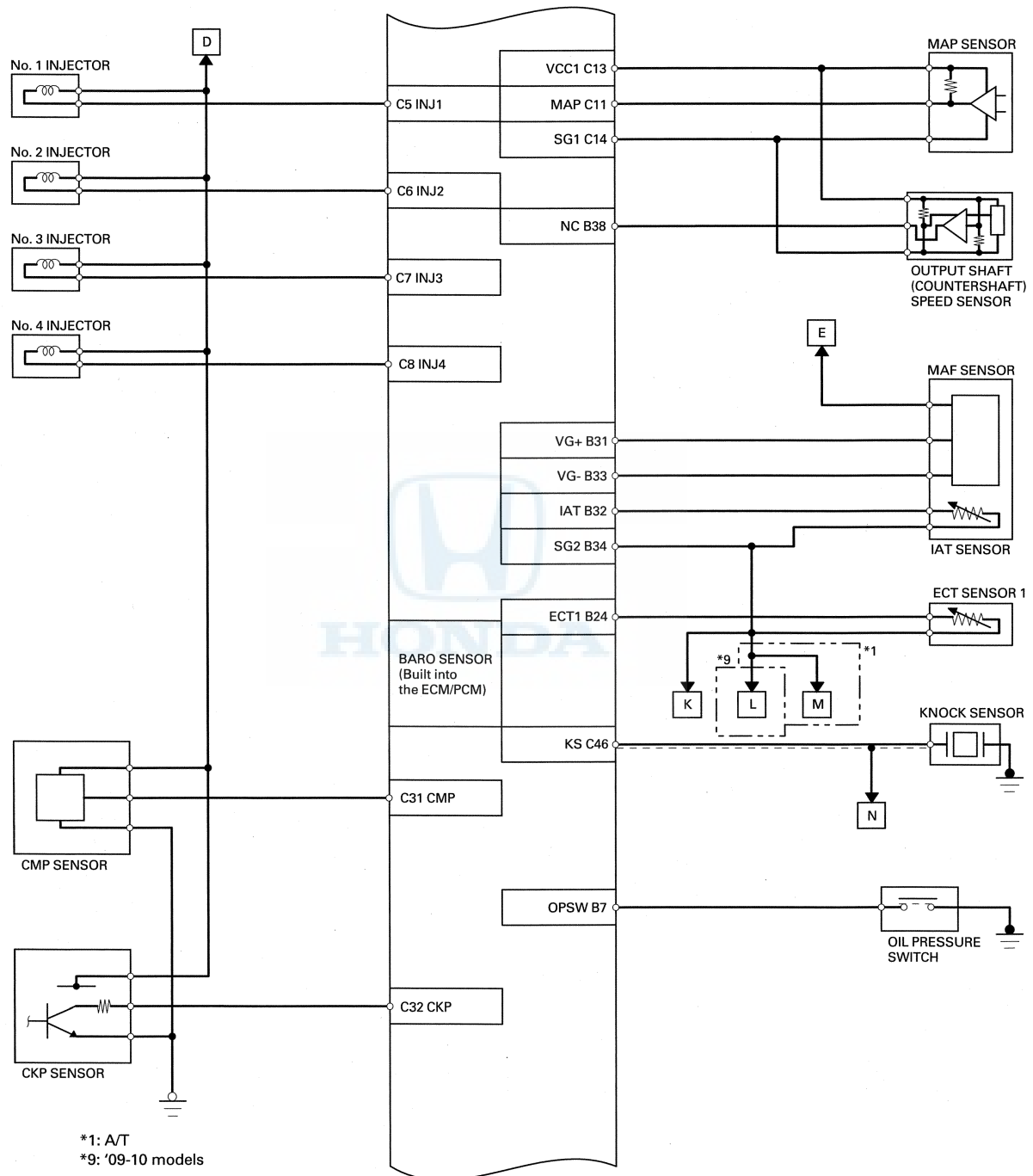
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Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Electrical Connections



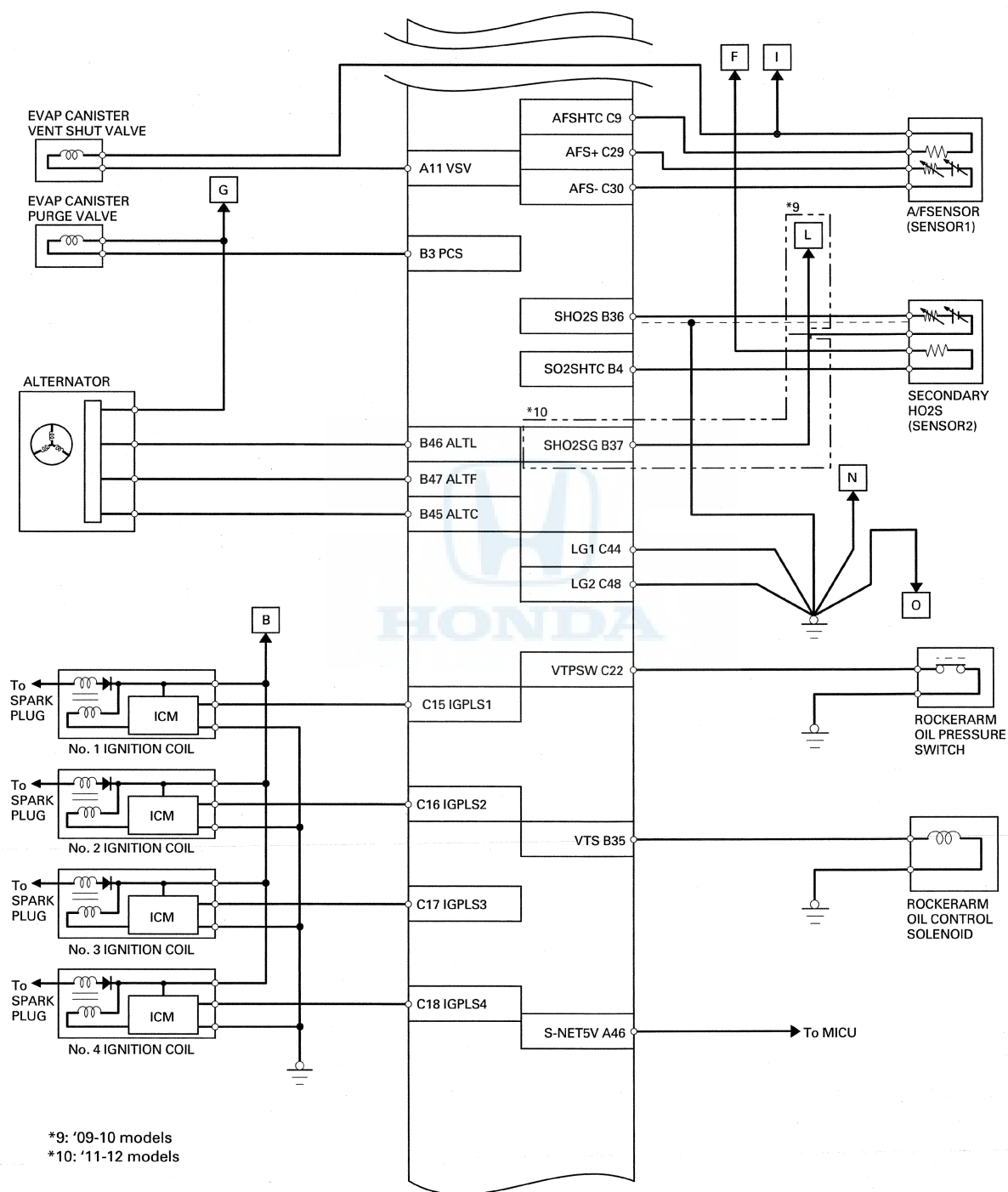


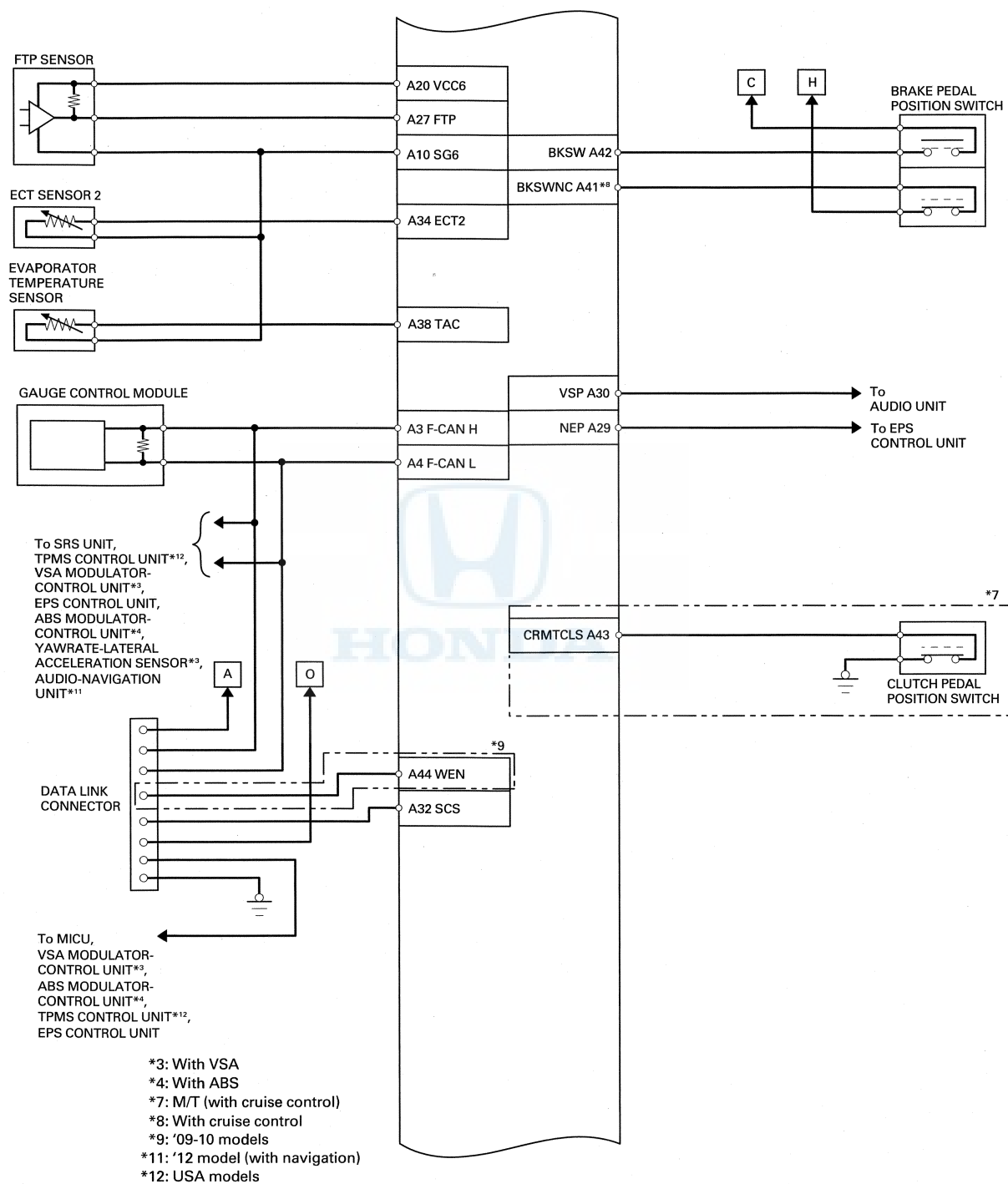
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Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Electrical Connections (cont'd)



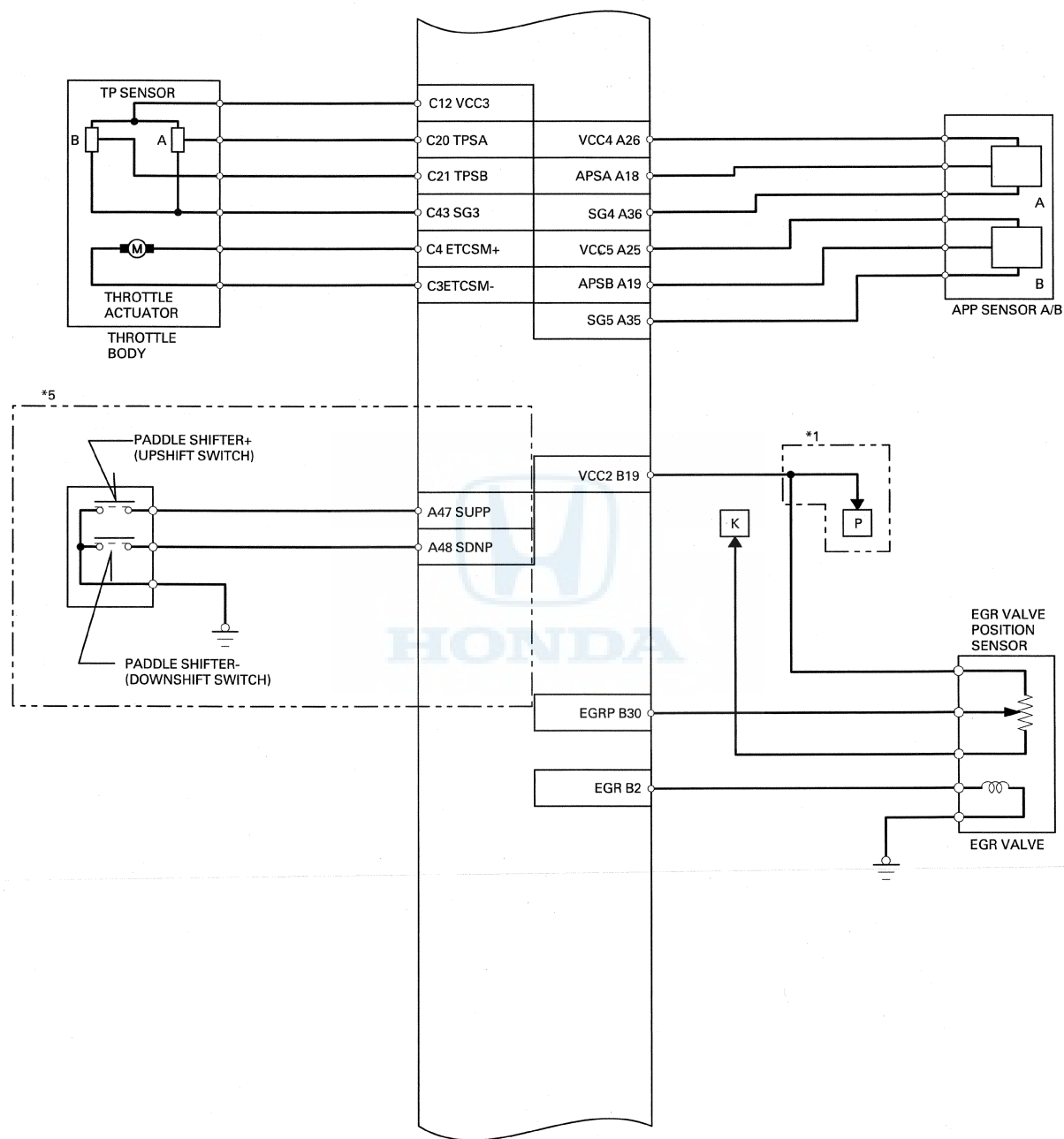


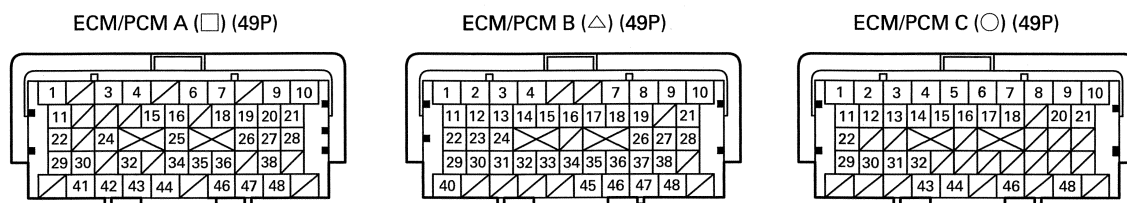
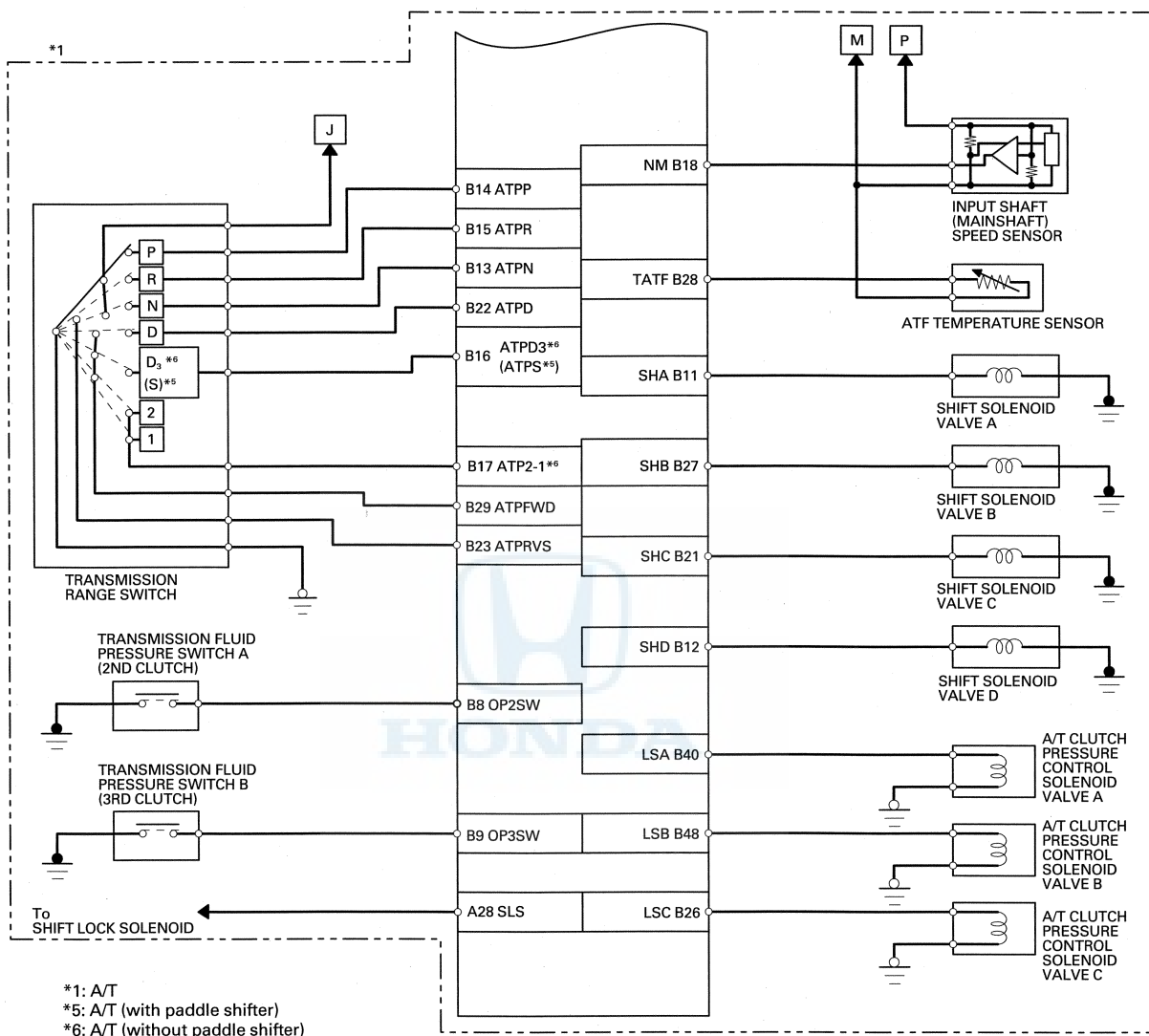
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Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Electrical Connections (cont'd)





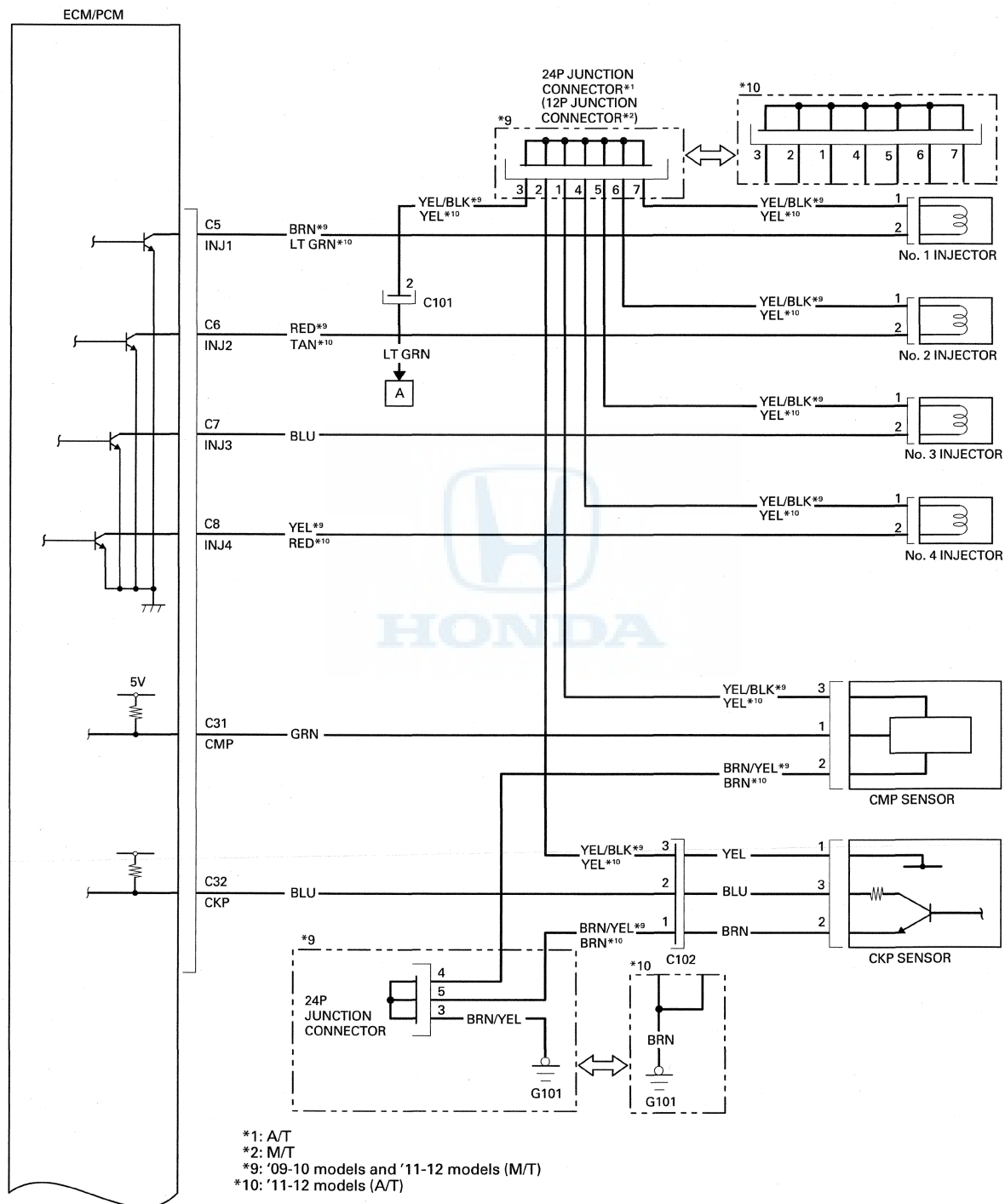
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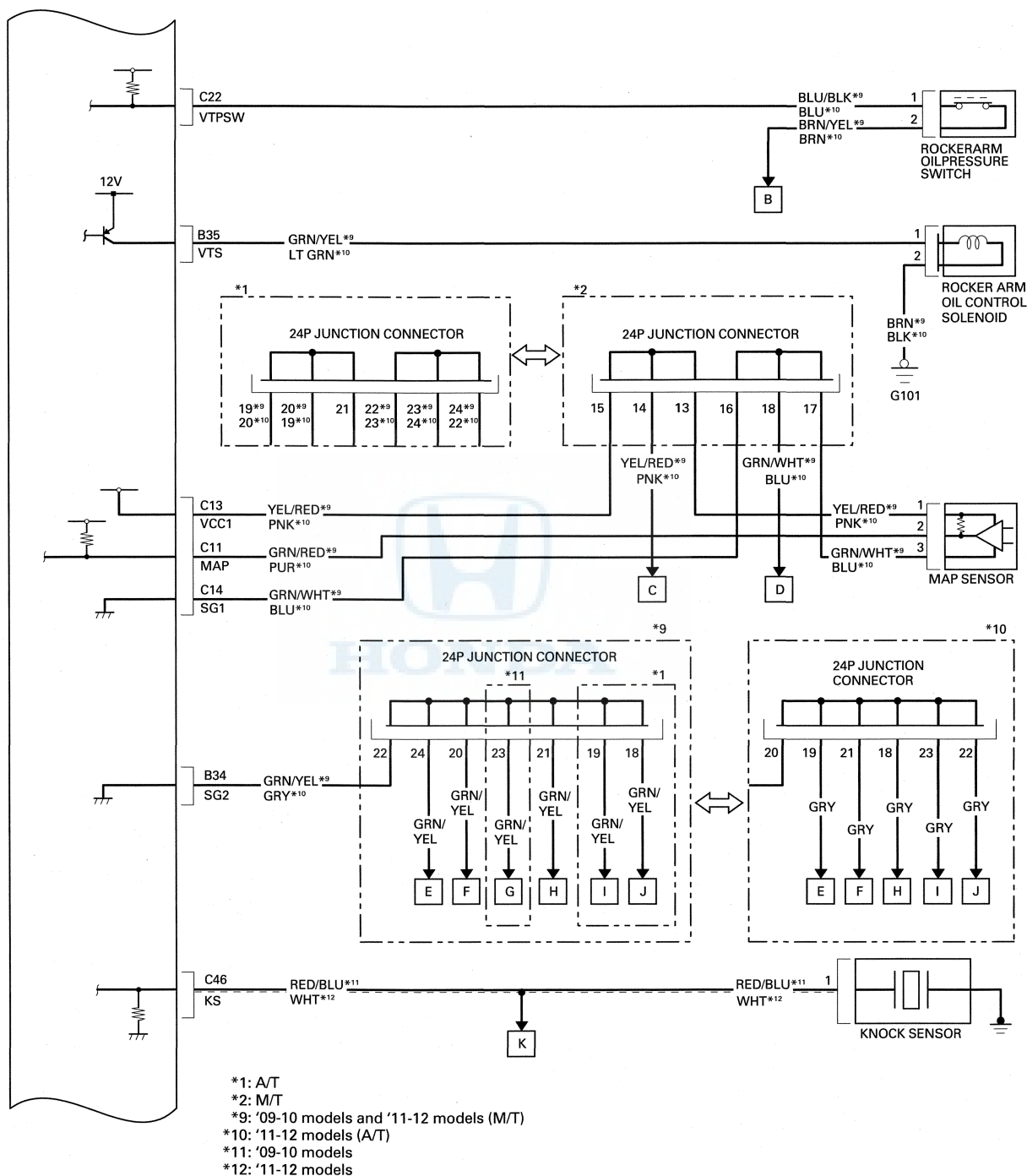
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Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Circuit Diagram



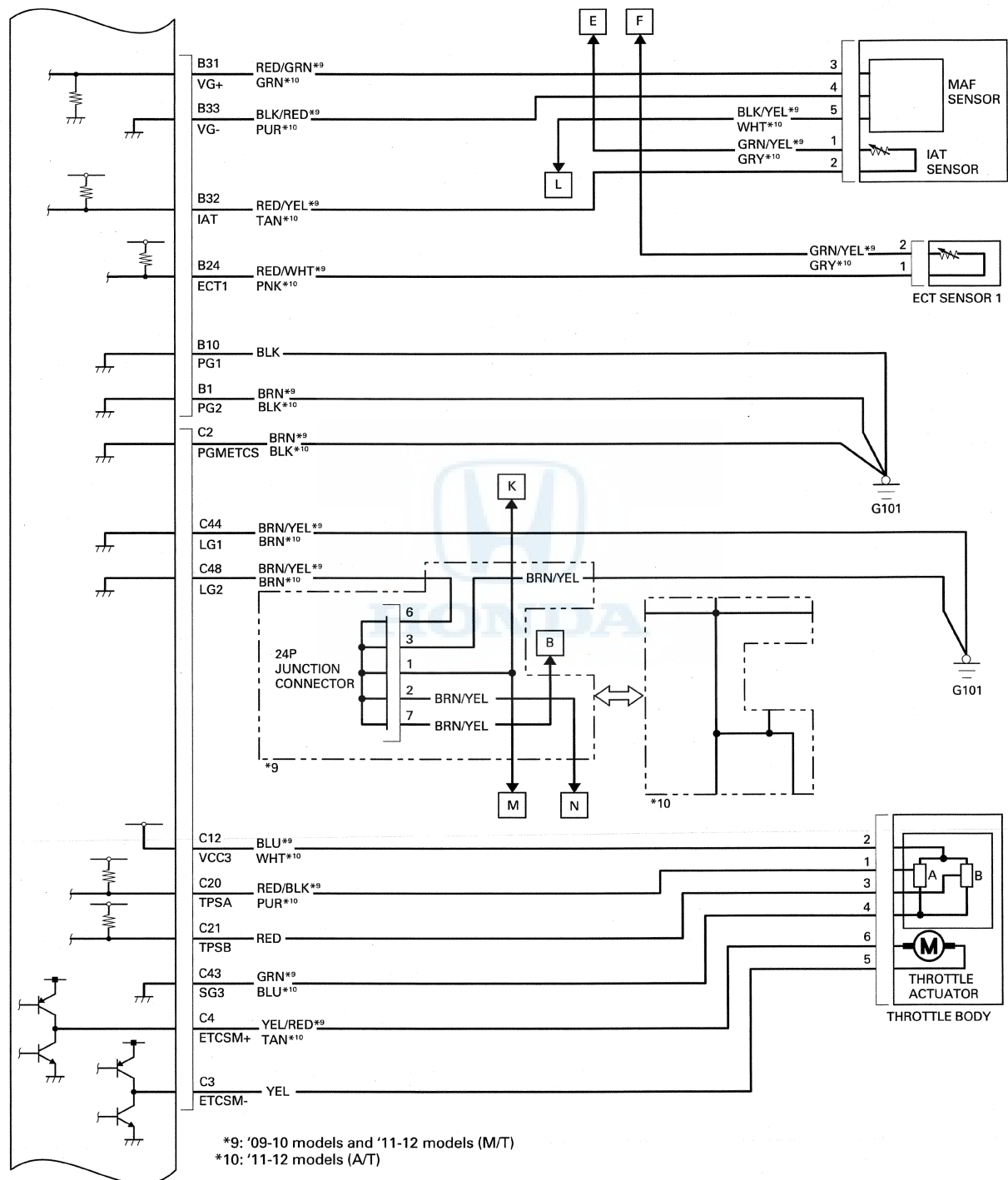


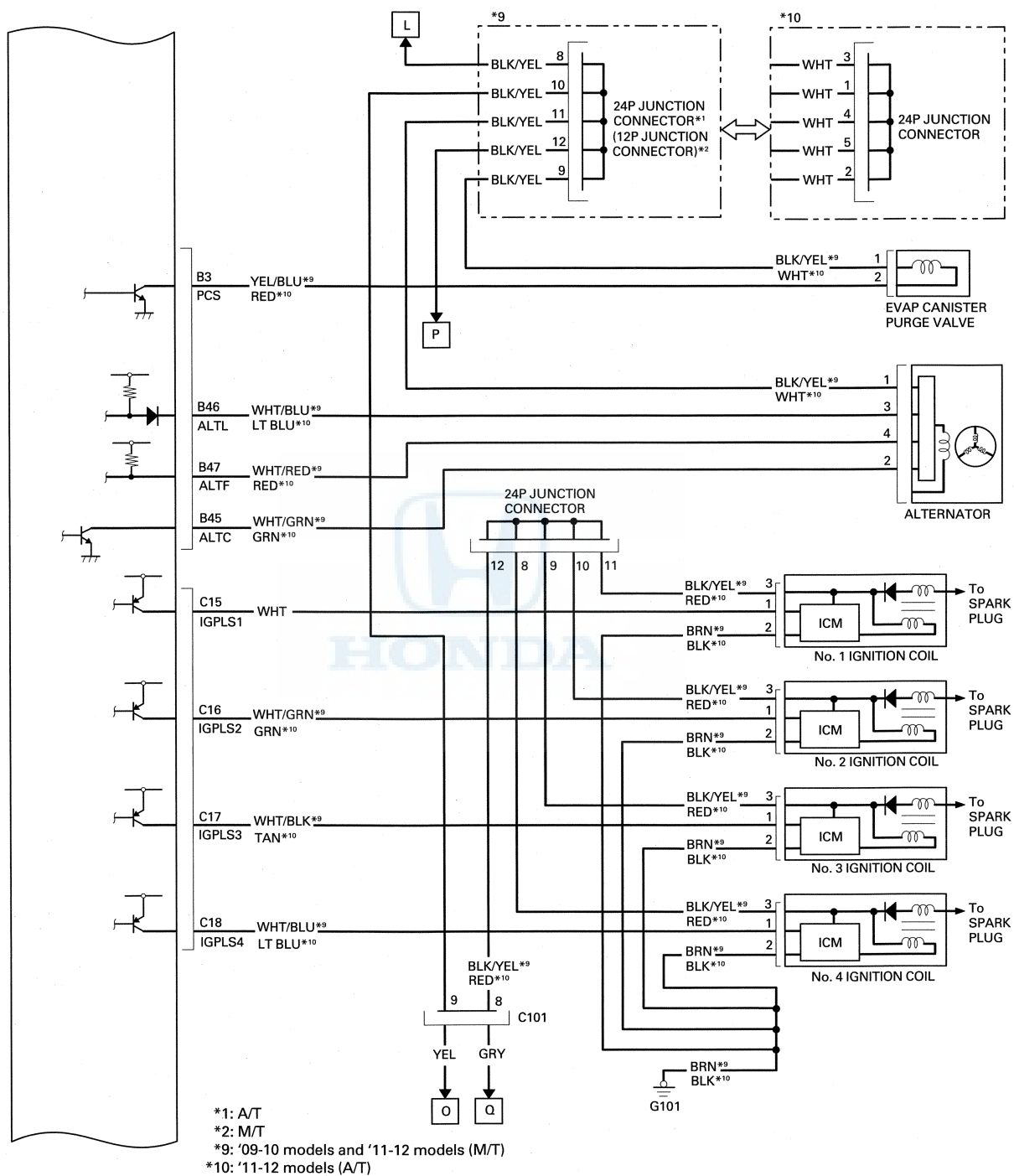
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Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Circuit Diagram (cont'd)



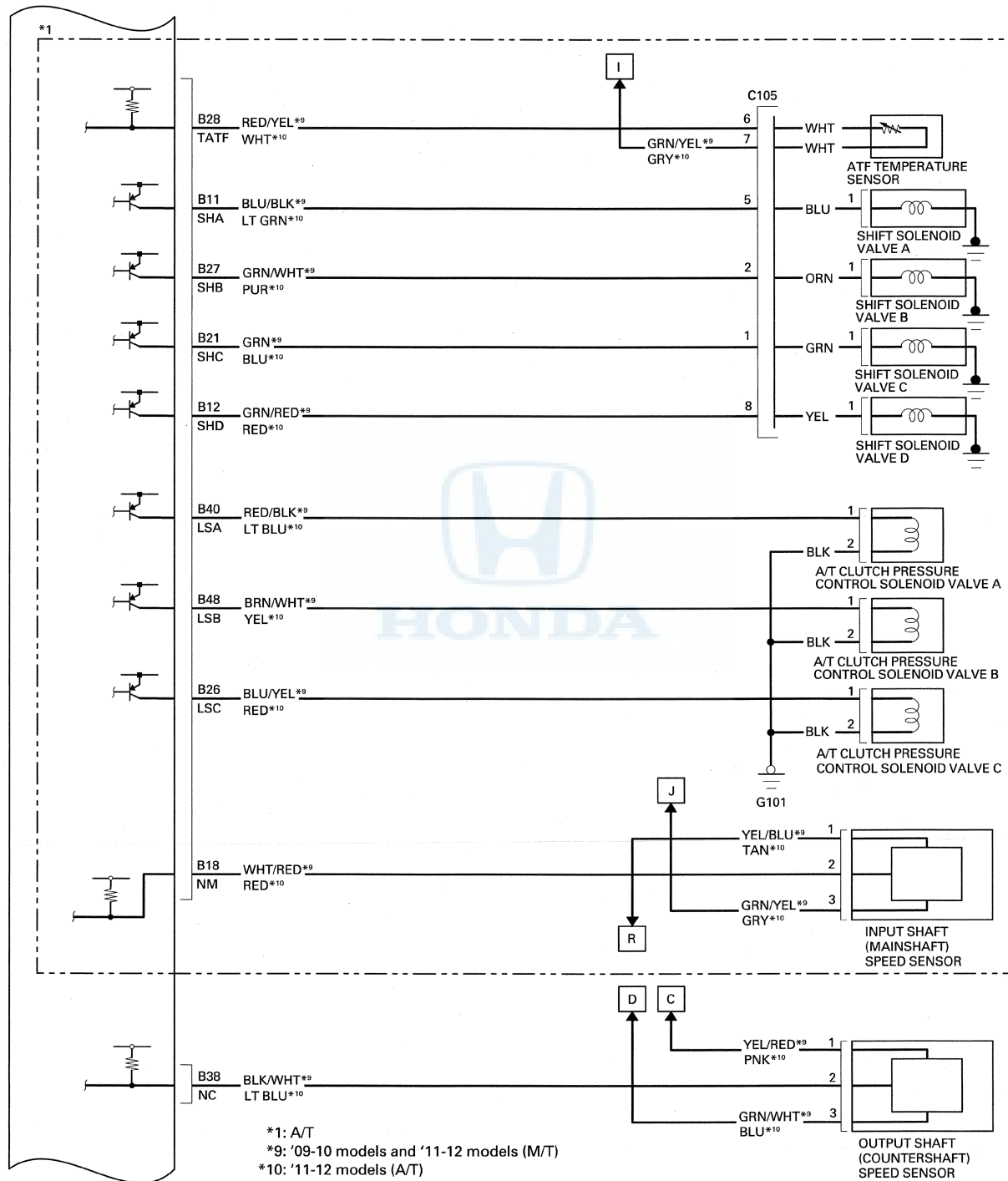


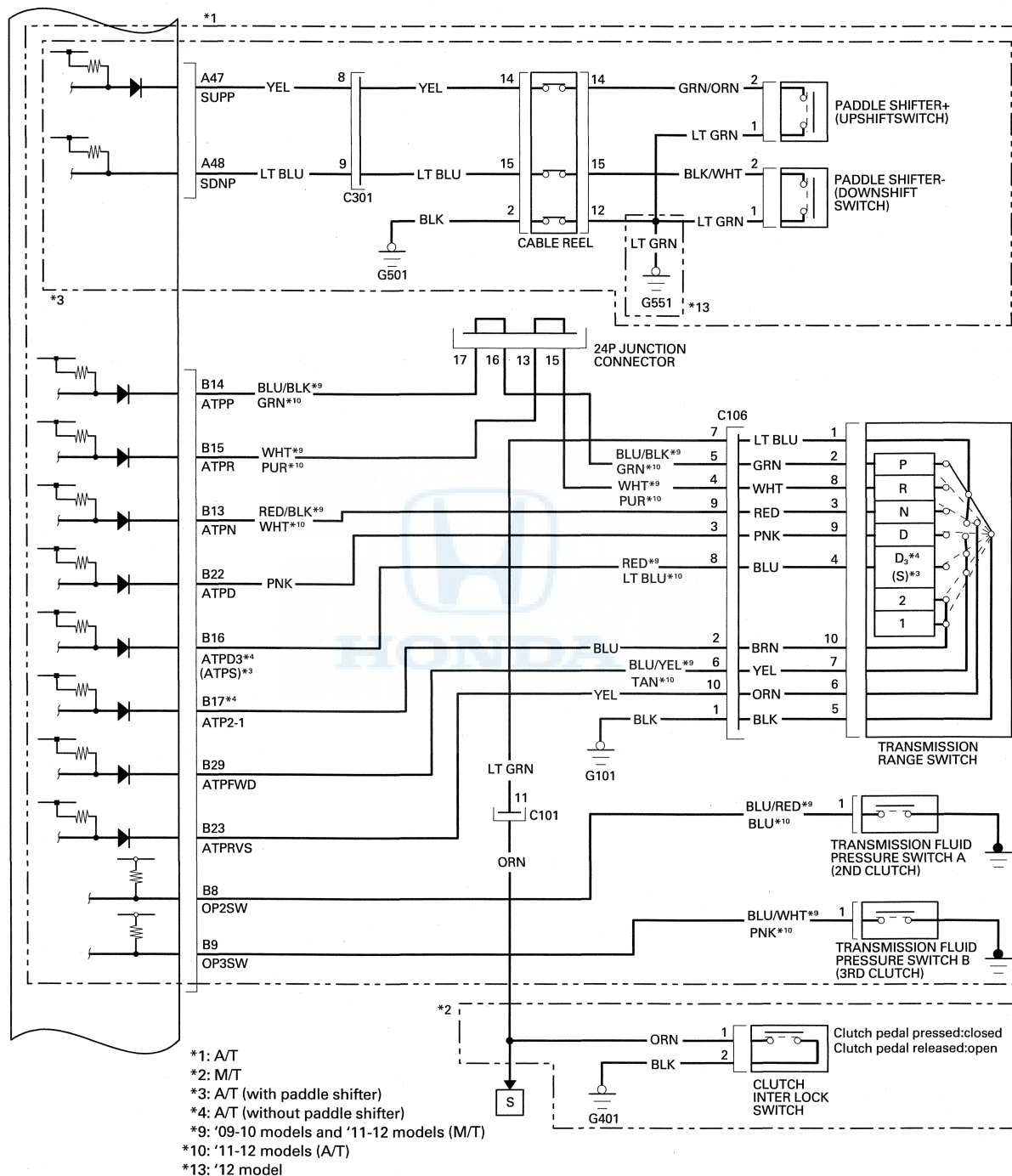
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Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Circuit Diagram (cont'd)



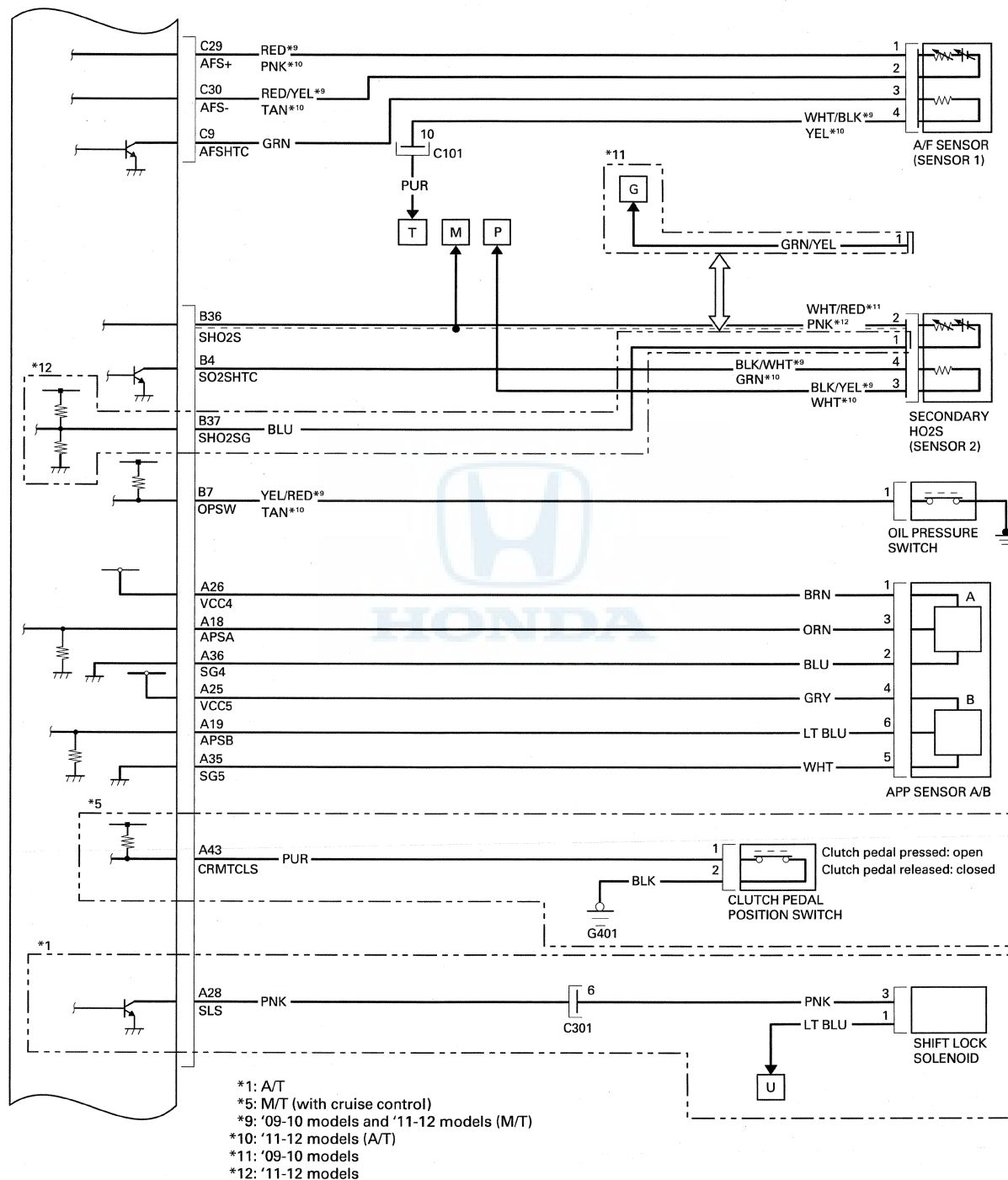


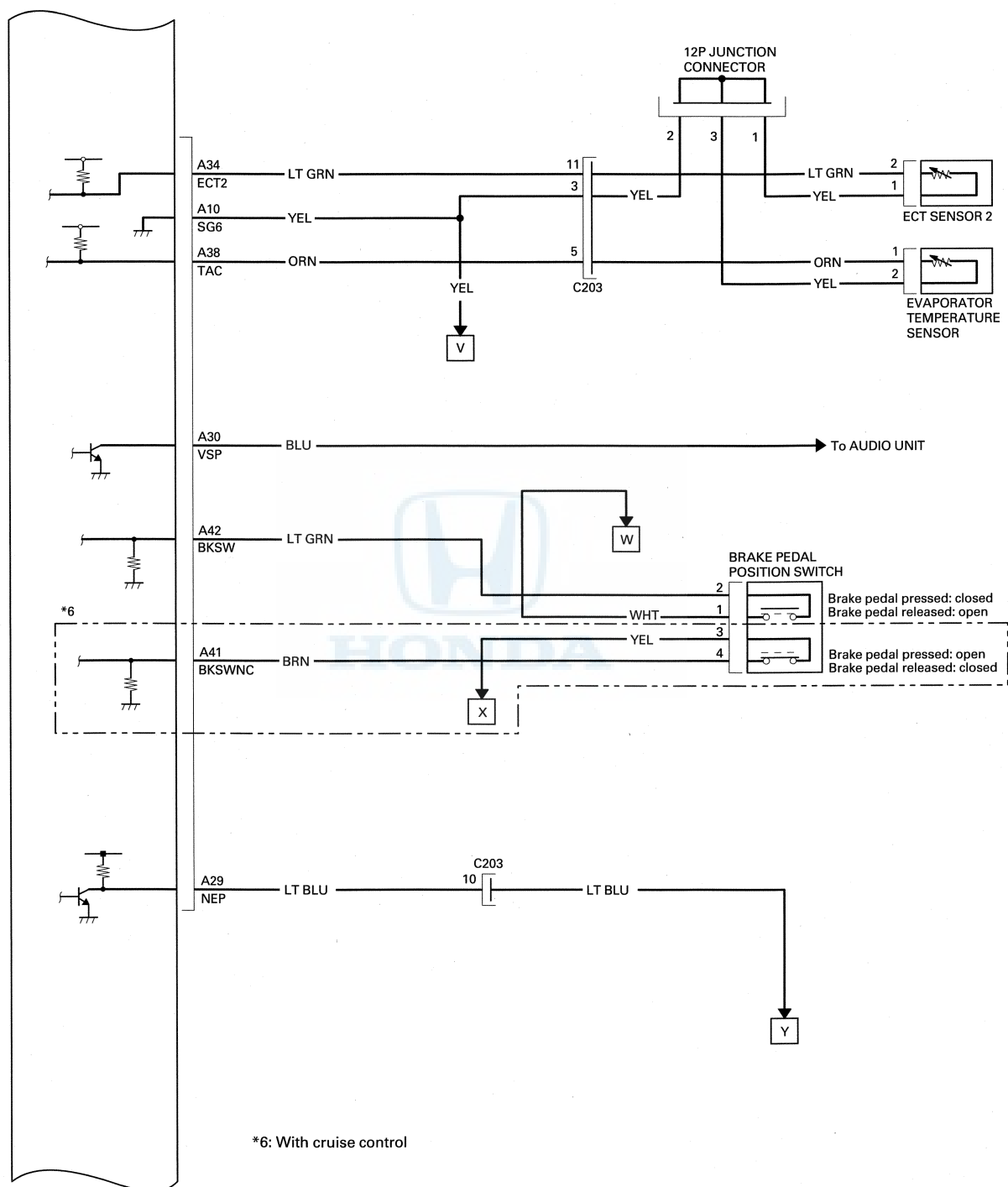
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Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Circuit Diagram (cont'd)



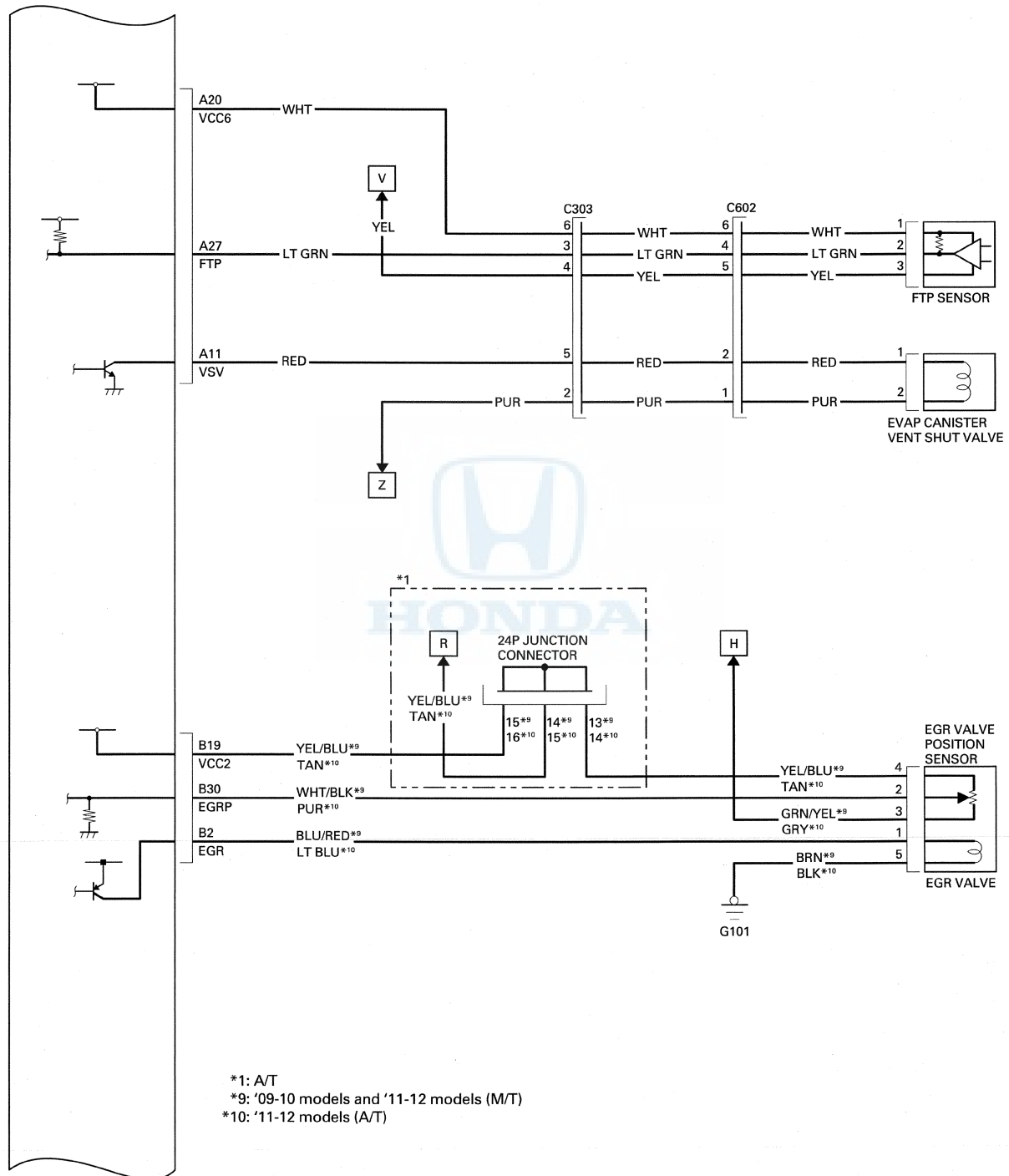


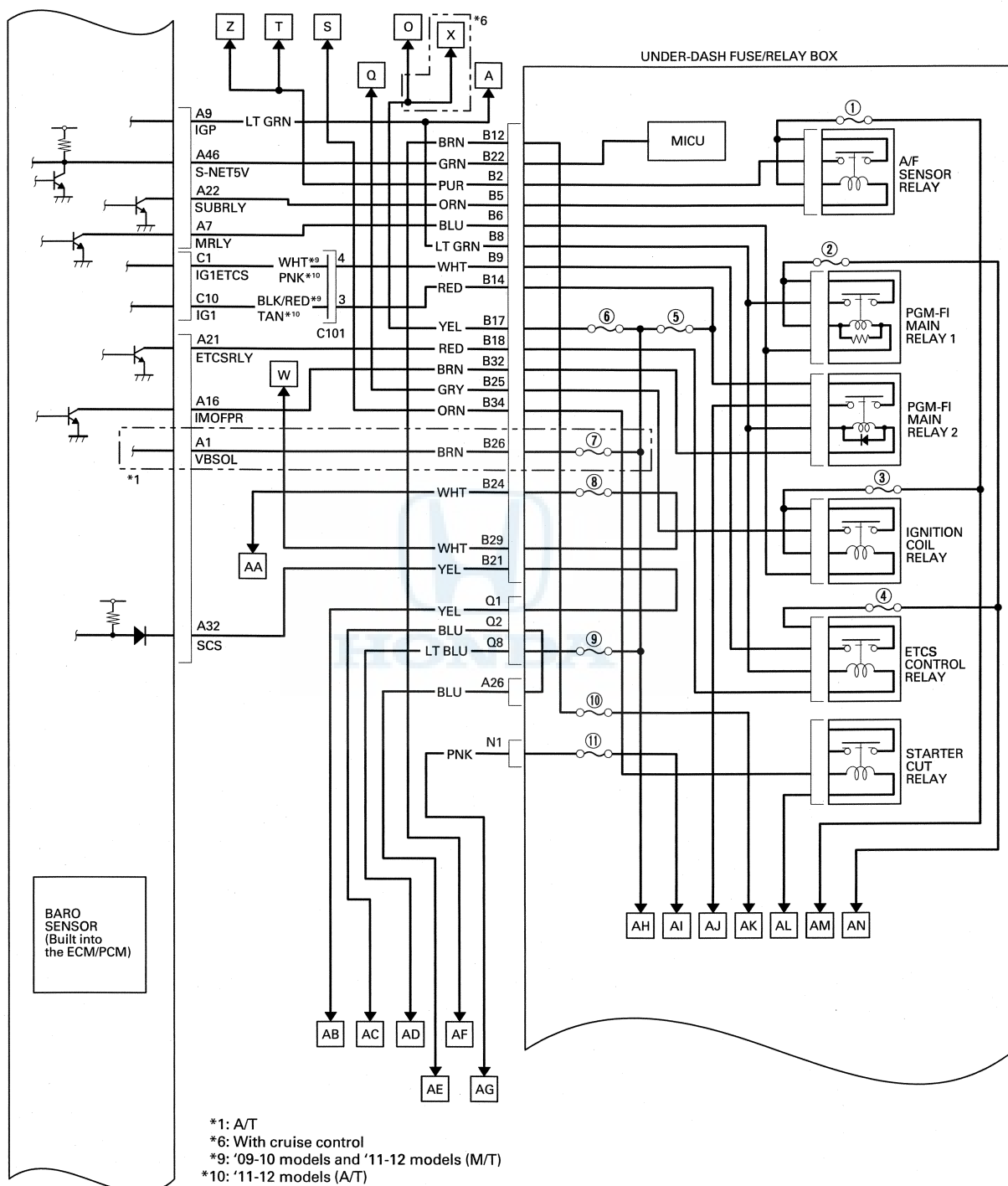
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Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Circuit Diagram (cont'd)



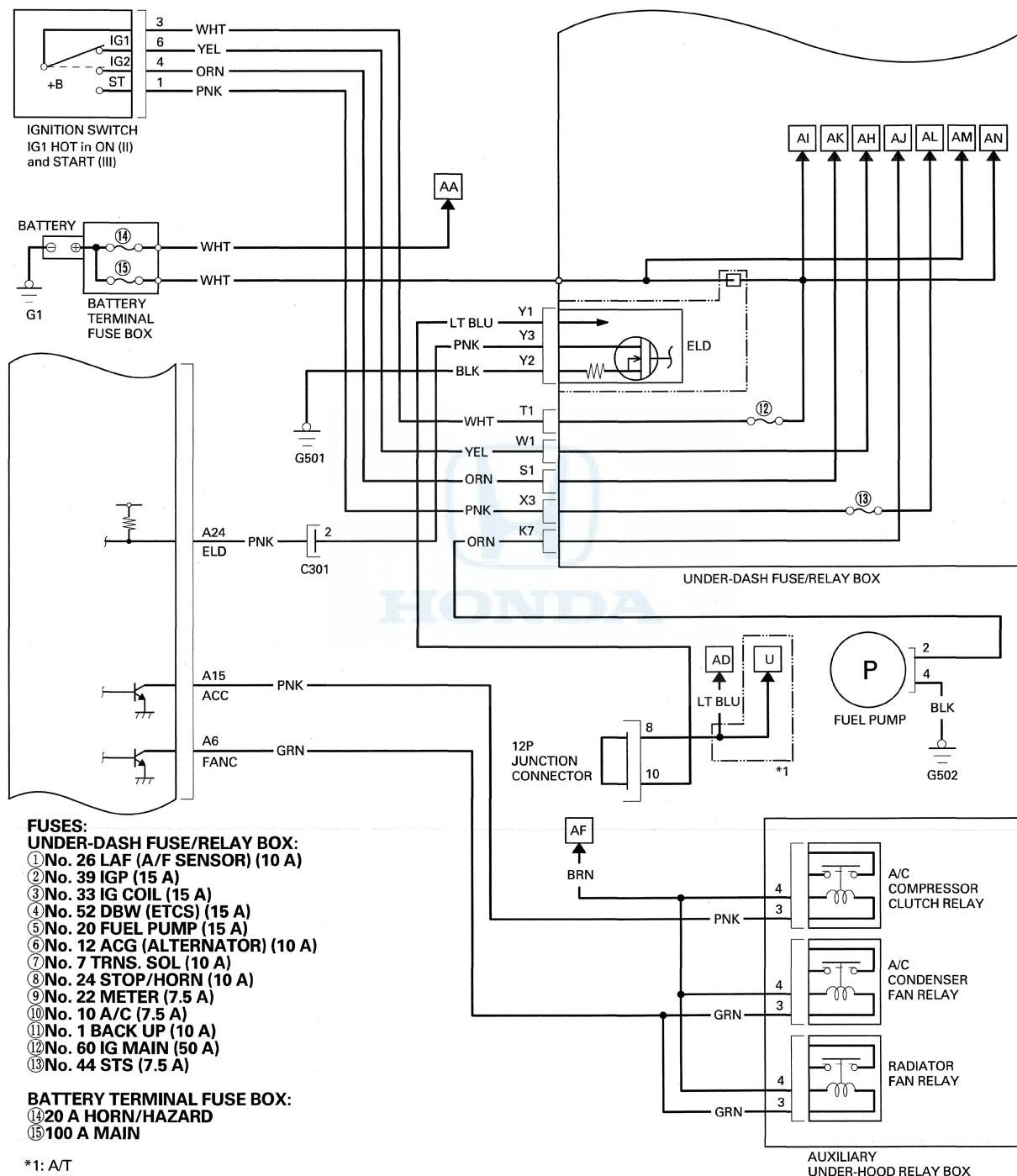


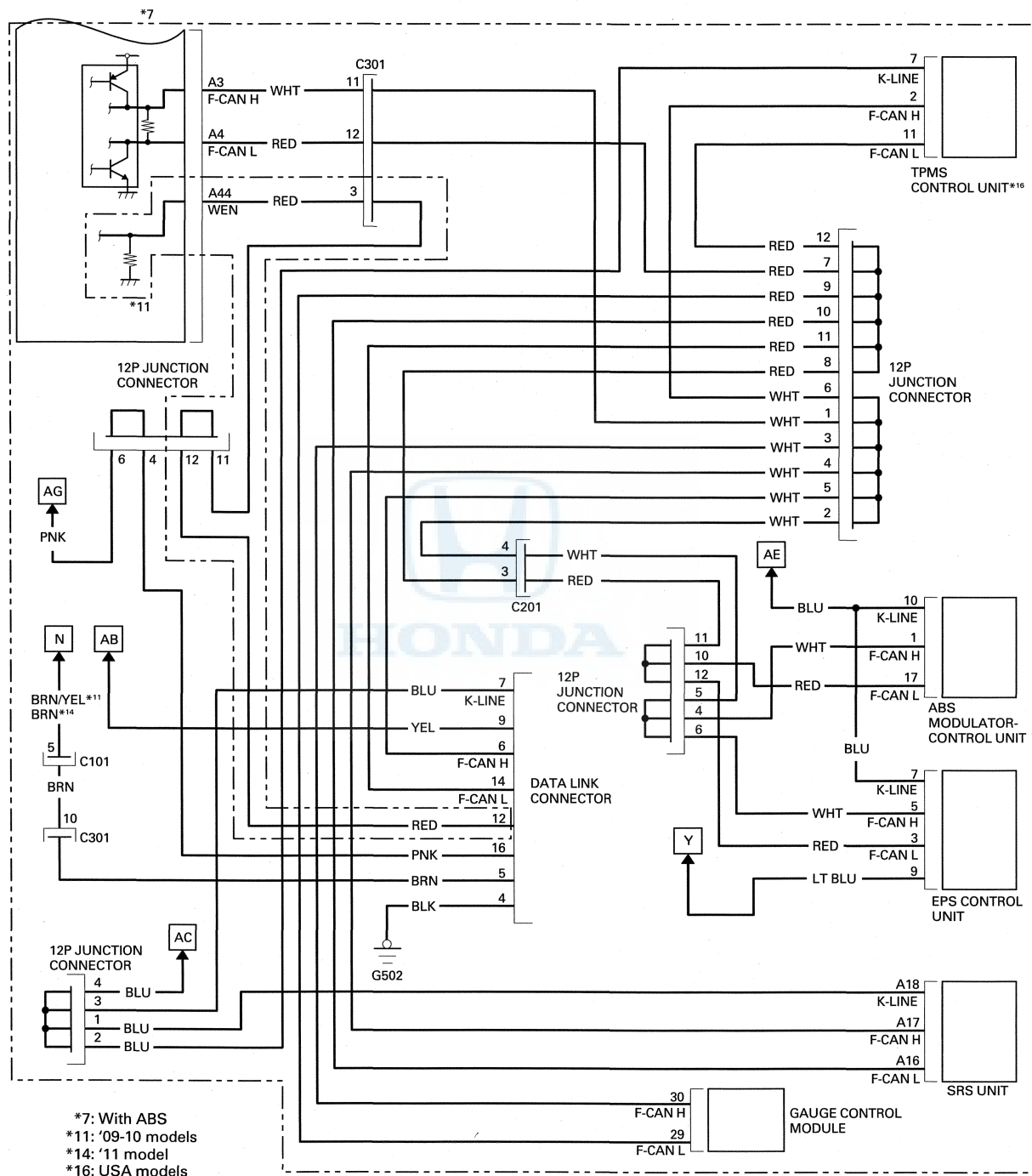
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Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Circuit Diagram (cont'd)



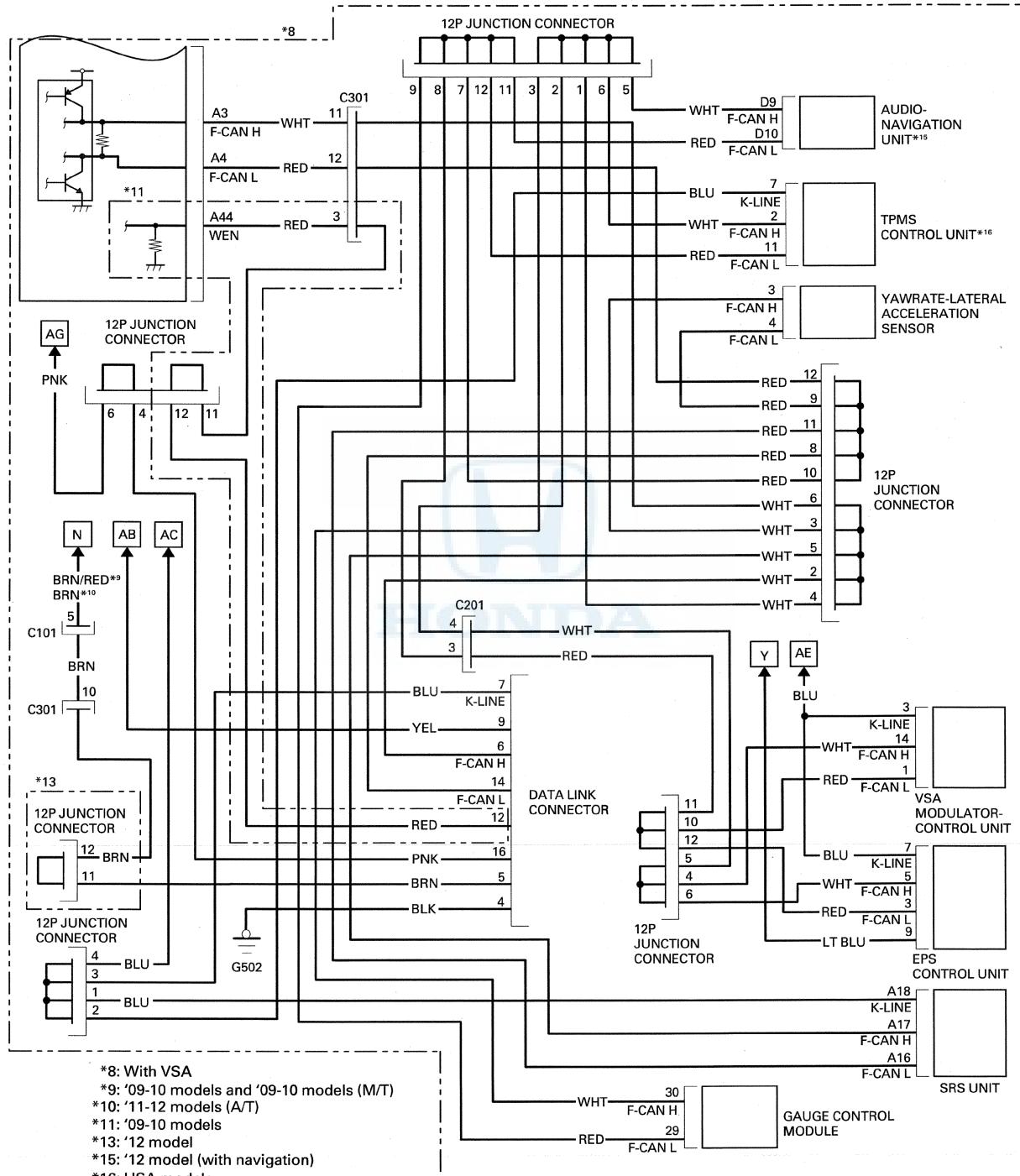


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Fuel and Emissions Systems

System Description (cont'd)

ECM/PCM Circuit Diagram (cont'd)





PGM-FI System

The programmed fuel injection (PGM-FI) system is a sequential multiport fuel injection system.

Alternator Control

The alternator signals the ECM/PCM during charging. The ECM/PCM then controls the voltage generated at the alternator according to the electrical load determined by the electrical load detector (ELD) and driving mode. This reduces engine load to improve fuel economy.

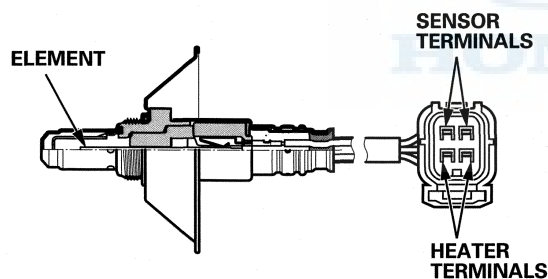
Air Conditioning (A/C) Compressor Clutch Relay

When the ECM/PCM receives a demand for cooling from the A/C system, it delays the compressor from being energized, and enriches the mixture to assure smooth transition to the A/C mode.

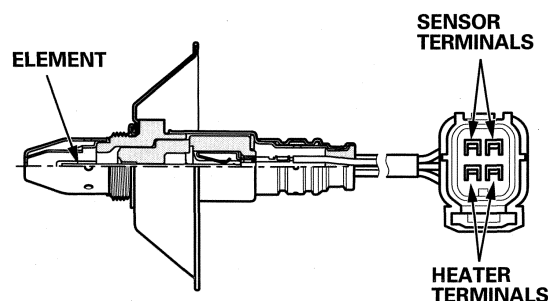
Air Fuel Ratio (A/F) Sensor

The A/F sensor operates over a wide air/fuel range. The A/F sensor is installed upstream of the warm up three way catalytic converter (WU-TWC), and sends signals to the ECM/PCM which varies the duration of fuel injection accordingly.

'09-10 models



'11-12 models

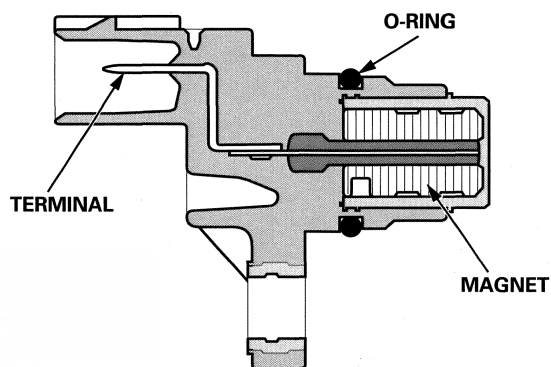


Barometric Pressure (BARO) Sensor

The BARO sensor is inside the ECM/PCM. It converts atmospheric pressure into a voltage signal that modifies the basic duration of the fuel injection discharge.

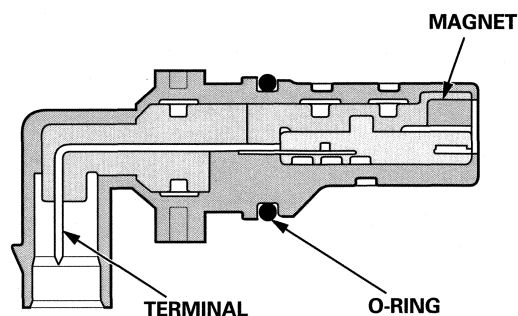
Camshaft Position (CMP) Sensor

The CMP sensor detects the position of the No. 1 cylinder as a reference for sequential fuel injection to each cylinder.



Crankshaft Position (CKP) Sensor

The CKP sensor detects crankshaft speed and is used by the ECM/PCM to determine ignition timing, timing for the fuel injection of each cylinder, and engine misfire detection.



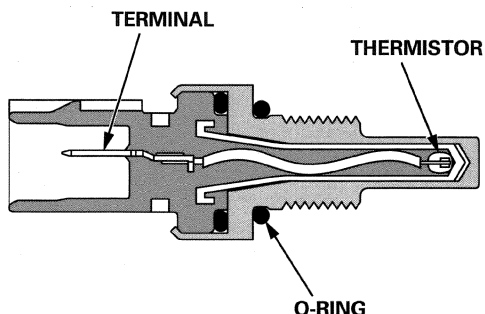
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Fuel and Emissions Systems

System Description (cont'd)

Engine Coolant Temperature (ECT) Sensors 1 and 2

ECT sensors 1 and 2 are temperature dependent resistors (thermistors). The resistance decreases as the engine coolant temperature increases.



Ignition Timing Control

The ECM/PCM contains the memory for basic ignition timing at various engine speeds and manifold absolute pressures. It also adjusts the timing according to engine coolant temperature and intake air temperature.

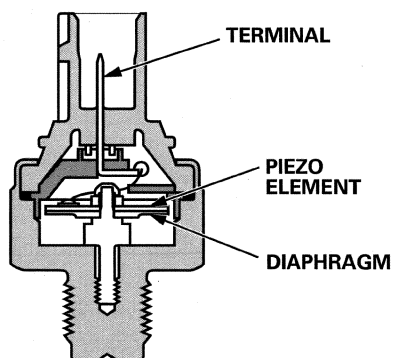
Injector Timing and Duration

The ECM/PCM contains the memory for basic discharge duration at various engine speeds and manifold pressures. The basic discharge duration, after being read out from the memory, is further modified by input from various sensors to obtain the final discharge duration.

By monitoring long term fuel trim, the ECM/PCM can detect long term malfunctions in the fuel system and set DTCs (diagnostic trouble codes) if needed.

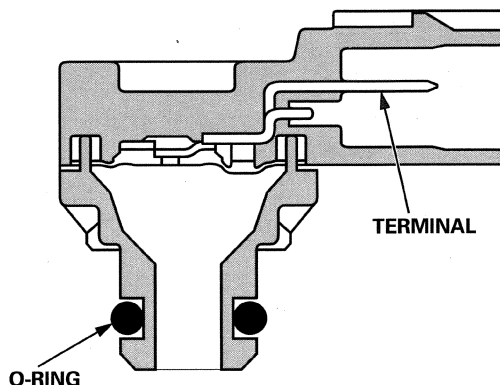
Knock Sensor

The knock control system adjusts the ignition timing to minimize knock.



Manifold Absolute Pressure (MAP) Sensor

The MAP sensor converts manifold absolute pressures into electrical signals to the ECM/PCM.



Malfunction Indicator Lamp (MIL) Indication (In relation to Readiness Codes)

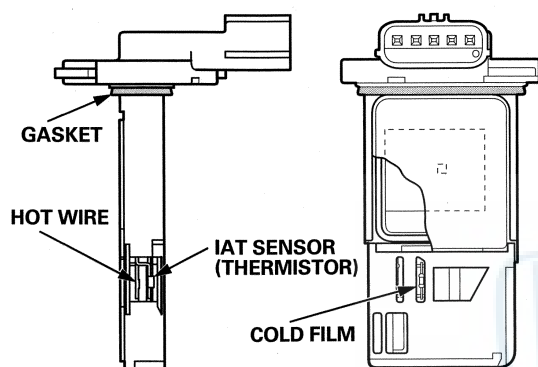
The vehicle has certain readiness codes that are part of the on-board diagnostics for the emissions systems. If the vehicle's battery has been disconnected or gone dead, if DTCs have been cleared, or if the ECM/PCM has been reset, these codes are reset. In some states, part of the emissions testing is to make sure these codes are set to complete. If all of them are not set to complete, the vehicle may fail the test, or the test cannot be finished.

To check if the readiness codes are set to complete, turn the ignition switch to ON (II), but do not start the engine. The MIL will come on for 15–20 seconds. If it then goes off, the readiness codes are complete. If it flashes five times, one or more readiness codes are not complete. To set each code, drive the vehicle or run the engine as described in the procedures (see page 11-63).



Mass Air Flow (MAF) Sensor/Intake Air Temperature (IAT) Sensor

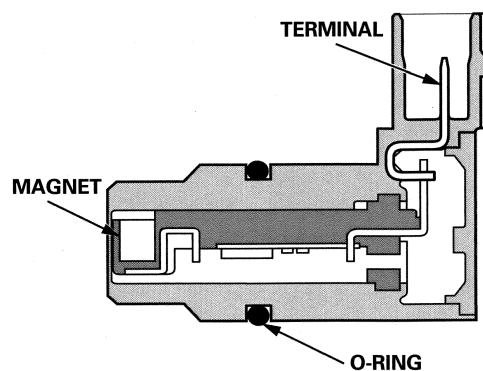
The mass air flow (MAF) sensor/intake air temperature (IAT) sensor contains a hot wire, a cold film, and a thermistor. The sensor is in the intake air passage. The resistance of the hot wire, the cold film, and the thermistor changes due to intake air temperature and air flow. The control circuit in the MAF sensor controls the current to keep the hot wire at a set temperature. The current is converted to voltage in the control circuit, then output to the ECM/PCM.



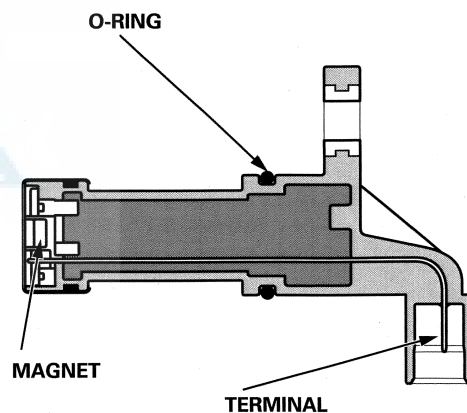
Output Shaft (Countershaft) Speed Sensor

This sensor detects countershaft speed.

M/T



A/T



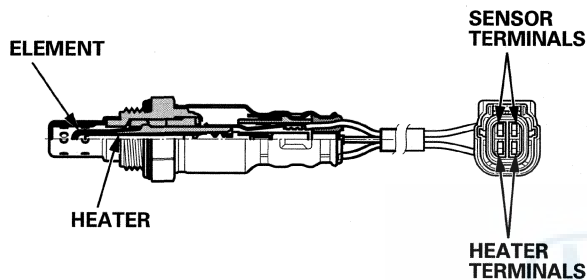
(cont'd)

Fuel and Emissions Systems

System Description (cont'd)

Secondary Heated Oxygen Sensor (Secondary HO2S)

The secondary HO2S detects the oxygen content in the exhaust gas downstream of the three way catalytic converter (TWC), and sends signals to the ECM/PCM which varies the duration of fuel injection accordingly. To stabilize its output, the sensor has an internal heater. The ECM/PCM compares the HO2S output with the A/F sensor output to determine catalyst efficiency. The secondary HO2S is installed upstream of the under-floor three way catalytic converter (TWC).



Electronic Throttle Control System

The throttle is electronically controlled by the electronic throttle control system (ETCS). Refer to the system diagram to see a functional layout of the system.

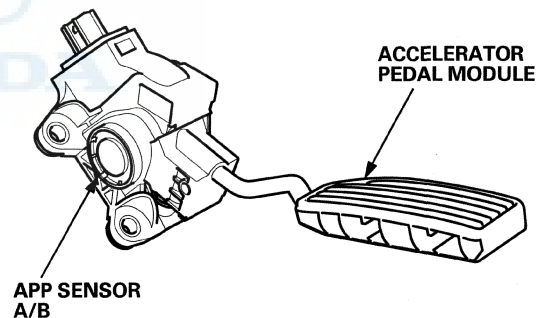
Idle control: When the engine is idling, the ECM/PCM controls the throttle actuator to maintain the proper idle speed according to engine loads.

Acceleration control: When the accelerator pedal is pressed, the ECM/PCM opens the throttle valve depending on the accelerator pedal position (APP) sensor signal.

Cruise control: The ECM/PCM controls the throttle actuator to maintain the set speed when cruise control is operating. The throttle actuator takes the place of the cruise control actuator.

Accelerator Pedal Position (APP) Sensor

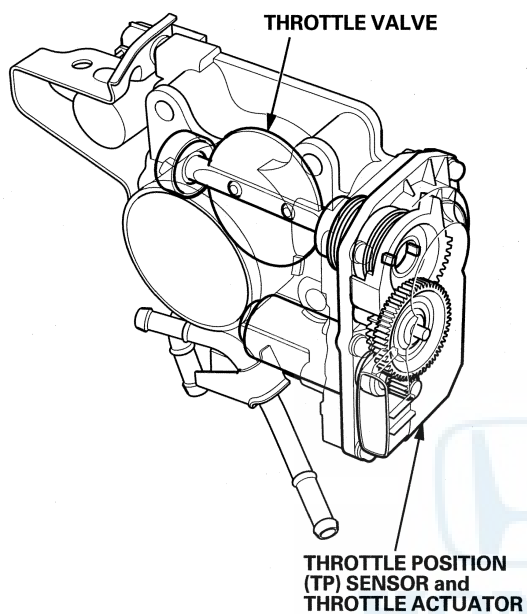
As the accelerator pedal position changes, the sensor varies the signal voltage to the ECM/PCM which then controls the throttle position.





Throttle Body

The throttle body is a single-barrel side draft type. To prevent icing of the throttle plate, the lower portion of the throttle valve is heated by engine coolant from the cylinder head.



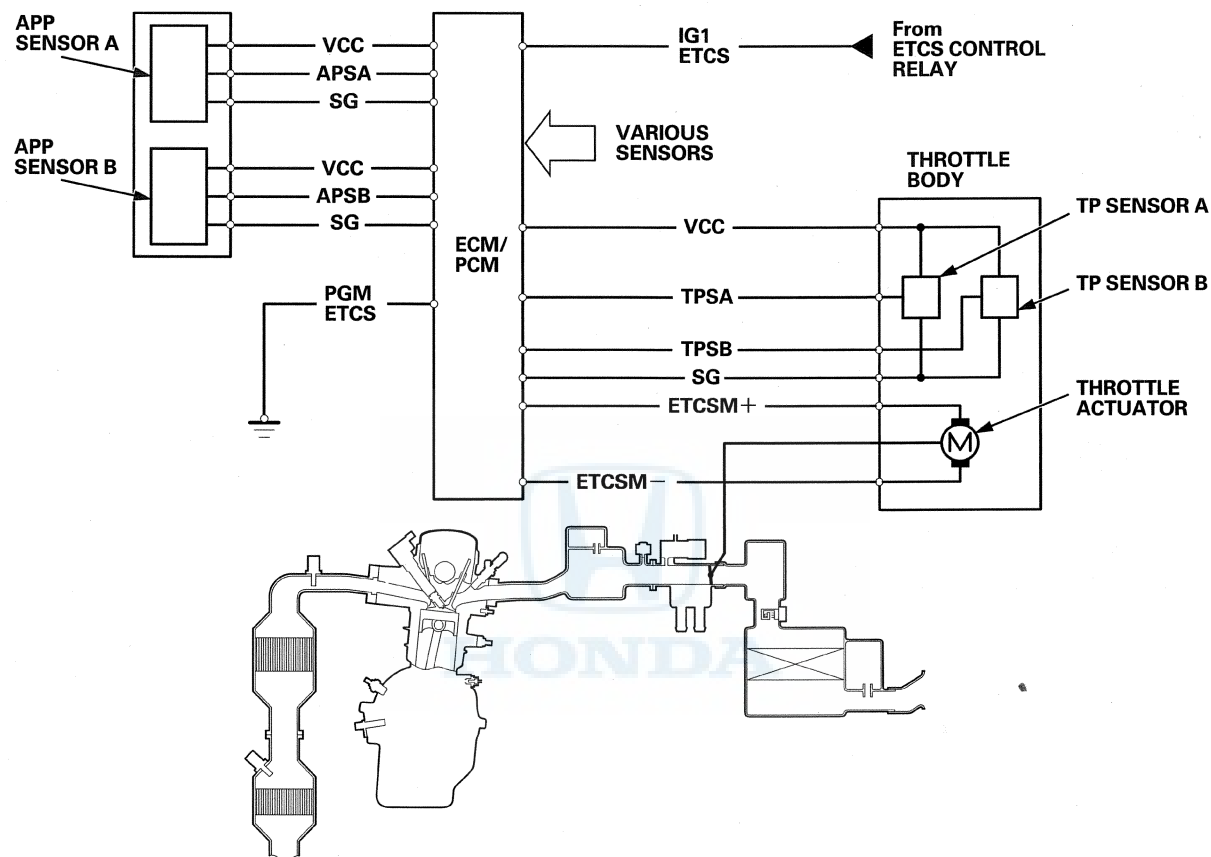
(cont'd)

Fuel and Emissions Systems

System Description (cont'd)

Electronic Throttle Control System Diagram

The electronic throttle control system consists of the throttle actuator, TP sensor A/B, the APP sensor A/B, the ETCS control relay, and the ECM/PCM.

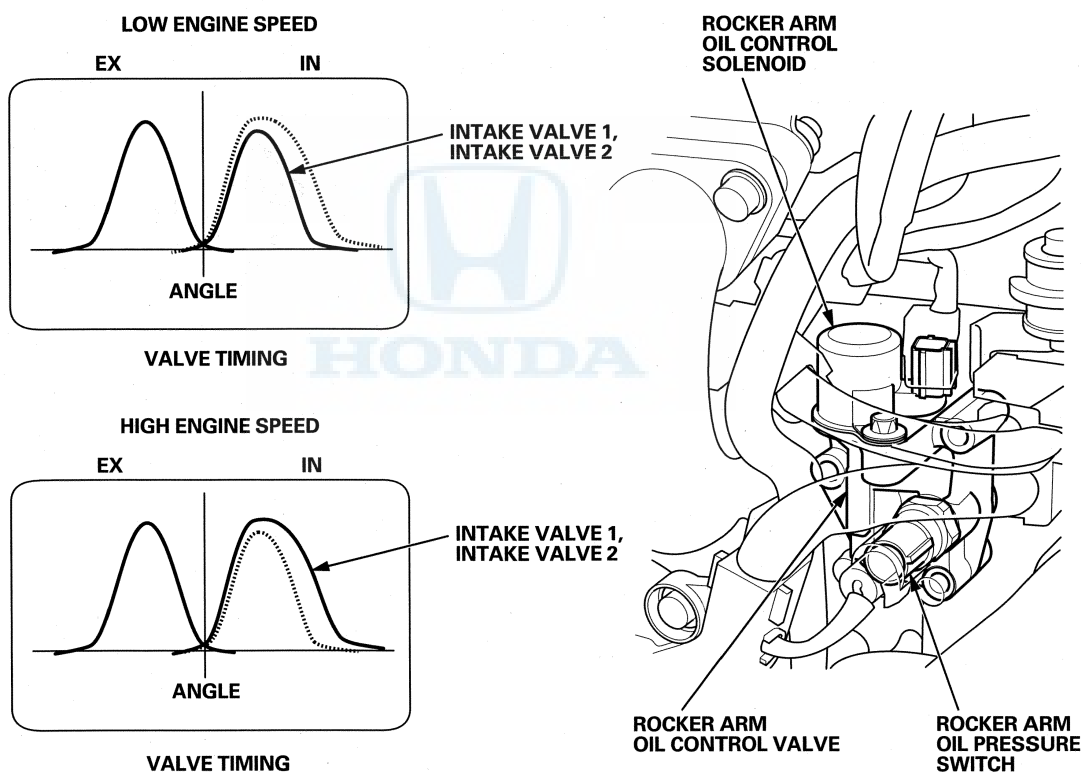




VTEC

- This system improves fuel efficiency and reduces exhaust emissions at all levels of engine speed, vehicle speed, and engine load.
- The VTEC system changes the cam profile to correspond to engine speed. It maximizes torque at low engine speed and output at high engine speed.
- The low lift cam is used at low engine speeds, and the high lift cam is used at high engine speeds.
- The rocker arm oil control solenoid switches both intake rocker arms of the VTEC system on and off; the solenoid is controlled by the ECM/PCM.
- The rocker arm oil pressure switch detects VTEC system oil pressure and sends this information to the ECM/PCM.

ENGINE SPEED	ROCKER ARM OIL CONTROL SOLENOID	ROCKER ARM OIL PRESSURE SWITCH	INTAKE VALVE LIFT
LOW	OFF	ON	LOW
HIGH	ON	OFF	HIGH



(cont'd)

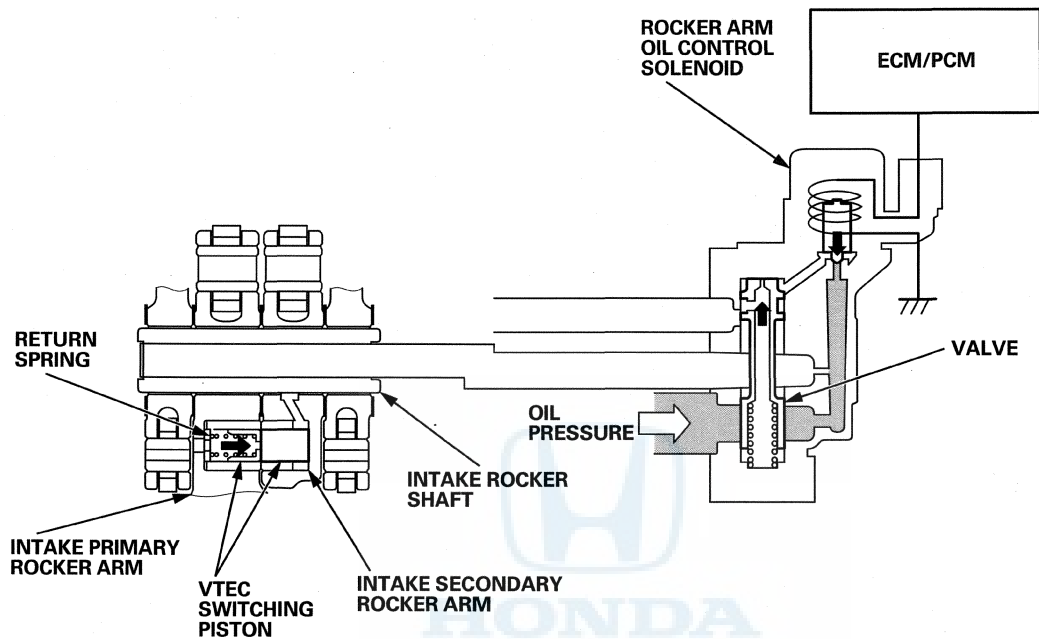
Fuel and Emissions Systems

System Description (cont'd)

Operation

Low engine speed

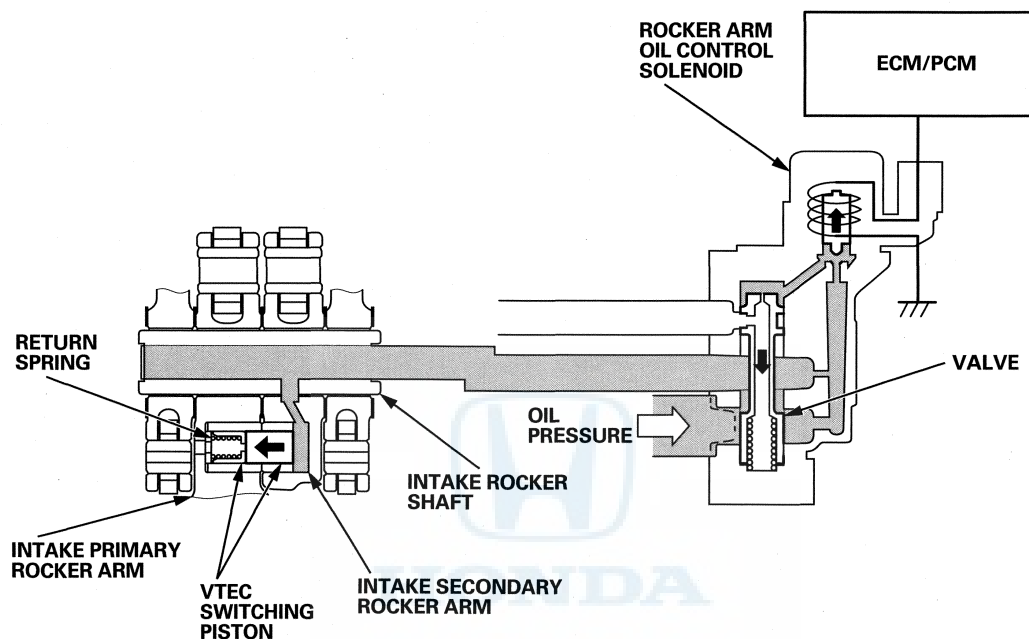
At low engine speed, the rocker arm oil control solenoid is turned off by the ECM/PCM. Oil pressure from the rocker arm oil control valve does not enter the intake rocker shaft. Both intake rocker arms are lifted by the low lift cam lobe.





High engine speed

At high engine speed, the rocker arm oil control solenoid is turned on by the ECM/PCM. Oil pressure from the rocker arm oil control solenoid enters into the intake secondary rocker arm via the intake rocker shaft, and it moves the VTEC switching piston in the rocker arm. This causes the VTEC switching piston to slide into the intake primary rocker arm, locking the intake primary and secondary rocker arms together. Both intake rocker arms are lifted by the high lift cam lobe.



(cont'd)

Fuel and Emissions Systems

System Description (cont'd)

Idle Control System

When the engine is cold, the A/C compressor is on, the transmission is in gear, the brake pedal is pressed, or the alternator is charging, the ECM/PCM sends signals to the throttle actuator to maintain the correct idle speed.

Brake Pedal Position Switch

The brake pedal position switch signals the ECM/PCM when the brake pedal is pressed.

Fuel Supply System

Fuel Cutoff Control

During deceleration with the throttle valve closed, current to the injectors is cut off to improve fuel economy at engine speeds over 850 rpm (A/T) (M/T: 907 rpm). Fuel cutoff also occurs when the engine speed exceeds 7,000 rpm, regardless of the position of the throttle valve, to protect the engine from over-revving. When the vehicle is stopped, the ECM/PCM cuts the fuel at engine speeds over 5,000 rpm (A/T) (M/T: 4,800 rpm). On a cold engine, fuel cut occurs at a lower engine speed.

Fuel Pump Control

When the ignition switch is turned to ON (II), the ECM/PCM grounds PGM-FI main relay 2 which feeds current to the fuel pump for 2 seconds to pressurize the fuel system. With the engine running, the ECM/PCM grounds PGM-FI main relay 2 and feeds current to the fuel pump. When the engine is not running and the ignition switch is turned to ON (II), the ECM/PCM cuts ground to PGM-FI main relay 2 which cuts current to the fuel pump.

PGM-FI Main Relays 1 and 2

PGM-FI main relay 1 is energized whenever the ignition switch is turned to ON (II) to supply battery voltage to the ECM/PCM, to power the injectors, and to power PGM-FI main relay 2. PGM-FI main relay 2 is energized to supply power to the fuel pump for 2 seconds when the ignition switch is turned to ON (II) and when the engine is cranking or running.

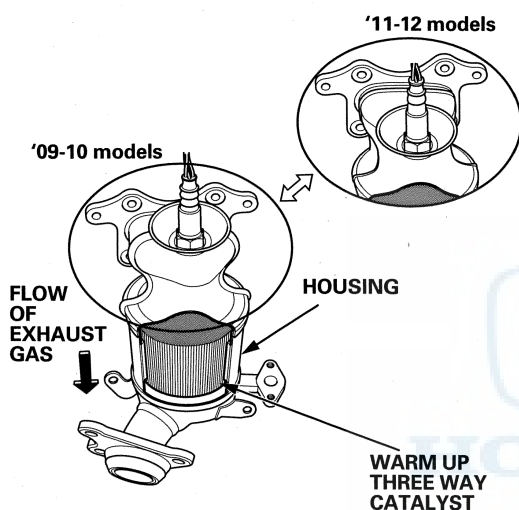


Catalytic Converter System

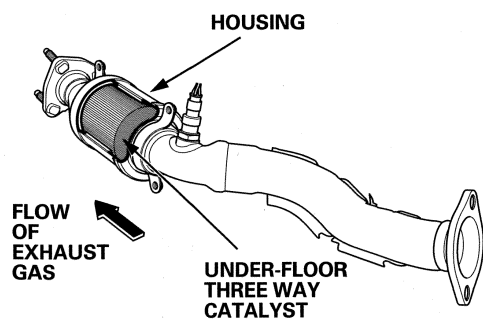
Warm Up Three Way Catalytic Converter (WU-TWC) and Under-floor Three Way Catalytic Converter (Under-floor TWC)

The WU-TWC and the under-floor TWC convert hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) in the exhaust gas to carbon dioxide (CO₂), nitrogen (N₂), and water vapor.

WU-TWC (ATTACHED TO THE CYLINDER HEAD)



UNDER-FLOOR TWC



Exhaust Gas Recirculation (EGR) System

Refer to the system diagram to see a functional layout of the system.

EGR Valve

The EGR valve lowers peak combustion temperatures and reduces oxides of nitrogen emissions (NOx) by recirculating exhaust gas through the intake manifold and into the combustion chambers.

(cont'd)

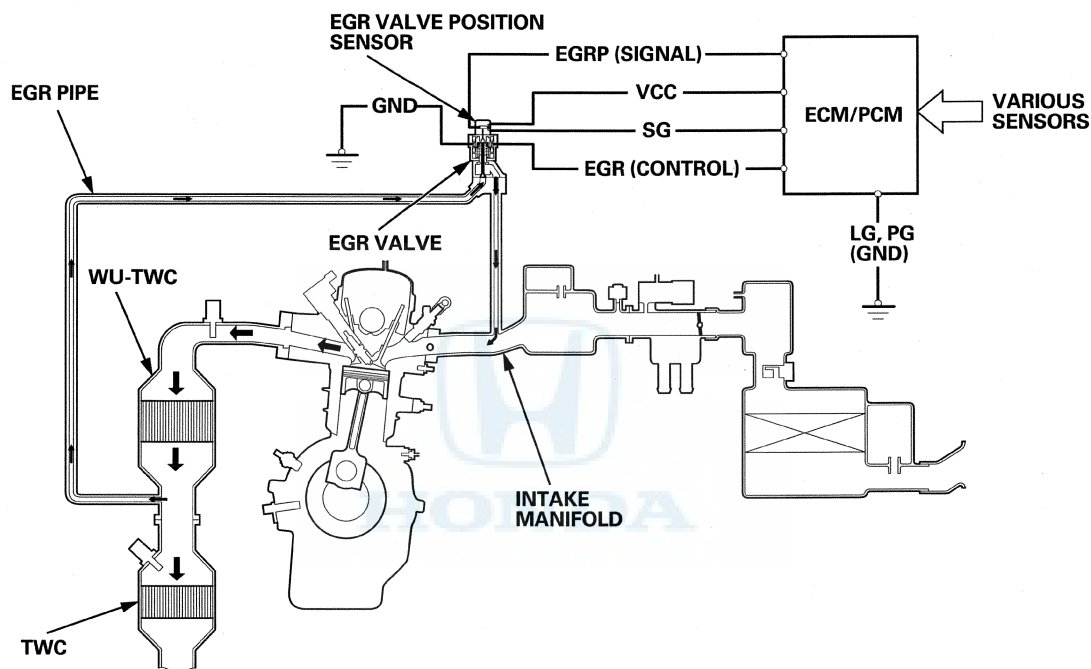
Fuel and Emissions Systems

System Description (cont'd)

Exhaust Gas Recirculation (EGR) System Diagram

The EGR system reduces oxides of nitrogen (NOx) emissions by recirculating exhaust gas through the EGR pipe and the intake manifold, and into the combustion chambers. Routing the exhaust gas through the EGR pipe helps to prevent carbon deposits from forming in the intake manifold and the throttle body. The ECM/PCM memory contains the ideal EGR valve position for varying operating conditions.

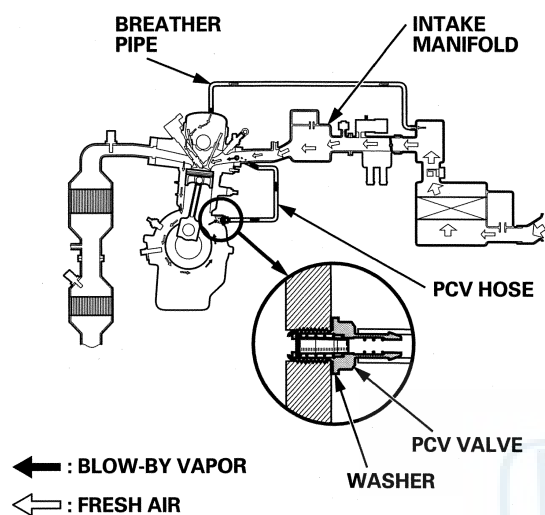
The EGR valve position sensor detects the amount of EGR valve lift and sends it to the ECM/PCM. The ECM/PCM then compares it with the ideal lift in its memory (based on signals sent from other sensors). If there is any difference between the two, the ECM/PCM adjusts the current to the EGR valve.





Positive Crankcase Ventilation (PCV) System

The PCV valve prevents blow-by gasses from escaping into the atmosphere by venting them into the intake manifold.



Evaporative Emission (EVAP) System

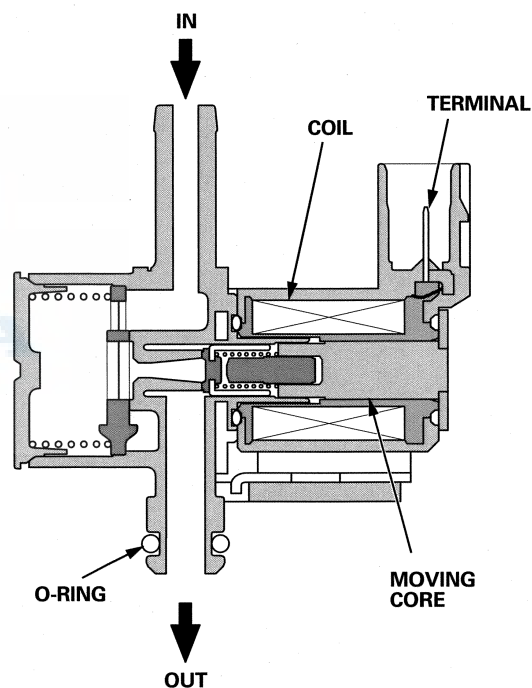
Refer to the system diagram to see a functional layout of the system.

EVAP Canister

The EVAP canister temporarily stores fuel vapor from the fuel tank until it can be purged back into the engine and burned.

EVAP Canister Purge Valve

When the engine coolant temperature is below 140 °F (60 °C), the ECM/PCM does not duty cycle (turn off) the EVAP canister purge valve, which prevents the purging of the EVAP canister.



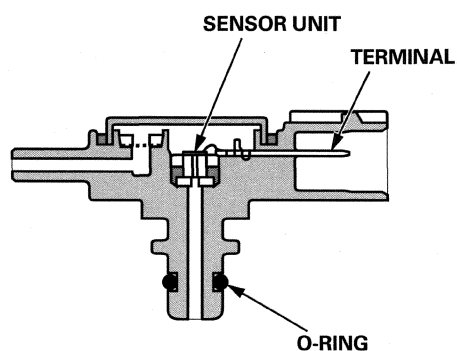
(cont'd)

Fuel and Emissions Systems

System Description (cont'd)

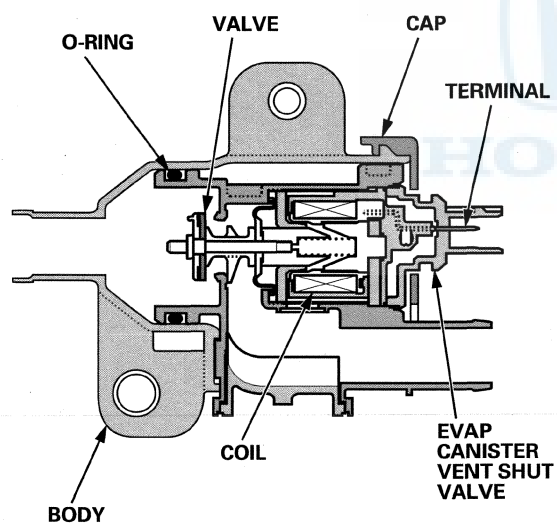
Fuel Tank Pressure (FTP) Sensor

The FTP sensor converts fuel tank absolute pressure into an electrical input to the ECM/PCM.



EVAP Canister Vent Shut Valve

The EVAP canister vent shut valve controls the venting of the EVAP canister.



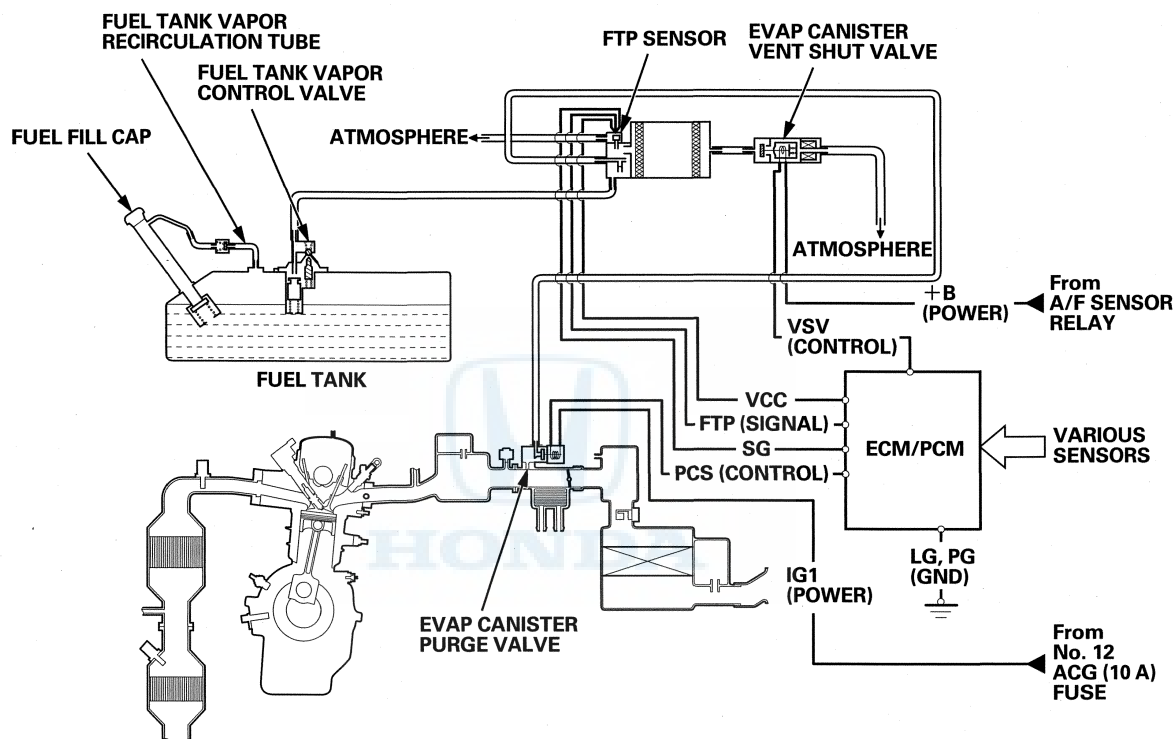


Evaporative Emission (EVAP) Control Diagram

The EVAP controls minimize the amount of fuel vapor escaping to the atmosphere. Vapor from the fuel tank is temporarily stored in the EVAP canister until it can be purged from the canister into the engine and burned.

The EVAP canister is purged by drawing fresh air through it and into a port on the intake manifold.

The purging vacuum is controlled by the EVAP canister purge valve, which operates whenever the engine coolant temperature is above 140 °F (60 °C).



(cont'd)

Fuel and Emissions Systems

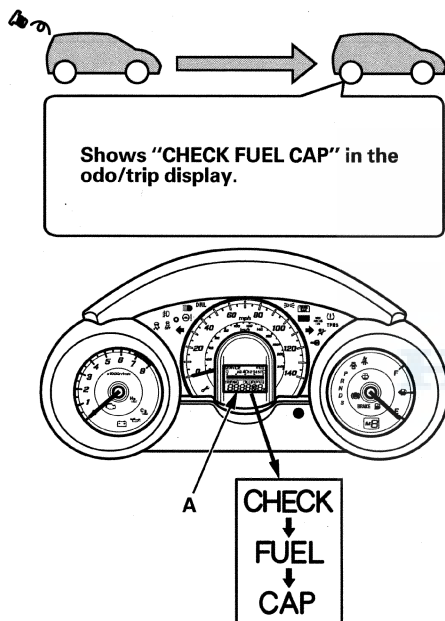
System Description (cont'd)

Fuel Cap Warning Message

The ECM/PCM detects a loose or missing fuel fill cap as an evaporative system leak and alerts the driver by showing a warning message in the odo/trip display.

First drive cycle

The first time a leak is detected, a CHECK FUEL CAP message appears on the odo/trip display (A). To scroll to another message, press the select/reset button. The CHECK FUEL CAP message appears each time you restart the engine until the system turns the message off. Turn the engine off, then replace or tighten the fuel fill cap until it clicks at least once.



How to clear the message with the HDS

Procedure

1. Tighten the fuel fill cap until it clicks.
2. Clear the Pending DTC with the HDS.
3. Verify there is no leak by doing the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

How to clear the message without the HDS

Procedure

1. Tighten the fuel fill cap until it clicks.
2. Start the engine, then turn the ignition switch to LOCK (0).
3. Repeat step 2 two more times.



How to Set Readiness Codes

Malfunction Indicator Lamp (MIL) Indication (In relation to Readiness Codes)

The vehicle has certain readiness codes that are part of the on-board diagnostics for the emissions systems. If the vehicle's battery has been disconnected or gone dead, if the DTCs have been cleared, or if the ECM/PCM has been reset, these readiness codes are reset to incomplete. In some states, part of the emissions testing is to make sure these codes are set to complete. If all of them are not set to complete, the vehicle may fail the emission test, or the test cannot be finished.

To check if the readiness codes are set to complete, turn the ignition switch ON (II), but do not start the engine. The MIL will come on for 15–20 seconds. If it then goes off, the readiness codes are set to complete. If it flashes five times, one or more readiness codes are not set to complete. To set readiness codes from incomplete to complete, do the procedure for the appropriate code.

To check the status of a specific DTC system, check the OBD status in the DTC MENU with the HDS (see page 11-9). This screen displays the code, the current data list of the enable criteria, and the status of the readiness testing.

Catalytic Converter Monitor and Readiness Code

NOTE:

- Do not turn the ignition switch to ACCESSORY (I) or to LOCK (0) during the procedure.
- All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the ECM/PCM is reset with the HDS.
- Low ambient temperatures or excessive stop-and-go traffic may increase the drive time needed to switch the readiness code from incomplete to complete.
- The readiness code will not switch to complete until all the enable criteria are met.
- If a fault in the secondary HO2S system caused the MIL to come on, the readiness code cannot be set to complete until you correct the fault.

Enable Criteria

- ECT SENSOR 1 at 158 °F (70 °C) or more.
- IAT SENSOR at 20 °F (–7 °C) or more.
- VEHICLE SPEED above 25 mph (40 km/h).

Procedure

1. Connect the HDS to the vehicle's data link connector (DLC), and bring up the READINESS CODEs screen for Catalyst in the DTCs MENU.
2. Start the engine.
3. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. After about 5 miles (8 km), the readiness code should switch to complete.
4. If the readiness code is still not set to complete, check for a Pending DTC with the HDS. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

(cont'd)

Fuel and Emissions Systems

How to Set Readiness Codes (cont'd)

Evaporative Emission (EVAP) Control System Monitor and Readiness Code

NOTE: All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the ECM/PCM is reset with the HDS.

Enable Criteria

- Battery voltage is more than 10.5 V.
- Engine at idle.
- ECT SENSOR 1 and ECT SENSOR 2 between 176 °F (80 °C) and 212 °F (100 °C).
- MAP sensor less than 46.6 kPa (14 in Hg, 350 mmHg).
- VEHICLE SPEED 0 mph (0 km/h).
- IAT SENSOR 1 between 32 °F (0 °C) and 212 °F (100 °C).

Procedure

1. Connect the HDS to the DLC.
2. Start the engine.
3. Select EVAP TEST in the INSPECTION MENU with the HDS, then select the FUNCTION TEST in the EVAP TEST MENU.
 - If the result is normal, readiness is complete.
 - If the result is not normal, go to the next step.
4. Check for a Pending DTC. If there is no DTC, one or more of the enable criteria were probably not met; repeat the procedure.

Air Fuel Ratio (A/F) Sensor Monitor and Readiness Code

NOTE:

- Do not turn the ignition switch to ACCESSORY (I) or to LOCK (0) during the procedure.
- All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the ECM/PCM is reset with the HDS.

Enable Criteria

ECT SENSOR 1 at 140 °F (60 °C) or more.

Procedure

1. Start the engine.
2. Test-drive the vehicle under stop-and-go conditions with short periods of steady cruise. During the drive, decelerate (with the throttle fully closed) for 5 seconds. After about 3.5 miles (5.6 km), the readiness code should switch from incomplete to complete.
3. Check the readiness codes screen for the AIR FUEL RATIO (A/F) SENSOR in the DTCs MENU with the HDS.
 - If the HDS indicates complete, readiness is complete.
 - If the HDS indicates not complete, go to the next step.
4. Check for a Pending DTC. If there is no DTC, the enable criteria was probably not met. Select the DATA LIST MENU. Check ECT SENSOR 1 in the ALL DATA LIST with the HDS. If ECT SENSOR 1 is less than 140 °F (60 °C), run the engine until it is more than 140 °F (60 °C), then repeat the procedure.



Air Fuel Ratio (A/F) Sensor Heater Monitor Readiness Code

NOTE: All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the ECM/PCM is reset with the HDS.

Procedure

1. Start the engine, and let it idle for 1 minute. The readiness code should switch from incomplete to complete.
2. If the readiness code is still not set to complete, check for a Pending DTC. If there is no DTC, repeat the procedure.

Misfire Monitor and Readiness Code

- This readiness code is always set to available because misfiring is continuously monitored.
- Monitoring pauses, and the misfire counter resets, if the vehicle is driven over a rough road.
- Monitoring also pauses, and the misfire counter holds at its current value, if the throttle position changes more than a predetermined value, or if driving conditions fall outside the range of any related enable criteria.

Fuel System Monitor and Readiness Code

- This readiness code is always set to available because the fuel system is continuously monitored during closed loop operation.
- Monitoring pauses when the catalytic converter, the EVAP control system, and A/F sensor monitors are active.
- Monitoring also pauses when any related enable criteria are not being met. Monitoring resumes when the enable criteria is again being met.

Comprehensive Component Monitor and Readiness Code

This readiness code is always set to available because the comprehensive component monitor is continuously running whenever the engine is cranking or running.

EGR Monitor and Readiness Code

NOTE:

- Do not turn the ignition switch to ACCESSORY (I) or to LOCK (0) during the procedure.
- All readiness codes are cleared when the battery is disconnected, if the DTCs have been cleared, or if the ECM/PCM is reset with the HDS.

Enable Criteria

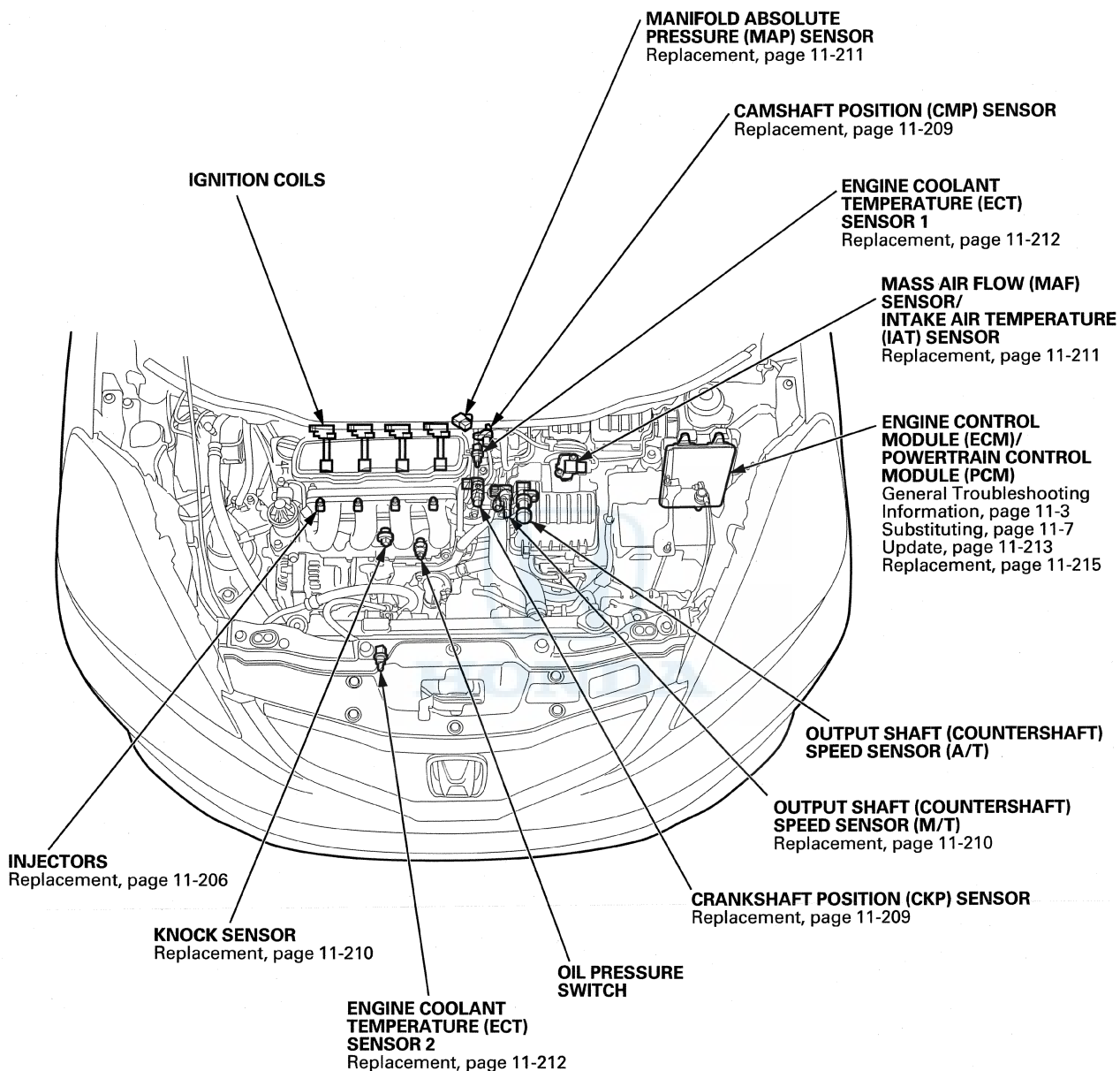
ECT SENSOR 1 at 176 °F (80 °C) or more.

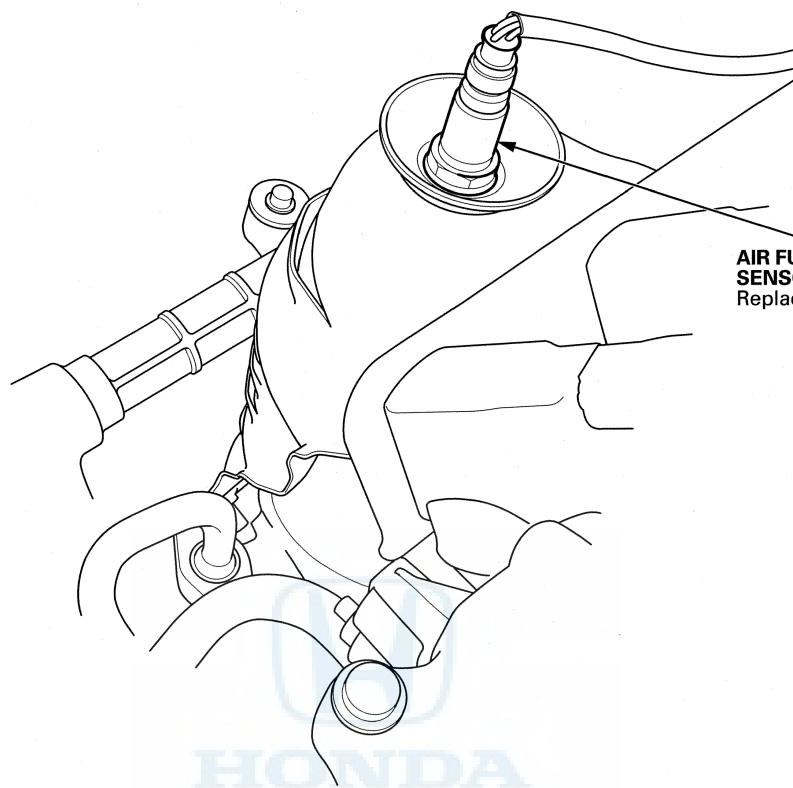
Procedure

1. Connect the HDS to the DLC.
2. Start the engine.
3. Drive at a steady speed, with the A/T in D or the M/T in 4th, at 50–62 mph (80–100 km/h) or above for more than 10 seconds.
4. With the A/T in D or the M/T in 4th, decelerate from 62 mph (100 km/h) or above by completely releasing the throttle for at least 5 seconds. If the engine is stopped during this step, repeat steps 3 and 4.
5. Check the OBD status screen for DTC P0401 in the DTC's MENU with the HDS.
 - If it is passed, readiness is complete.
 - If it is not passed, go to step 3 and retest.

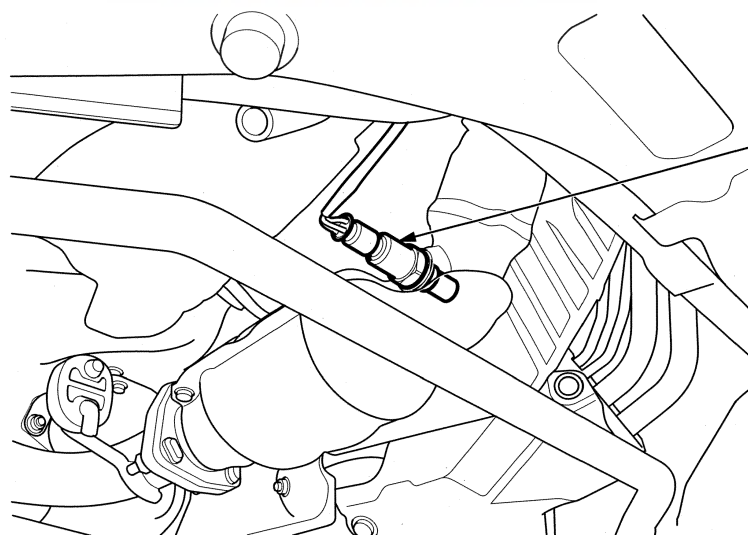
PGM-FI System

Component Location Index





**AIR FUEL RATIO (A/F)
SENSOR (SENSOR 1)**
Replacement, page 11-208

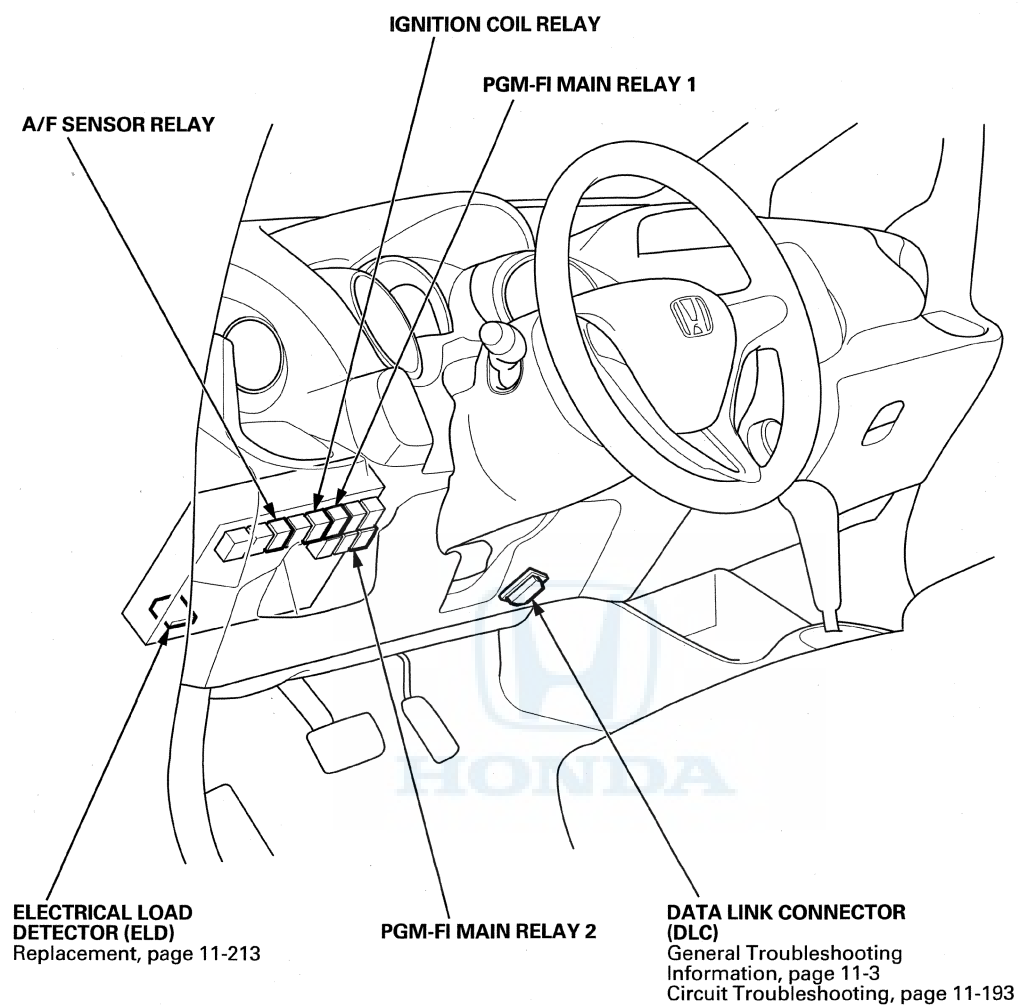


**SECONDARY HEATED
OXYGEN SENSOR
(SECONDARY HO2S)
(SENSOR 2)**
Replacement, page 11-208

(cont'd)

PGM-FI System

Component Location Index (cont'd)





DTC Troubleshooting

DTC P0101: MAF Sensor Circuit Range/Performance Problem

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P1128, P1129, P2228, and/or P2229 are stored at the same time as DTC P0101, troubleshoot those DTCs first, then recheck for DTC P0101.

1. Check for poor connections or damage to these parts:

- PCV hose
- Intake air duct
- Air cleaner
- Purge (PCS) line
- Brake booster
- Brake booster hose

Are the parts OK?

YES—Go to step 2.

NO—Repair or replace the damaged part(s), then go to step 15.

2. Check for a damaged or incorrectly installed air duct in the air cleaner.

Is it OK?

YES—Go to step 3.

NO—Reconnect or replace the air cleaner air duct, then go to step 15.

3. Check for a dirty air cleaner element.

Is it dirty?

YES—Replace the air cleaner element (see page 11-308), then go to step 15.

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).

5. Turn the ignition switch to ON (II).

6. Check the MAF SENSOR in the DATA LIST with the HDS.

Is there about 0.2 gm/s or 0.5 V?

YES—Go to step 7.

NO—Go to step 13.

7. Start the engine.

8. Vary the engine speed between 2,000 rpm and 3,000 rpm.

9. Check the MAF SENSOR in the DATA LIST with the HDS.

Does the reading change?

YES—Go to step 10.

NO—Go to step 13.

10. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

11. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VEHICLE SPEED
- MAP SENSOR
- MAF SENSOR

12. Monitor the OBD STATUS for DTC P0101 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 13.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor and the ECM/PCM. If the HDS indicates NOT COMPLETED, go to step 11 and recheck.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

13. Turn the ignition switch to LOCK (0).
14. Replace the MAF sensor/IAT sensor (see page 11-211).
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure (see page 11-268).
18. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
 - ENGINE SPEED
 - VEHICLE SPEED
 - MAP SENSOR
 - MAF SENSOR
19. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0101 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor and the ECM/PCM, then go to step 1.

NO—Go to step 20.
20. Monitor the OBD STATUS for DTC P0101 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 19, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the MAF sensor and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, go to step 18.

DTC P0102: MAF Sensor Circuit Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II), and wait 2 seconds.
2. Check the MAF SENSOR in the DATA LIST with the HDS.

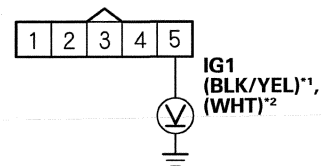
Is about 0 gm/s, or 0.1 V or less indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor and the ECM/PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAF sensor/IAT sensor 5P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between MAF sensor/IAT sensor 5P connector terminal No. 5 and body ground.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 7.

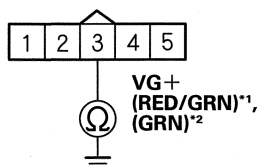
NO—Repair an open in the wire between the No. 12 ACG (ALTERNATOR) (10 A) fuse and the MAF sensor, then go to step 19.

7. Turn the ignition switch to LOCK (0).



8. Measure the resistance between MAF sensor/IAT sensor 5P connector terminal No. 3 and body ground.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

Is there 190–210 k Ω at room temperature (65 - 70 °F, 18 - 21 °C) ?

YES—Go to step 13.

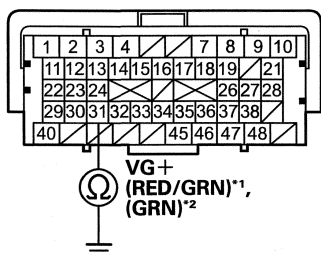
NO—Go to step 9.

9. Jump the SCS line with the HDS.

10. Disconnect ECM/PCM connector B (49P).

11. Check for continuity between ECM/PCM connector terminal B31 and body ground.

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

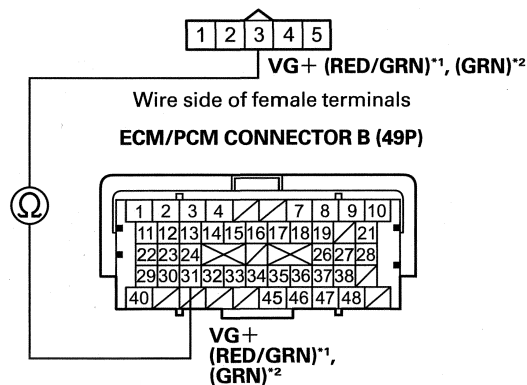
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (B31) and the MAF sensor, then go to step 20.

NO—Go to step 12.

12. Check for continuity between ECM/PCM connector terminal B31 and MAF sensor/IAT sensor 5P connector terminal No. 3.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 25.

NO—Repair an open in the wire between the ECM/PCM (B31) and the MAF sensor, then go to step 20.

13. Substitute a known-good MAF sensor/IAT sensor (see page 11-211).

14. Reconnect all connectors.

15. Turn the ignition switch to ON (II).

16. Clear the DTC with the HDS.

17. Start the engine. Hold the engine speed at 2,000 rpm without load (A/T in P or N, M/T in neutral).

18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0102 indicated?

YES—Go to step 26.

NO—Replace the original MAF sensor/IAT sensor (see page 11-211), then go to step 19.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

19. Turn the ignition switch to LOCK (0).
20. Reconnect all connectors.
21. Turn the ignition switch to ON (II).
22. Reset the ECM/PCM with the HDS.
23. Do the ECM/PCM idle learn procedure (see page 11-268).
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0102 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

25. Reconnect all connectors.
26. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0102 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0103: MAF Sensor Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II), and wait 2 seconds.
2. Check the MAF SENSOR in the DATA LIST with the HDS.

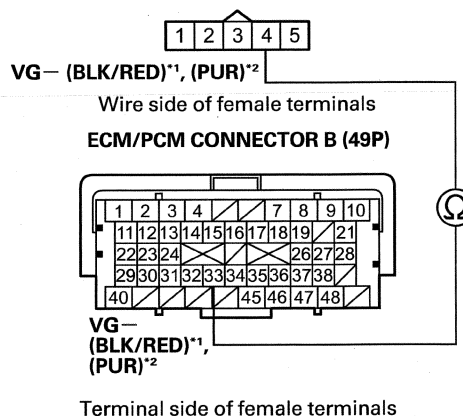
Is about 202 gm/s, or 4.89 V or more indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAF sensor and the ECM/PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Jump the SCS line with the HDS.
5. Disconnect the MAF sensor/IAT sensor 5P connector.
6. Disconnect ECM/PCM connector B (49P).
7. Check for continuity between ECM/PCM connector terminal B33 and MAF sensor/IAT sensor 5P connector terminal No. 4.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Is there continuity?

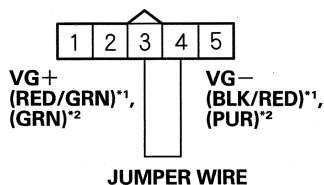
YES—Go to step 8.

NO—Repair an open in the wire between the ECM/PCM (B33) and the MAF sensor, then go to step 15.



8. Reconnect ECM/PCM connector B (49P).
9. Connect MAF sensor/IAT sensor 5P connector terminals No. 3 and No. 4 with a jumper wire.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

10. Turn the ignition switch to ON (II).
11. Clear the DTC with the HDS.
12. Check for Pending or Confirmed DTCs with the HDS.
Is DTC P0103 indicated?
YES—Go to step 20.
NO—Go to step 13.
13. Turn the ignition switch to LOCK (0).
14. Replace the MAF sensor/IAT sensor (see page 11-211).
15. Reconnect all connectors.
16. Turn the ignition switch to ON (II).
17. Reset the ECM/PCM with the HDS.
18. Do the ECM/PCM idle learn procedure (see page 11-268).
19. Check for Pending or Confirmed DTCs with the HDS.
Is DTC P0103 indicated?
YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM, then go to step 1.
NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting.■

20. Reconnect all connectors.
21. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
22. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0103 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting.■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0107: MAP Sensor Circuit Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

Is about 3 kPa (1.0 in Hg, 26 mmHg), or 0.23 V or less indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAP sensor 3P connector.
5. Turn the ignition switch to ON (II).
6. Check the MAP SENSOR in the DATA LIST with the HDS.

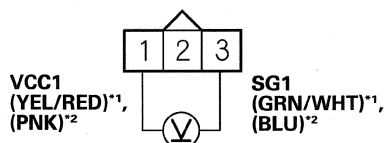
Is about 3 kPa (1.0 in Hg, 26 mmHg), or 0.23 V or less indicated?

YES—Go to step 12.

NO—Go to step 7.

7. Measure the voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

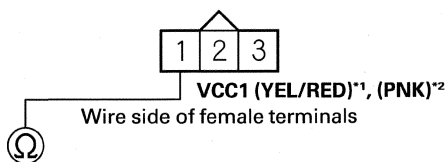
Is there about 5 V?

YES—Go to step 16.

NO—Go to step 8.

8. Turn the ignition switch to LOCK (0).
9. Jump the SCS line with the HDS.
10. Disconnect ECM/PCM connector C (49P).
11. Check for continuity between ECM/PCM connector terminal C13 and MAP sensor 3P connector terminal No. 1.

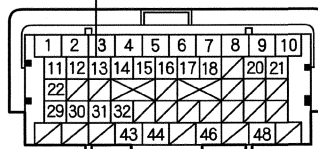
MAP SENSOR 3P CONNECTOR



Wire side of female terminals

ECM/PCM CONNECTOR C (49P)

VCC1 (YEL/RED)*1, (PNK)*2



Terminal side of female terminals

Is there continuity?

YES—Go to step 23.

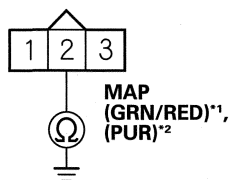
NO—Repair an open in the wire between the ECM/PCM (C13) and the MAP sensor, then go to step 18.

12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.



14. Disconnect ECM/PCM connector C (49P).
15. Check for continuity between MAP sensor 3P connector terminal No. 2 and body ground.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (C11) and the MAP sensor, then go to step 18.

NO—Go to step 23.

16. Turn the ignition switch to LOCK (0).
17. Replace the MAP sensor (see page 11-211).
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure (see page 11-268).
22. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0107 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

23. Reconnect all connectors.

24. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

25. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0107 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0108: MAP Sensor Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

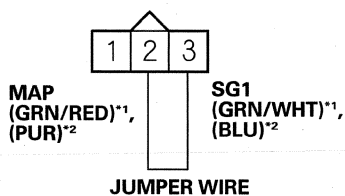
Is about 160 kPa (47.1 in Hg, 1,197 mmHg), or 4.49 V or more indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAP sensor 3P connector.
5. Connect MAP sensor 3P connector terminals No. 2 and No. 3 with a jumper wire.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

6. Turn the ignition switch to ON (II).
7. Check the MAP SENSOR in the DATA LIST with the HDS.

Is about 160 kPa (47.1 in Hg, 1,197 mmHg), or 4.49 V or more indicated?

YES—Go to step 8.

NO—Go to step 20.

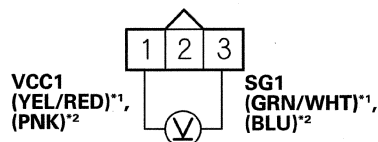
8. Turn the ignition switch to LOCK (0).

9. Remove the jumper wire from the MAP sensor 3P connector.

10. Turn the ignition switch to ON (II).

11. Measure the voltage between MAP sensor 3P connector terminals No. 1 and No. 3.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals

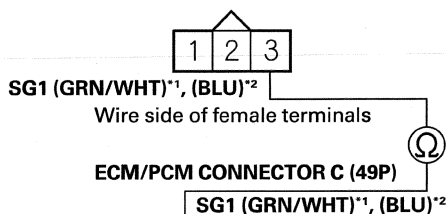
Is there about 5 V?

YES—Go to step 16.

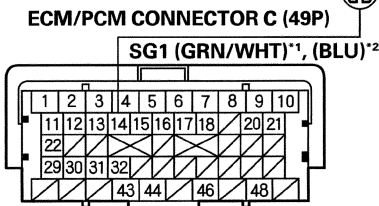
NO—Go to step 12.

12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector C (49P).
15. Check for continuity between ECM/PCM connector terminal C14 and MAP sensor 3P connector terminal No. 3.

MAP SENSOR 3P CONNECTOR



Wire side of female terminals



Terminal side of female terminals

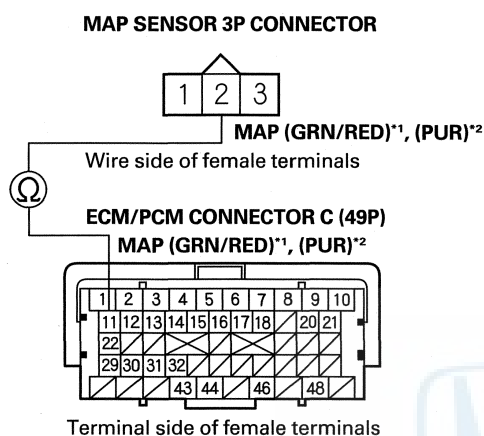
Is there continuity?

YES—Go to step 27.

NO—Repair an open in the wire between the ECM/PCM (C14) and the MAP sensor, then go to step 22.



16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector C (49P).
19. Check for continuity between ECM/PCM connector terminal C11 and MAP sensor 3P connector terminal No. 2.



Is there continuity?

YES—Go to step 27.

NO—Repair an open in the wire between the ECM/PCM (C11) and the MAP sensor, then go to step 22.

20. Turn the ignition switch to LOCK (0).
21. Replace the MAP sensor (see page 11-211).
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure (see page 11-268).
26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0108 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

27. Reconnect all connectors.

28. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

29. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0108 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0111: IAT Sensor Circuit Range/Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the MAF sensor/IAT sensor.

Are the connections and terminals OK?

YES—Go to step 2.

NO—Repair the connections or terminals, then go to step 15.

2. Remove the MAF sensor/IAT sensor (see page 11-211).

3. Allow the MAF sensor/IAT sensor to cool to ambient temperature.

4. Note the ambient temperature.

5. Connect the MAF sensor/IAT sensor to its 5P connector, but do not install it.

6. Turn the ignition switch to ON (II).

7. Quickly note the value of the IAT SENSOR (2) in the DATA LIST with the HDS.

8. Compare the value of the IAT SENSOR (2) and the ambient temperature.

Does the value of the IAT SENSOR (2) differ 5.4 °F (3 °C) or more from the ambient temperature?

YES—Go to step 13.

NO—Go to step 9.

9. Disconnect the MAF sensor/IAT sensor from its 5P connector.

10. Using a heat gun, blow hot air on the MAF sensor/IAT sensor for a few seconds. Do not apply the heat longer than a few seconds or you will damage the sensor.

11. Connect the MAF sensor/IAT sensor to its 5P connector, but do not install it.

12. Check the IAT SENSOR (2) in the DATA LIST with the HDS.

Does the IAT SENSOR (2) change 80 °F (44 °C) or more?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the ECM/PCM.■

NO—Go to step 13.

13. Turn the ignition switch to LOCK (0).

14. Replace the MAF sensor/IAT sensor (see page 11-211).

15. Turn the ignition switch to ON (II).

16. Reset the ECM/PCM with the HDS.

17. Do the ECM/PCM idle learn procedure (see page 11-268).

18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0111 indicated?

YES—Check for poor connections or loose terminals at the IAT sensor and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting.■



DTC P0112: IAT Sensor Circuit Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Check the IAT SENSOR (2) in the DATA LIST with the HDS.

Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the ECM/PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAF sensor/IAT sensor 5P connector.
5. Turn the ignition switch to ON (II).
6. Check the IAT SENSOR (2) in the DATA LIST with the HDS.

Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

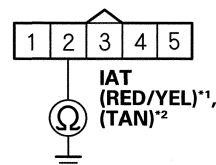
YES—Go to step 7.

NO—Go to step 11.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector B (49P).

10. Check for continuity between MAF sensor/IAT sensor 5P connector terminal No. 2 and body ground.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (B32) and the IAT sensor, then go to step 13.

NO—Go to step 18.

11. Turn the ignition switch to LOCK (0).
12. Replace the MAF sensor/IAT sensor (see page 11-211).
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure (see page 11-268).
17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0112 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

18. Reconnect all connectors.
19. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0112 indicated?

YES—Check for poor connections or loose terminals at the IAT sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0113: IAT Sensor Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Check the IAT SENSOR (2) in the DATA LIST with the HDS.

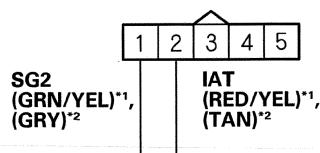
Is about -40°F (-40°C) or less, or 4.90 V or higher indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the IAT sensor and the ECM/PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the MAF sensor/IAT sensor 5P connector.
5. Connect MAF sensor/IAT sensor 5P connector terminals No. 1 and No. 2 with a jumper wire.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



JUMPER WIRE

Wire side of female terminals

6. Turn the ignition switch to ON (II).
7. Check the IAT SENSOR (2) in the DATA LIST with the HDS.

Is about -40°F (-40°C) or less, or 4.90 V or higher indicated?

YES—Go to step 8.

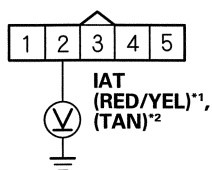
NO—Go to step 20.

8. Turn the ignition switch to LOCK (0).



9. Remove the jumper wire from the MAF sensor/IAT sensor 5P connector.
10. Turn the ignition switch to ON (II).
11. Measure the voltage between MAF sensor/IAT sensor 5P connector terminal No. 2 and body ground.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Wire side of female terminals

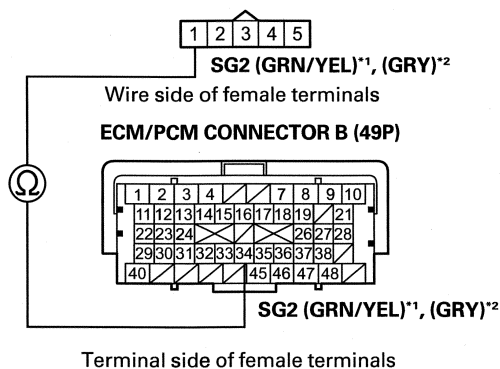
Is there about 5 V?

YES—Go to step 12.

NO—Go to step 16.

12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector B (49P).
15. Check for continuity between ECM/PCM connector terminal B34 and MAF sensor/IAT sensor 5P connector terminal No. 1.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Terminal side of female terminals

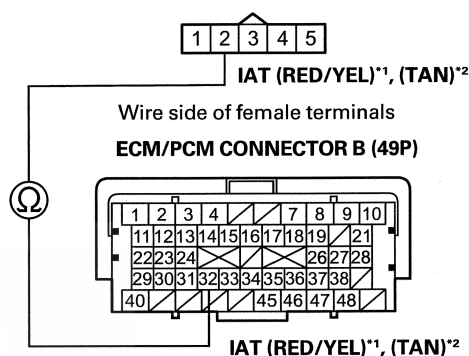
Is there continuity?

YES—Go to step 27.

NO—Repair an open in the wire between the ECM/PCM (B34) and the IAT sensor, then go to step 22.

16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector B (49P).
19. Check for continuity between ECM/PCM connector terminal B32 and MAF sensor/IAT sensor 5P connector terminal No. 2.

MAF SENSOR/IAT SENSOR 5P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 27.

NO—Repair an open in the wire between the ECM/PCM (B32) and the IAT sensor, then go to step 22.

20. Turn the ignition switch to LOCK (0).
21. Replace the MAF sensor/IAT sensor (see page 11-211).
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure (see page 11-268).
26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0113 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

27. Reconnect all connectors.

28. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

29. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0113 indicated?

YES—Check for poor connections or loose terminals at the MAF sensor/IAT sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0116: ECT Sensor 1 Range/Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).

2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 176 °F (80 °C) or more, or 0.78 V or less indicated?

YES—Go to step 6.

NO—Go to step 3.

3. Note the value of ECT SENSOR 1 in the DATA LIST with the HDS.

4. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

5. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Does ECT SENSOR 1 change 18 °F (10 °C) or more?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM. ■

NO—Go to step 11.

6. Note the value of ECT SENSOR 1 in the DATA LIST with the HDS.

7. Turn the ignition switch to LOCK (0).

8. Open the hood, and let the engine cool for 3 hours.

9. Turn the ignition switch to ON (II).

10. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Did ECT SENSOR 1 change 18 °F (10 °C) or more from the value in step 6 ?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM. ■

NO—Go to step 11.



11. Turn the ignition switch to LOCK (0).
12. Replace ECT sensor 1 (see page 11-212).
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure (see page 11-268).
16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0116 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0117: ECT Sensor 1 Circuit Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 1 2P connector.
5. Turn the ignition switch to ON (II).
6. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

YES—Go to step 7.

NO—Go to step 11.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector B (49P).

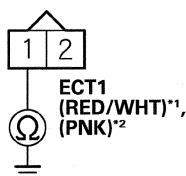
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

10. Check for continuity between ECT sensor 1 2P connector terminal No. 1 and body ground.

ECT SENSOR 1 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (B24) and ECT sensor 1, then go to step 13.

NO—Go to step 18.

11. Turn the ignition switch to LOCK (0).
12. Replace ECT sensor 1 (see page 11-212).
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure (see page 11-268).
17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0117 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

18. Reconnect all connectors.

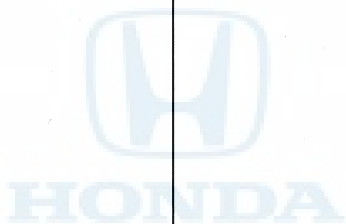
19. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0117 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■





DTC P0118: ECT Sensor 1 Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*)1 applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*)2 applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

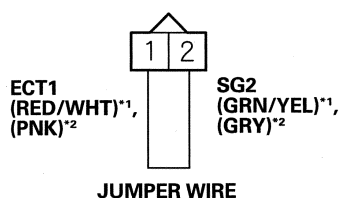
Is about -40°F (-40°C) or less, or 4.90 V or higher indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM.■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 1 2P connector.
5. Connect ECT sensor 1 2P connector terminals No. 1 and No. 2 with a jumper wire.

ECT SENSOR 1 2P CONNECTOR



Wire side of female terminals

6. Turn the ignition switch to ON (II).
7. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about -40°F (-40°C) or less, or 4.90 V or higher indicated?

YES—Go to step 8.

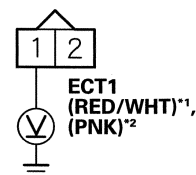
NO—Go to step 20.

8. Turn the ignition switch to LOCK (0).
9. Remove the jumper wire from ECT sensor 1 2P connector.

10. Turn the ignition switch to ON (II).

11. Measure the voltage between ECT sensor 1 2P connector terminal No. 1 and body ground.

ECT SENSOR 1 2P CONNECTOR



Wire side of female terminals

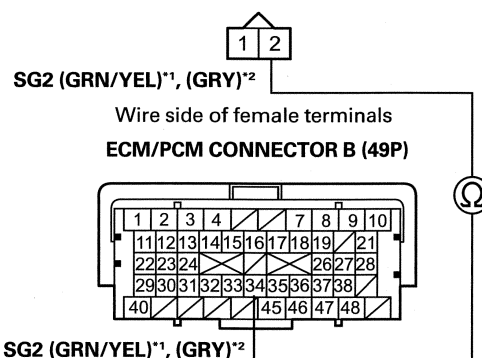
Is there about 5 V?

YES—Go to step 12.

NO—Go to step 16.

12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector B (49P).
15. Check for continuity between ECM/PCM connector terminal B34 and ECT sensor 1 2P connector terminal No. 2.

ECT SENSOR 1 2P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 27.

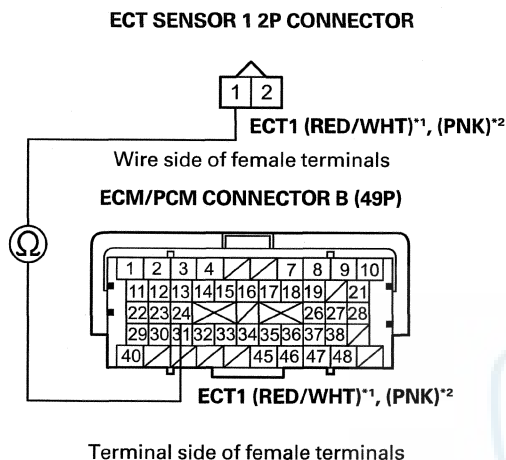
NO—Repair an open in the wire between the ECM/PCM (B34) and ECT sensor 1, then go to step 22.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector B (49P).
19. Check for continuity between ECM/PCM connector terminal B24 and ECT sensor 1 2P connector terminal No. 1.



Is there continuity?

YES—Go to step 27.

NO—Repair an open in the wire between the ECM/PCM (B24) and ECT sensor 1, then go to step 22.

20. Turn the ignition switch to LOCK (0).
21. Replace ECT sensor 1 (see page 11-212).
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure (see page 11-268).
26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0118 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

27. Reconnect all connectors.
28. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
29. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0118 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P0125: ECT Sensor 1 Malfunction/Slow Response

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Start the engine, and let it idle for 5 minutes or more.
2. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 0 °F (–18 °C) or less indicated?

YES—Check for poor connection or loose terminals at ECT SENSOR 1, ECT SENSOR 2, and the ECM/PCM. If the connections and the terminals are OK, replace ECT SENSOR 1 (see page 11-212), then go to step 7.

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Allow the engine to cool to 104 °F (40 °C) or less.
5. Start the engine, and let it idle until ECT SENSOR 1 goes up to about 158 °F (70 °C)

Does the ECT sensor 2 also show about 158 °F (70 °C)?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM/PCM. ■

6. Check the thermostat (see page 10-4).

Is the thermostat OK?

YES—Check for poor connection or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM/PCM. If the connections and the terminals are OK, replace ECT SENSOR 1 (see page 11-212), then go to step 7.

NO—Replace the thermostat (see page 10-9), then go to step 7.

7. Turn the ignition switch to ON (II).
8. Reset the ECM/PCM with the HDS.
9. Turn the ignition switch to LOCK (0).
10. Allow the engine to cool to 104 °F (40 °C) or less.
11. Start the engine, and let it idle until ECT SENSOR 1 goes up to about 158 °F (70 °C)

Does the ECT sensor 2 also read about 158 °F (70 °C)?

YES—Go to step 1 and recheck.

NO—Troubleshooting is complete. ■

DTC P0128: Cooling System Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Make sure the blower switch is off.
4. Check the FAN CTRL in the DATA LIST with the HDS.

Is it OFF?

YES—Go to step 5.

NO—Wait until the FAN CTRL is off, then go to step 5.

5. Check the radiator fan operation.

Does the radiator fan keep running?

YES—Check the radiator fan circuit (see page 10-25) and the radiator fan relay (see page 22-76). If the circuit and the relay are OK, go to step 19.

NO—Go to step 6.

6. Let the engine cool until the coolant temperature is 122 °F (50 °C) or less.
7. Note the value of ECT SENSOR 1 and ECT SENSOR 2 in the DATA LIST with the HDS.
8. Start the engine, and let it idle.
9. Let the engine idle until ECT SENSOR 1 goes up 36 °F (20 °C) or more from the recorded temperature.
10. Check ECT SENSOR 2 in the DATA LIST with the HDS.
11. Compare the recorded value of ECT SENSOR 2 and the present value of ECT SENSOR 2.

Did the temperature rise 14 °F (8 °C) or more?

YES—Test the thermostat (see page 10-4), then go to step 12.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM/PCM. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

12. Turn the ignition switch to ON (II).
13. Reset the ECM/PCM with the HDS.
14. Let the engine cool until the coolant temperature is between 19 °F (−7 °C) and 124 °F (51 °C).
15. Do the ECM/PCM idle learn procedure (see page 11-268).
16. Test-drive at a steady speed between 15–75 mph (24–120 km/h) for 10 minutes.
17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0128 indicated?

YES—Check the cooling system (see page 10-2), go to step 19.

NO—Go to step 18.

18. Monitor the OBD STATUS for DTC P0128 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 17, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check the cooling system (see page 10-2). If the cooling system is OK, go to step 19. If the HDS indicates NOT COMPLETED, go to step 14.

19. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
 20. Let the engine cool until the coolant temperature is between 19 °F (−7 °C) and 124 °F (51 °C).
 21. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
 22. Test-drive at a steady speed between 15–75 mph (24–120 km/h) for 10 minutes.
 23. Check for Pending or Confirmed DTCs with the HDS.
- Is DTC P0128 indicated?*
- YES**—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 20. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P0128 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 23, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 20. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, go to step 20.



DTC P0133: A/F Sensor (Sensor 1) Malfunction/Slow Response

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P0139 is stored at the same time as DTC P0133, troubleshoot DTC P0139 first, then recheck for DTC P0133.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - A/T in D, M/T in 3rd or 4th
 - Drive the vehicle at 25 mph (40 km/h) or less for 5 minutes, then drive at a steady speed of 26 mph (41 km/h) or more with the engine speed between 1,500–3,800rpm
5. Monitor the OBD STATUS for DTC P0133 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 6.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 3 and recheck.

6. Turn the ignition switch to LOCK (0).
7. Replace the A/F sensor (Sensor 1) (see page 11-208).
8. Turn the ignition switch to ON (II).
9. Reset the ECM/PCM with the HDS.
10. Do the ECM/PCM idle learn procedure (see page 11-268).
11. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
12. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - A/T in D, M/T in 3rd or 4th
 - Drive the vehicle at 25 mph (40 km/h) or less for 5 minutes, then drive at a steady speed of 26 mph (41 km/h) or more with the engine speed between 1,500–3,800rpm
13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0133 indicated?

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 1.

NO—Go to step 14.

14. Monitor the OBD STATUS for DTC P0133 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 11.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0134: A/F Sensor (Sensor 1) Heater System Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If the vehicle was out of fuel and the engine stalled before this DTC was stored, refuel and clear the DTC with the HDS.
- If DTC P0135 is stored at the same time as DTC P0134, troubleshoot DTC P0135 first, then recheck for DTC P0134.

1. Turn the ignition switch ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0134 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay, and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Replace the A/F sensor (Sensor 1) (see page 11-208).
7. Turn the ignition switch to ON (II).
8. Reset the ECM/PCM with the HDS.
9. Do the ECM/PCM idle learn procedure (see page 11-268).
10. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0134 indicated?

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay, and the ECM/PCM, then go to step 1.

NO—Go to step 11.

11. Monitor the OBD STATUS for DTC P0134 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 10, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay, and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, go to step 8.



DTC P0135: A/F Sensor (Sensor 1) Heater Circuit Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0135 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay, and the ECM/PCM. ■

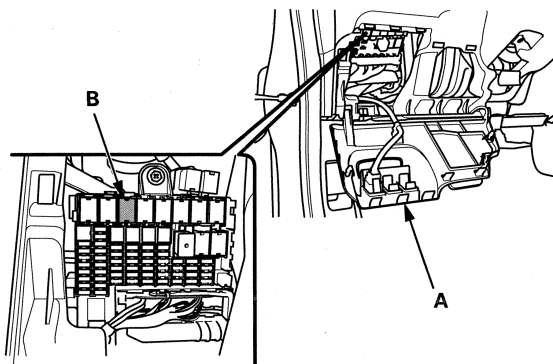
5. Turn the ignition switch to LOCK (0).
6. Check the No. 26 LAF (A/F SENSOR) (10A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES—Go to step 7.

NO—Go to step 21.

7. Open the fuse access panel (A), then remove the A/F sensor relay (B) from the under-dash fuse/relay box.



8. Test the A/F sensor relay (see page 22-76).

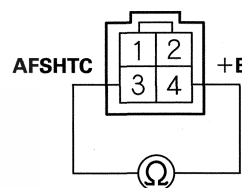
Is the A/F sensor relay OK?

YES—Go to step 10.

NO—Replace the A/F sensor relay, then go to step 26.

9. Remove the under-cowl panel. (see page 20-185)
10. Disconnect the A/F sensor (Sensor 1) 4P connector.
11. At the sensor side, measure the resistance between A/F sensor (Sensor 1) 4P connector terminals No. 3 and No. 4.

A/F SENSOR (SENSOR 1) 4P CONNECTOR



Terminal side of male terminals

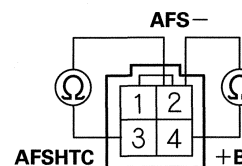
Is there 1.9—2.7 Ω at room temperature?

YES—Go to step 12.

NO—Go to step 25.

12. At the sensor side, check for continuity between A/F sensor (Sensor 1) 4P connector terminals No. 2 and No. 3, and between terminals No. 2 and No. 4 individually.

A/F SENSOR (SENSOR 1) 4P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Go to step 25.

NO—Go to step 13.

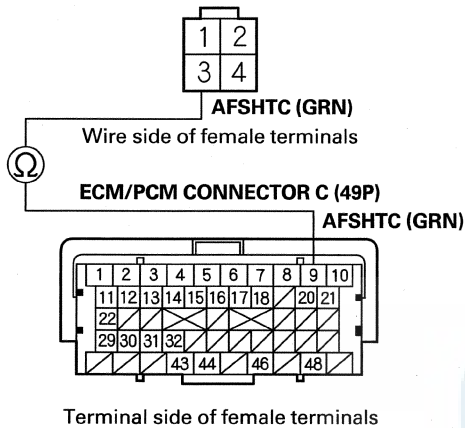
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PGM-FI System

DTC Troubleshooting (cont'd)

13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector C (49P).
15. Check for continuity between ECM/PCM connector terminal C9 and A/F sensor (Sensor 1) 4P connector terminal No. 3.

A/F SENSOR (SENSOR 1) 4P CONNECTOR



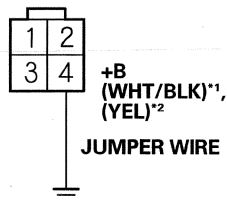
Is there continuity?

YES—Go to step 16.

NO—Repair an open in the wire between the ECM/PCM (C9) and the A/F sensor (Sensor 1), then go to step 26.

16. Connect A/F sensor (Sensor 1) 4P connector terminal No. 4 to body ground with a jumper wire.

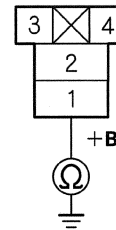
A/F SENSOR (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

17. Check for continuity between A/F sensor relay 4P connector terminal No. 1 and body ground.

A/F SENSOR RELAY 4P CONNECTOR



Terminal side of female terminals

Is there continuity?

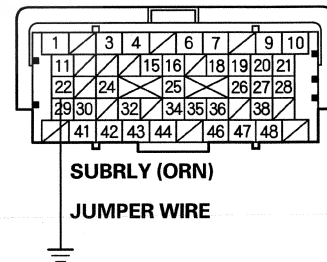
YES—Go to step 18.

NO—Repair an open in the wire between the A/F sensor (Sensor 1) and the A/F sensor relay, then go to step 26.

18. Disconnect ECM/PCM connector A (49P).

19. Connect ECM/PCM connector terminal A22 to body ground with a jumper wire.

ECM/PCM CONNECTOR A (49P)

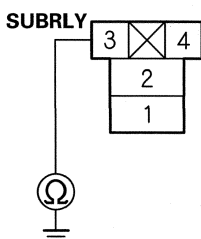


Terminal side of female terminals



20. Check for continuity between A/F sensor relay 4P connector terminal No. 3 and body ground.

A/F SENSOR RELAY 4P CONNECTOR



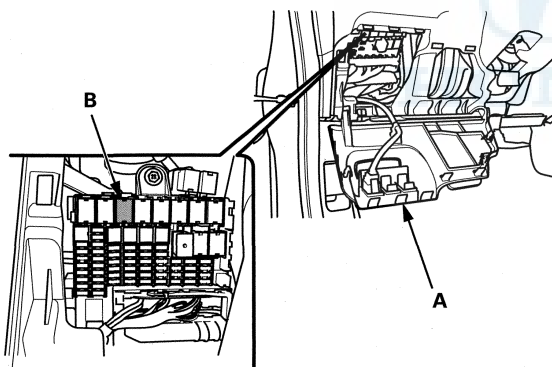
Terminal side of female terminals

Is there continuity?

YES—Go to step 32.

NO—Repair an open in the wire between the ECM/PCM (A22) and the A/F sensor relay, then go to step 26.

21. Open the fuse access panel (A), then remove the A/F sensor relay (B) from the under-dash fuse/relay box.

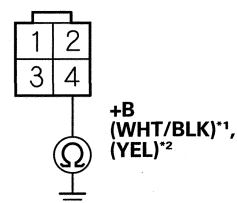


22. Remove the under-cowl panel. (see page 20-185)

23. Disconnect the A/F sensor (Sensor 1) 4P connector.

24. Check for continuity between A/F sensor (Sensor 1) 4P connector terminal No. 4 and body ground.

A/F SENSOR (SENSOR 1) 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between the A/F sensor relay and the A/F sensor (Sensor 1). Also replace the No. 26 LAF (A/F SENSOR) (10 A) fuse, then go to step 26.

NO—Replace the under-dash fuse/relay box; USA models (see page 22-65), Canada models (see page 22-66), then go to step 26.

25. Replace the A/F sensor (Sensor 1) (see page 11-208).

26. Reconnect all connectors.

27. Turn the ignition switch to ON (II).

28. Reset the ECM/PCM with the HDS.

29. Do the ECM/PCM idle learn procedure (see page 11-268).

30. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0135 indicated?

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay, and the ECM/PCM, then go to step 1.

NO—Go to step 31.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

31. Monitor the OBD STATUS for DTC P0135 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 30, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay, and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, go to step 29.

32. Reconnect all connectors.

33. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

34. Start the engine.

35. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0135 indicated?

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 34. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 36.

36. Monitor the OBD STATUS for DTC P0135 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 35, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1), the A/F sensor relay, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 34. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

DTC P0137: Secondary HO2S (Sensor 2) Circuit Low Voltage ('09-10 models)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
4. Check the HO2S S2 in the DATA LIST with the HDS.

Does the voltage stay at 0.05 V or less?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the secondary HO2S (Sensor 2) 4P connector.
7. Turn the ignition switch to ON (II).
8. Check the HO2S S2 in the DATA LIST with the HDS.

Does the voltage stay at 0.05 V or less?

YES—Go to step 9.

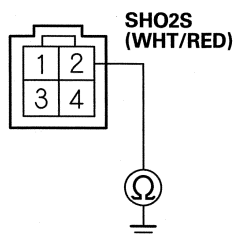
NO—Go to step 14.

9. Turn the ignition switch to LOCK (0).
10. Remove the under-cowl panel (see page 20-185).
11. Jump the SCS line with the HDS.
12. Disconnect ECM/PCM connector B (49P).



13. Check for continuity between secondary HO2S (Sensor 2) 4P connector terminal No. 2 and body ground.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (B36) and the secondary HO2S (Sensor 2), then go to step 16.

NO—Go to step 24.

14. Turn the ignition switch to LOCK (0).
15. Replace the secondary HO2S (Sensor 2) (see page 11-208).
16. Reconnect all connectors.
17. Turn the ignition switch to ON (II).
18. Reset the ECM/PCM with the HDS.
19. Do the ECM/PCM idle learn procedure (see page 11-268).
20. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
21. Test-drive under these conditions:
- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - A/T in D (M/T in 3rd or 4th)
 - Engine speed between 1,500—3,000 rpm
 - Drive 1 minute or more
22. Check for Pending or Confirmed DTCs with the HDS.
- Is DTC P0137 indicated?*
- YES**—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to step 1.
- NO**—Go to step 23.

23. Monitor the OBD STATUS for DTC P0137 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 22, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 20.

24. Reconnect all connectors.
25. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
26. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
27. Test-drive under these conditions:
- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - A/T in D (M/T in 3rd or 4th)
 - Engine speed between 1,500—3,000 rpm
 - Drive 1 minute or more
28. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0137 indicated?

YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 26. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 29.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

29. Monitor the OBD STATUS for DTC P0137 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 28, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 26. If the ECM/PCM was substituted, go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 26.

DTC P0137: Secondary HO2S (Sensor 2) Circuit Low Voltage ('11-12 models)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
4. Monitor the OBD STATUS for DTC P0137 in the DTCs MENU with the HDS.

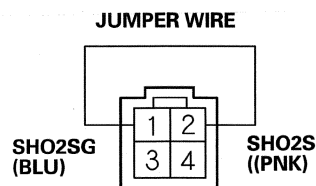
Does the HDS indicate FAILED?

YES—Go to step 5.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the ECM/PCM. If the HDS indicates EXECUTING or OUT OF CONDITION, keep idling until a result comes on.

5. Turn the ignition switch to LOCK (0).
6. Remove the under-cowl panel (see page 20-185).
7. Disconnect the secondary HO2S (Sensor 2) 4P connector.
8. Connect secondary HO2S (Sensor 2) 4P connector terminal No. 1 and No. 2 with a jumper wire.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

9. Turn the ignition switch to ON (II).
10. Check the HO2S S2 in the DATA LIST with the HDS.

Does the voltage stay at 0.12 V or less?

YES—Go to step 11.

NO—Go to step 23.



11. Turn the ignition switch to LOCK (0).
12. Remove the jumper wire from the secondary HO2S (Sensor 2) 4P connector.
13. Turn the ignition switch to ON (II).
14. Check the HO2S S2 in the DATA LIST with the HDS.

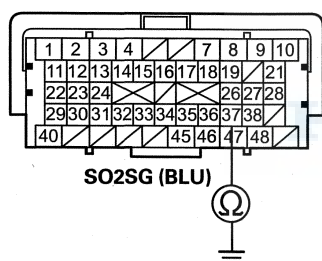
Is there about 5 V?

YES—Go to step 15.

NO—Go to step 19.

15. Turn the ignition switch to LOCK (0).
16. Jump the SCS line with the HDS.
17. Disconnect ECM/PCM connector B (49P).
18. Check for continuity between ECM/PCM connector terminal B37 and body ground.

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

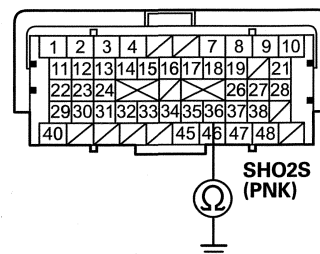
YES—Repair a short in the wire between the ECM/PCM (B37) and secondary HO2S (Sensor 2), then go to step 25.

NO—Go to step 32.

19. Turn the ignition switch to LOCK (0).
20. Jump the SCS line with the HDS.
21. Disconnect ECM/PCM connector B (49P).

22. Check for continuity between ECM/PCM connector terminal B36 and body ground.

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (B36) and secondary HO2S (Sensor 2), then go to step 25.

NO—Go to step 32.

23. Turn the ignition switch to LOCK (0).
24. Replace secondary HO2S (Sensor 2) (see page 11-208).
25. Reconnect all connectors.
26. Turn the ignition switch to ON (II).
27. Reset the ECM/PCM with the HDS.
28. Do the ECM/PCM idle learn procedure (see page 11-268).
29. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.
30. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0137 indicated?

YES—Check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the ECM/PCM, then go to step 1.

NO—Go to step 31.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

31. Monitor the OBD STATUS for DTC P0137 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 30, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING or OUT OF CONDITION, keep idling until a result comes on.

32. Reconnect all connectors.

33. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

34. Start the engine. Hold the engine speed at 3,000 rpm without load (in P or N) until the radiator fan comes on, then let it idle.

35. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0137 indicated?

YES—Check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 34. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 36.

36. Monitor the OBD STATUS for DTC P0137 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 35, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 34. If the ECM/PCM was substituted, go to step 1. If the HDS indicates EXECUTING or OUT OF CONDITION, keep idling until a result comes on.

DTC P0138: Secondary HO2S (Sensor 2) Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models.
- Information marked with an asterisk (*2) applies to '11-12 models.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
4. Check the HO2S S2 in the DATA LIST with the HDS.

Does the voltage stay at 1.27 V or more?

YES—Go to step 5.

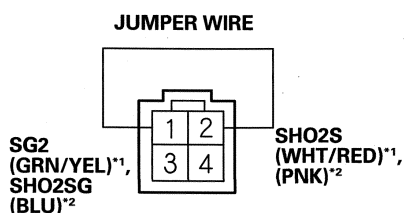
NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Remove the under-cowl panel (see page 20-185).
7. Disconnect the secondary HO2S (Sensor 2) 4P connector.



8. Connect secondary HO2S (Sensor 2) 4P connector terminals No. 1 and No. 2 with a jumper wire.

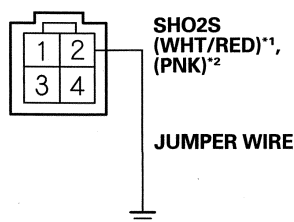
SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

9. Turn the ignition switch to ON (II).
10. Check the HO2S S2 in the DATA LIST with the HDS.
- Does the voltage stay at 1.27 V or more?*
- YES**—Go to step 11.
- NO**—Go to step 20.
11. Turn the ignition switch to LOCK (0).
12. Remove the jumper wire from the secondary HO2S (Sensor 2) 4P connector.
13. Connect secondary HO2S (Sensor 2) 4P connector terminal No. 2 to body ground with a jumper wire.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR

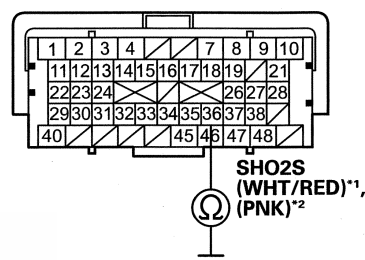


Terminal side of male terminals

14. Turn the ignition switch to ON (II).
15. Check the HO2S S2 in the DATA LIST with the HDS.
- Does the voltage stay at 1.27 V or more?*
- YES**—Go to step 16.
- NO**—Repair an open in the wire between the ECM/PCM (B34*1, B37*2) and the secondary HO2S (Sensor 2), then go to step 22.

16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector B (49P).
19. Check for continuity between ECM/PCM connector terminal B36 and body ground.

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 30.

NO—Repair an open in the wire between the ECM/PCM (B36) and the secondary HO2S (Sensor 2), then go to step 22.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

20. Turn the ignition switch to LOCK (0).
21. Replace the secondary HO2S (Sensor 2) (see page 11-208).
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure (see page 11-268).
26. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
27. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - A/T in D (M/T in 3rd or 4th)
 - Engine speed between 1,500—3,000 rpm
 - Drive 1 minute or more
28. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0138 indicated?

YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to step 1.

NO—Go to step 29.

29. Monitor the OBD STATUS for DTC P0138 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 28, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 26.

30. Reconnect all connectors.
31. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
32. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
33. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - A/T in D (M/T in 3rd or 4th)
 - Engine speed between 1,500—3,000 rpm
 - Drive 1 minute or more
34. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0138 indicated?

YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 32. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 35.

35. Monitor the OBD STATUS for DTC P0138 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 34, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 32. If the ECM/PCM was substituted, go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 32.



DTC P0139: Secondary HO2S (Sensor 2) Slow Response

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
4. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - A/T in D, M/T in 4th
 - Drive at a steady speed between 55–75 mph (88–120 km/h) for 1 minute, then decelerate (with throttle fully closed) for 10 seconds

5. Monitor the OBD STATUS for DTC P0139 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 6.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 3 and recheck.

6. Turn the ignition switch to LOCK (0).
7. Replace the secondary HO2S (Sensor 2) (see page 11-208).
8. Turn the ignition switch to ON (II).
9. Reset the ECM/PCM with the HDS.
10. Do the ECM/PCM idle learn procedure (see page 11-268).
11. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
12. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - A/T in D, M/T in 4th
 - Drive at a steady speed between 55–75 mph (88–120 km/h) for 1 minute, then decelerate (with throttle fully closed) for 10 seconds

13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0139 indicated?

YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to step 1.

NO—Go to step 14.

14. Monitor the OBD STATUS for DTC P0139 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 11.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0141: Secondary HO2S (Sensor 2) Heater Circuit Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral).
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0141 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Check the No. 12 ACG (ALTERNATOR) (10 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

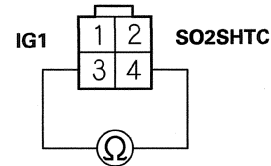
YES—Go to step 7.

NO—Repair short in the wire between the secondary HO2S (Sensor 2) and the No. 12 ACG (ALTERNATOR) (10 A) fuse. Also replace the No. 12 ACG (ALTERNATOR) (10 A) fuse, then go to step 23.

7. Remove the under-cowl panel (see page 20-185).
8. Disconnect the secondary HO2S (Sensor 2) 4P connector.

9. At the secondary HO2S (Sensor 2) side, measure the resistance between secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Wire side of female terminals

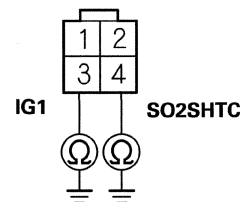
Is there 5.4—7.3 Ω at room temperature?

YES—Go to step 10.

NO—Go to step 22.

10. At the secondary HO2S (Sensor 2) side, check for continuity between body ground and secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4 individually.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 22.

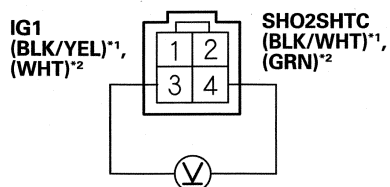
NO—Go to step 11.

11. Turn the ignition switch to ON (II).



12. Measure the voltage between secondary HO2S (Sensor 2) 4P connector terminals No. 3 and No. 4.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

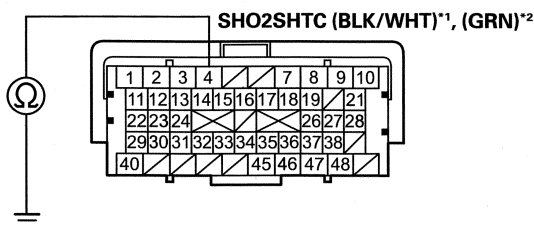
Is there battery voltage?

YES—Go to step 13.

NO—Go to step 17.

13. Turn the ignition switch to LOCK (0).
14. Jump the SCS line with the HDS.
15. Disconnect ECM/PCM connector B (49P).
16. Check for continuity between ECM/PCM connector terminal B4 and body ground.

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

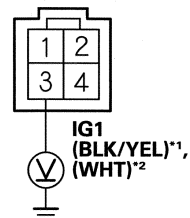
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (B4) and the secondary HO2S (Sensor 2), then go to step 23.

NO—Go to step 29.

17. Measure the voltage between secondary HO2S (Sensor 2) 4P connector terminal No. 3 and body ground.

SECONDARY HO2S (SENSOR 2) 4P CONNECTOR



Terminal side of male terminals

Is there battery voltage?

YES—Go to step 18.

NO—Repair open in the wire between the secondary HO2S (Sensor 2) and the No. 12 ACG (ALTERNATOR) (10 A) fuse, then go to step 23.

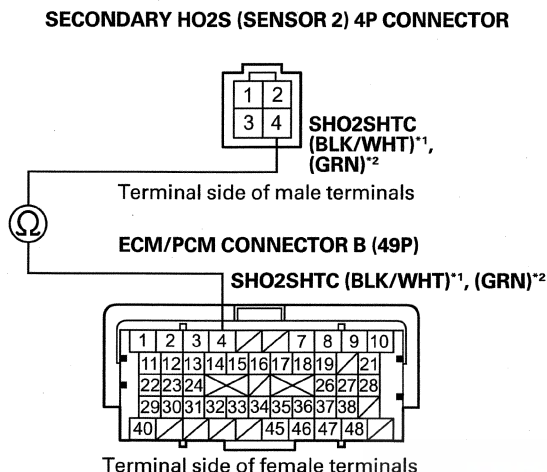
18. Turn the ignition switch to LOCK (0).
19. Jump the SCS line with the HDS.
20. Disconnect ECM/PCM connector B (49P).

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

21. Check for continuity between ECM/PCM connector terminal B4 and secondary HO2S (Sensor 2) 4P connector terminal No. 4.



Is there continuity?

YES—Go to step 29.

NO—Repair an open in the wire between the ECM/PCM (B4) and the secondary HO2S (Sensor 2), then go to step 23.

22. Replace the secondary HO2S (Sensor 2) (see page 11-208).
23. Reconnect all connectors.
24. Turn the ignition switch to ON (II).
25. Reset the ECM/PCM with the HDS.
26. Do the ECM/PCM idle learn procedure (see page 11-268).
27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0141 indicated?

YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to step 1.

NO—Go to step 28.

28. Monitor the OBD STATUS for DTC P0141 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 27, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

29. Reconnect all connectors.
30. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
31. Start the engine, and let it idle.
32. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0141 indicated?

YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 31. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 33.

33. Monitor the OBD STATUS for DTC P0141 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 32, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 31. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.



DTC P0171: Fuel System Too Lean

DTC P0172: Fuel System Too Rich

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Poor fuel quality can also cause DTC P0171.
- If any of the DTCs listed below are indicated at the same time as DTC P0171 and/or P0172, troubleshoot those DTCs first, then recheck for P0171 and/or P0172.

P0101, P0102, P0103: MAF sensor

P0107, P0108, P1128, P1129: MAP sensor

P0133, P1172, P1157, P2195, P2238, P2252, P2A00: A/F sensor (Sensor 1)

P0134, P0135: A/F sensor (Sensor 1) heater

P0137, P0138, P0139: Secondary HO2S (Sensor 2)

P0141: Secondary HO2S (Sensor 2) heater

P2646, P2647, P2648, P2649: VTEC system

P0400, P0401, P0404, P0406, P2413: EGR system

P0443, P0496: EVAP canister purge valve

1. Check the fuel pressure (see page 11-282).

Is the fuel pressure OK?

YES—

- DTC P0171 indicated: Go to step 2.
- DTC P0172 indicated: Go to step 3.

NO—Check these items:

- If the pressure is too high, replace the fuel pressure regulator (see page 11-297), then go to step 6.
- If the pressure is too low, check for restrictions in the fuel pump, the fuel pressure regulator, the fuel filter, and the fuel line, then go to step 6.

2. Check for vacuum leaks at these parts:

- PCV valve
- PCV hose
- EVAP canister purge valve
- Throttle body
- Intake manifold
- Brake booster
- Brake booster hose
- Intake air duct

Are the parts OK?

YES—Go to step 3.

NO—Repair or replace parts with leaks, then go to step 6.

3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

4. Check under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- A/T in N, M/T in neutral
- All electrical loads off

5. Monitor the ENGINE SPEED in the DATA LIST with the HDS. Raise and hold the engine speed steady at 2,500 ± 100 rpm. While holding the rpm steady, check the MAF SENSOR in the DATA LIST.

Is there about 4.6—5.7 gm/s (M/T) or 4.7—5.7 gm/s (A/T)?

YES—For DTC P0172, check the engine valve clearances, and adjust them if needed (see page 6-8). For DTC P0171, replace the injectors (see page 11-206), then go to step 6.

NO—Replace the MAF sensor/IAT sensor (see page 11-211), then go to step 6.

6. Turn the ignition switch to ON (II).

7. Reset the ECM/PCM with the HDS.

8. Do the ECM/PCM idle learn procedure (see page 11-268).

9. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

10. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- A/T in D, M/T in 3rd or 4th
- Drive at a steady speed between 15—75 mph (24—120 km/h) for 15 minutes

NOTE: DTC P0171 and/or P0172 may take up to 80 minutes of test driving to set. Using the HDS, monitor the short term fuel trim (ST FUEL TRIM). If the ST FUEL TRIM average stays within 0.8— 1.25, there is no problem at this time.

11. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0171 or P0172 indicated?

YES—Go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0201: No. 1 Cylinder Injector Circuit Malfunction

DTC P0202: No. 2 Cylinder Injector Circuit Malfunction

DTC P0203: No. 3 Cylinder Injector Circuit Malfunction

DTC P0204: No. 4 Cylinder Injector Circuit Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle for 20 seconds.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0201, P0202, P0203, or P0204 indicated?

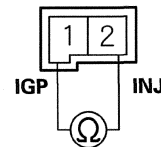
YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the injectors and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the injector 2P connector from problem cylinder.

7. At the injector side, measure the resistance between injector 2P connector terminals No. 1 and No. 2.

INJECTOR 2P CONNECTOR



Terminal side of male terminals

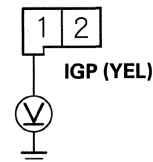
Is there 10—13 Ω?

YES—Go to step 8.

NO—Go to step 18.

8. Turn the ignition switch to ON (II).
9. Measure the voltage between injector 2P connector terminal No. 1 and body ground.

INJECTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 10.

NO—Repair an open in the wire between the injector and PGM-FI main relay 1, then go to step 19.

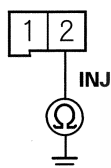
10. Turn the ignition switch to LOCK (0).



11. Check for continuity between problem cylinder injector 2P connector terminal No. 2 and body ground (see table).

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0201	BRN* ¹ LT GRN* ²
No. 2	P0202	RED* ¹ TAN* ²
No. 3	P0203	BLU
No. 4	P0204	YEL* ¹ RED* ²

INJECTOR 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Go to step 15.

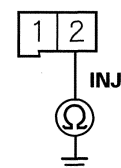
12. Jump the SCS line with the HDS.

13. Disconnect ECM/PCM connector C (49P).

14. Check for continuity between problem cylinder injector 2P connector terminal No. 2 and body ground (see table).

PROBLEM CYLINDER	DTC	WIRE COLOR
No. 1	P0201	BRN* ¹ LT GRN* ²
No. 2	P0202	RED* ¹ TAN* ²
No. 3	P0203	BLU
No. 4	P0204	YEL* ¹ RED* ²

INJECTOR 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM and the injector, then go to step 19.

NO—Go to step 24.

15. Jump the SCS line with the HDS.

16. Disconnect ECM/PCM connector C (49P).

(cont'd)

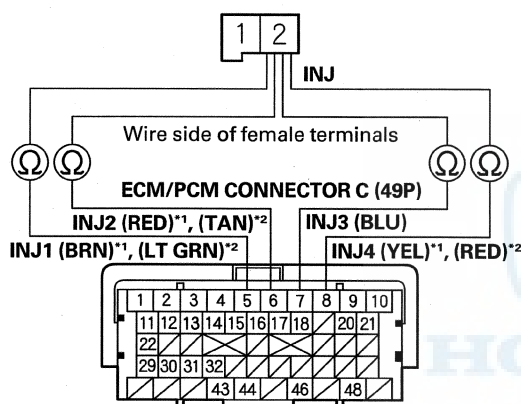
PGM-FI System

DTC Troubleshooting (cont'd)

17. Check for continuity between appropriate injector 2P connector terminal No. 2 and the appropriate ECM/PCM connector terminal of the problem cylinder (see table).

PROBLEM CYLINDER	DTC	ECM/PCM TERMINAL	WIRE COLOR
No. 1	P0201	C5	BRN* ¹ LT GRN* ²
No. 2	P0202	C6	RED* ¹ TAN* ²
No. 3	P0203	C7	BLU
No. 4	P0204	C8	YEL* ¹ RED* ²

INJECTOR 2P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 25.

NO—Repair an open in the wire between the ECM/PCM and the injector, then go to step 19.

18. Replace the problem injector (see page 11-206).

19. Reconnect all connectors.

20. Turn the ignition switch to ON (II).

21. Reset the ECM/PCM with the HDS.

22. Do the ECM/PCM idle learn procedure (see page 11-268).

23. Start the engine, and let it idle for 20 seconds.

24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0201, P0202, P0203, or P0204 indicated?

YES—Check for poor connections or loose terminals at the injector and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

25. Reconnect all connectors.

26. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

27. Start the engine, and let it idle for 20 seconds.

28. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0201, P0202, P0203, or P0204 indicated?

YES—Check for poor connections or loose terminals at the injector and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 27. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P0300: Random Misfire and Any Combination of the Following:

DTC P0301: No. 1 Cylinder Misfire Detected

DTC P0302: No. 2 Cylinder Misfire Detected

DTC P0303: No. 3 Cylinder Misfire Detected

DTC P0304: No. 4 Cylinder Misfire Detected

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If the misfire is frequent enough to trigger detection of increased emissions during two consecutive driving cycles, the MIL will come on, and DTC P0300 (and some combination of P0301 through P0304) will be stored.
- If the misfire is frequent enough to damage the catalyst, the MIL will flash whenever the misfire occurs, and DTC P0300 (and some combination of P0301 through P0304) will be stored. When the misfire stops, the MIL will remain on.
- Troubleshoot the following DTCs first, if any of them were stored along with the random misfire DTC(s). (Because parts can sometimes fail without setting DTCs, you should also do a physical inspection of the systems listed below):
 - P0101, P0102, P0103: MAF sensor
 - P0107, P0108, P1128, P1129: MAP sensor
 - P0171, P0172: Fuel system
 - P0201, P0202, P0203, P0204: No. 1 - No. 4 cylinder injector(s) circuit ('11-12 models)
 - P0335, P0339: CKP sensor
 - P0365, P0369: CMP sensor
 - P0351, P0352, P0353, P0354: No. 1 - No. 4 cylinder ignition coil(s) circuit
 - P0506, P0507: Idle control system
 - P2646, P2647, P2648, P2649: VTEC system
 - P0400, P0401, P0404, P0406, P2413: EGR system

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral).

4. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 9.

NO—If the HDS indicates PASSED, go to step 5. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, wait for several minutes, then recheck.

5. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 9.

NO—Go to step 6.

6. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VEHICLE SPEED
- REL TP SENSOR
- CLV (calculated load value)
- APP SENSOR
- ECT SENSOR 1

7. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 9.

NO—If the HDS indicates PASSED, go to step 8. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 6 and recheck.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

8. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time. ■

9. Turn the ignition switch to LOCK (0).

10. Check the fuel quality.

Is the quality good?

YES—Go to step 11.

NO—Drain the tank, and fill it with a known-good fuel, then go to step 19.

11. Inspect the spark plugs (see page 4-20). If the spark plugs are fouled or worn, replace them.
12. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
- ENGINE SPEED
 - VEHICLE SPEED
 - REL TP SENSOR
 - CLV (calculated load value)
 - APP SENSOR
 - ECT SENSOR 1

13. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 14.

NO—Go to step 19.

14. Check the fuel pressure (see page 11-282).

Is the fuel pressure OK?

YES—Go to step 15.

NO—

- If the fuel pressure is too high, replace the fuel pressure regulator (see page 11-297), then go to step 19.
- If the pressure is too low, check for restrictions in the fuel pump, the fuel filter, and the fuel line. If they are OK, replace the fuel pressure regulator (see page 11-297), then go to step 19.

15. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

16. Check under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 176 °F (80 °C)
- A/T in P or N, M/T in neutral
- All electrical loads off

17. Monitor the ENGINE SPEED in the DATA LIST with the HDS. Raise and hold the engine speed steady at 2,500 \pm 100 rpm. While holding the rpm steady, check the MAF SENSOR in the DATA LIST.

Is there about 4.6—5.7 gm/s (M/T), 4.7—5.7 gm/s (A/T)?

YES—Go to step 18.

NO—Replace the MAF sensor/IAT sensor (see page 11-211), then go to step 19.

18. Do the VTEC rocker arm test (see page 6-7).

Did the engine pass the test?

YES—Go to step 19.

NO—Repair the VTEC rocker arm (see page 6-32), then go to step 19.



19. Turn the ignition switch to ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure (see page 11-268).
22. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-5).
23. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
 - ENGINE SPEED
 - VEHICLE SPEED
 - REL TP SENSOR
 - CLV (calculated load value)
 - APP SENSOR
 - ECT SENSOR 1
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0300, P0301, P0302, P0303, or P0304 indicated?

YES—Check for poor connections or loose terminals at the ignition coils, the injectors, and the ECM/PCM, then go to the troubleshooting for DTC P0301, P0302, P0303, or P0304; '09-10 models (see page 11-111), '11-12 models (see page 11-117).

NO—Go to step 25.

25. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 24, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, go to step 1 and recheck. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 23.

DTC P0301: No. 1 Cylinder Misfire Detected
('09-10 models)

DTC P0302: No. 2 Cylinder Misfire Detected
('09-10 models)

DTC P0303: No. 3 Cylinder Misfire Detected
('09-10 models)

DTC P0304: No. 4 Cylinder Misfire Detected
('09-10 models)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral).
4. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 9.

NO—If the HDS indicates PASSED, go to step 5. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, wait for several minutes, and recheck.

5. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 9.

NO—Go to step 6.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

6. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VEHICLE SPEED
- REL TP SENSOR
- CLV (calculated load value)
- APP SENSOR
- ECT SENSOR 1

7. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 9.

NO—If the HDS indicates PASSED, go to step 8. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 6 and recheck.

8. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals in the fuel system circuit.■

9. Turn the ignition switch to LOCK (0).

10. Exchange the ignition coil from the problem cylinder with one from another cylinder.

11. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VEHICLE SPEED
- REL TP SENSOR
- CLV (calculated load value)
- APP SENSOR
- ECT SENSOR 1

12. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 13.

NO—Intermittent misfire due to poor contact at the ignition coil connector (no misfire at this time). Check for poor connections or loose terminals at the ignition coil.■

13. Determine which cylinder had the misfire.

Does the misfire occur in the cylinder where the ignition coil was exchanged?

YES—Replace the faulty ignition coil (see page 4-20), then go to step 37.

NO—Go to step 14.



14. Turn the ignition switch to LOCK (0).

15. Exchange the spark plug from the problem cylinder with one from another cylinder.

16. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VEHICLE SPEED
- REL TP SENSOR
- CLV (calculated load value)
- APP SENSOR
- ECT SENSOR 1

17. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 18.

NO—Intermittent misfire due to spark plug fouling (no misfire at this time).■

18. Determine which cylinder had the misfire.

Does the misfire occur in the cylinder where the spark plug was exchanged?

YES—Replace the faulty spark plug, then go to step 37.

NO—Go to step 19.

19. Turn the ignition switch to LOCK (0).

20. Exchange the injector from the problem cylinder with one from the another cylinder.

21. Start the engine, and let it idle for 2 minutes.

22. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VEHICLE SPEED
- REL TP SENSOR
- CLV (calculated load value)
- APP SENSOR
- ECT SENSOR 1

23. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 24.

NO—Intermittent misfire due to bad contact at the injector connector (no misfire at this time). Check for poor connections or loose terminals at the injector.■

24. Determine which cylinder had the misfire.

Does the misfire occur in the cylinder where the injector was exchanged?

YES—Replace the faulty injector (see page 11-206), then go to step 37.

NO—Go to step 25.

25. Do an engine compression and a cylinder leakdown test (see page 6-6).

Did the engine pass both tests?

YES—Go to step 26.

NO—Repair the engine, then go to step 37.

26. Do the VTEC rocker arm test (see page 6-7).

Did the engine pass the test?

YES—Go to step 27.

NO—Repair the VTEC rocker arm (see page 6-32), then go to step 37.

27. Turn the ignition switch to LOCK (0).

28. Disconnect the injector 2P connector from the problem cylinder (see page 11-206).

29. Turn the ignition switch to ON (II).

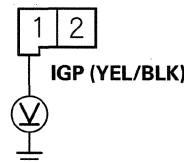
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

30. Measure the voltage between injector 2P connector terminal No. 1 and body ground.

INJECTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 31.

NO—Repair an open in the wire between the injector and PGM-FI main relay 1, then go to step 37.

31. Turn the ignition switch to LOCK (0).

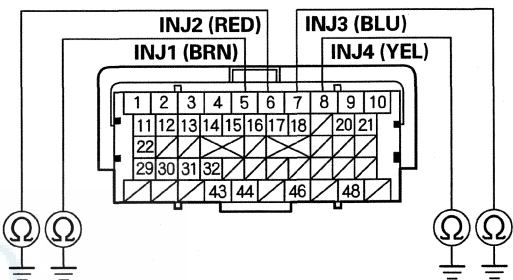
32. Jump the SCS line with the HDS.

33. Disconnect ECM/PCM connector C (49P).

34. Check for continuity between body ground and the ECM/PCM connector terminal of the problem cylinder (see table).

PROBLEM CYLINDER	DTC	ECM/PCM TERMINAL	WIRE COLOR
No. 1	P0301	C5	BRN
No. 2	P0302	C6	RED
No. 3	P0303	C7	BLU
No. 4	P0304	C8	YEL

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM and the injector, then go to step 37.

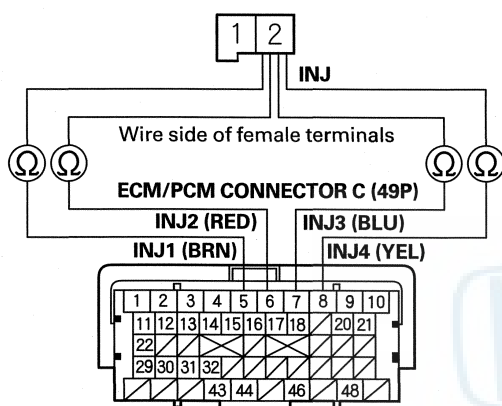
NO—Go to step 35.



35. Check for continuity between appropriate injector 2P connector terminal No. 2 and the ECM/PCM connector terminal of the problem cylinder (see table).

PROBLEM CYLINDER	DTC	ECM/PCM TERMINAL	WIRE COLOR
No. 1	P0301	C5	BRN
No. 2	P0302	C6	RED
No. 3	P0303	C7	BLU
No. 4	P0304	C8	YEL

INJECTOR 2P CONNECTOR



Terminal side of female terminals

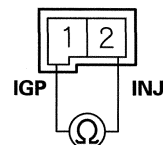
Is there continuity?

YES—Go to step 36.

NO—Repair an open in the wire between the ECM/PCM and the injector, then go to step 37.

36. At the injector side, measure the resistance between injector 2P connector terminals No. 1 and No. 2.

INJECTOR 2P CONNECTOR



Terminal side of male terminals

Is there 10—13 Ω ?

YES—Go to step 46.

NO—Replace the injector (see page 11-206), then go to step 37.

37. Turn the ignition switch to LOCK (0).
38. Reconnect all connectors, then install the parts in the reverse order of removal.
39. Turn the ignition switch to ON (II).
40. Reset the ECM/PCM with the HDS.
41. Do the ECM/PCM idle learn procedure (see page 11-268).
42. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-5).
43. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
- ENGINE SPEED
 - VEHICLE SPEED
 - REL TP SENSOR
 - CLV (calculated load value)
 - APP SENSOR
 - ECT SENSOR 1
44. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0301, P0302, P0303, or P0304 indicated?

YES—Check for poor connections or loose terminals at the ignition coils, the injectors, and the ECM/PCM, then go to the troubleshooting for DTC P0300, P0301, P0302, P0303, or P0304 (see page 11-109).

NO—Go to step 45.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

45. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 44, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the ignition coils, the injectors, and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 43.

46. Reconnect all connectors.

47. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

48. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VEHICLE SPEED
- REL TP SENSOR
- CLV (calculated load value)
- APP SENSOR
- ECT SENSOR 1

49. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0301, P0302, P0303, or P0304 indicated?

YES—Check for poor connections or loose terminals at the ignition coils, the injectors, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 48. If the ECM/PCM was substituted, go to step 1.

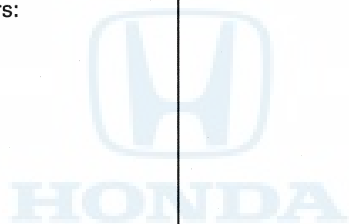
NO—Go to step 50.

50. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 49, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the ignition coils, the injectors, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 48. If the ECM/PCM was substituted, go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 48.





DTC P0301: No. 1 Cylinder Misfire Detected ('11-12 models)

DTC P0302: No. 2 Cylinder Misfire Detected ('11-12 models)

DTC P0303: No. 3 Cylinder Misfire Detected ('11-12 models)

DTC P0304: No. 4 Cylinder Misfire Detected ('11-12 models)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral).
4. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 9.

NO—If the HDS indicates PASSED, go to step 5. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION, wait for several minutes, and recheck.

5. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 9.

NO—Go to step 6.

6. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VEHICLE SPEED
- REL TP SENSOR
- CLV (calculated load value)
- APP SENSOR
- ECT SENSOR 1

7. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 9.

NO—If the HDS indicates PASSED, go to step 8. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION, go to step 6 and recheck.

8. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals in the fuel system circuit. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

9. Turn the ignition switch to LOCK (0).
10. Exchange the ignition coil from the problem cylinder with one from another cylinder.
11. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
 - ENGINE SPEED
 - VEHICLE SPEED
 - REL TP SENSOR
 - CLV (calculated load value)
 - APP SENSOR
 - ECT SENSOR 1
12. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 13.

NO—Intermittent misfire due to poor contact at the ignition coil connector (no misfire at this time). Check for poor connections or loose terminals at the ignition coil. ■
13. Determine which cylinder had the misfire.

Does the misfire occur in the cylinder where the ignition coil was exchanged?

YES—Replace the faulty ignition coil (see page 4-20), then go to step 27.

NO—Go to step 14.
14. Turn the ignition switch to LOCK (0).
15. Exchange the spark plug from the problem cylinder with one from another cylinder.
16. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
 - ENGINE SPEED
 - VEHICLE SPEED
 - REL TP SENSOR
 - CLV (calculated load value)
 - APP SENSOR
 - ECT SENSOR 1
17. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 18.

NO—Intermittent misfire due to spark plug fouling (no misfire at this time). ■
18. Determine which cylinder had the misfire.

Does the misfire occur in the cylinder where the spark plug was exchanged?

YES—Replace the faulty spark plug, then go to step 27.

NO—Go to step 19.



19. Turn the ignition switch to LOCK (0).
20. Exchange the injector from the problem cylinder with one from the another cylinder.
21. Start the engine, and let it idle for 2 minutes.
22. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
 - ENGINE SPEED
 - VEHICLE SPEED
 - REL TP SENSOR
 - CLV (calculated load value)
 - APP SENSOR
 - ECT SENSOR 1

23. Check the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE in the DATA LIST for 10 minutes with the HDS.

Does the CYL1 MISFIRE, CYL2 MISFIRE, CYL3 MISFIRE, and/or CYL4 MISFIRE show misfire counts?

YES—Go to step 24.

NO—Intermittent misfire due to bad contact at the injector connector (no misfire at this time). Check for poor connections or loose terminals at the injector. ■

24. Determine which cylinder had the misfire.

Does the misfire occur in the cylinder where the injector was exchanged?

YES—Replace the faulty injector (see page 11-206), then go to step 27.

NO—Go to step 25.

25. Do an engine compression and a cylinder leakdown test (see page 6-6).

Did the engine pass both tests?

YES—Go to step 26.

NO—Repair the engine, then go to step 27.

26. Do the VTEC rocker arm test (see page 6-7).

Did the engine pass the test?

YES—Check for wear or damage to these parts. If needed, repair or replace part(s), then go to step 27.

- Cylinder head
- Carbon in the intake manifold
- Valve seal
- Piston ring
- Intake and exhaust valve
- Cam chain
- Valve guide
- Piston

NO—Repair the VTEC rocker arm (see page 6-32), then go to step 27.

27. Turn the ignition switch to LOCK (0).

28. Install the parts in the reverse order of removal.

29. Turn the ignition switch to ON (II).

30. Reset the ECM/PCM with the HDS.

31. Do the ECM/PCM idle learn procedure (see page 11-268).

32. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-5).

33. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VEHICLE SPEED
- REL TP SENSOR
- CLV (calculated load value)
- APP SENSOR
- ECT SENSOR 1

34. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0301, P0302, P0303, or P0304 indicated?

YES—Check for poor connections or loose terminals at the ignition coils, the injectors, and the ECM/PCM, then go to the troubleshooting for DTC P0300, P0301, P0302, P0303, or P0304 (see page 11-109).

NO—Go to step 35.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

35. Monitor the OBD STATUS for DTC P0301, P0302, P0303, or P0304 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 34, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the ignition coils, the injectors, and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION, go to step 33.

DTC P0325: Knock Sensor Circuit Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models.
- Information marked with an asterisk (*2) applies to '11-12 models.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
4. Hold the engine speed between 3,000—4,000 rpm for at least 10 seconds.
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0325 indicated?

YES—Go to step 6.

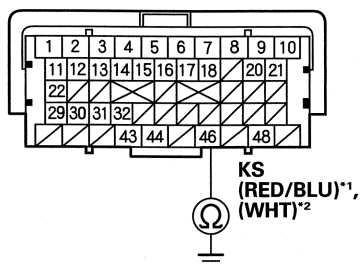
NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the knock sensor and the ECM/PCM. ■

6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect the knock sensor 1P connector (see page 11-210).
9. Disconnect ECM/PCM connector C (49P).



10. Check for continuity between ECM/PCM connector terminal C46 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

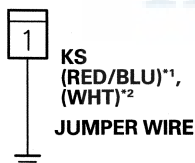
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (C46) and the knock sensor, then go to step 14.

NO—Go to step 11.

11. Connect the knock sensor 1P connector terminal to body ground with a jumper wire.

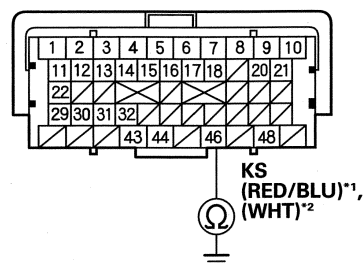
KNOCK SENSOR 1P CONNECTOR



Wire side of female terminals

12. Check for continuity between ECM/PCM connector terminal C46 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair an open in the wire between the ECM/PCM (C46) and the knock sensor, then go to step 14.

13. Replace the knock sensor (see page 11-210).
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure (see page 11-268).
18. Hold the engine speed between 3,000—4,000 rpm or at least 10 seconds.
19. Check for Pending or Confirmed DTCs with the HDS.
- Is DTC P0325 indicated?
- YES**—Go to step 21.
- NO**—Go to step 20.
20. Monitor the OBD STATUS for DTC P0325 in the DTCs MENU with the HDS.
- Does the HDS indicate PASSED?
- YES**—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 19, go to the indicated DTC's troubleshooting. ■
- NO**—If the HDS indicates FAILED, check for poor connections or loose terminals at the knock sensor and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, go to step 18 and recheck.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

21. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
22. Hold the engine speed between 3,000—4,000 rpm for at least 10 seconds.
23. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0325 indicated?

YES—Check for poor connections or loose terminals at the knock sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 22. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P0325 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 23, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the knock sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 22. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, go to step 22.

DTC P0335: CKP Sensor No Signal

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Pending or Confirmed DTCs with the HDS.

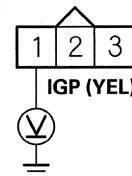
Is DTC P0335 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CKP sensor and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the CKP sensor 3P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between CKP sensor 3P connector terminal No. 1 and body ground.

CKP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

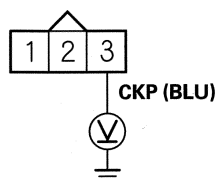
YES—Go to step 9.

NO—Repair an open in the wire between the CKP sensor and PGM-FI main relay 1, then go to step 19.



9. Measure the voltage between CKP sensor 3P connector terminal No. 3 and body ground.

CKP SENSOR 3P CONNECTOR



Wire side of female terminals

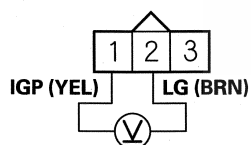
Is there about 5 V?

YES—Go to step 10.

NO—Go to step 11.

10. Measure the voltage between CKP sensor 3P connector terminals No. 1 and No. 2.

CKP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

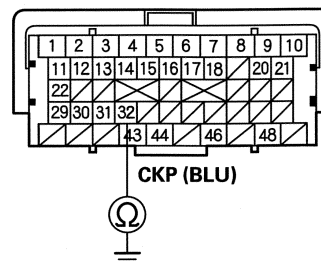
YES—Go to step 17.

NO—Repair an open in the wire between the CKP sensor and G101 (see page 22-16), then go to step 19.

11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).

14. Check for continuity between ECM/PCM connector terminal C32 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

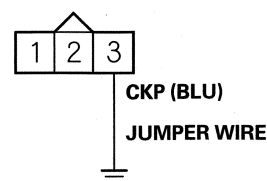
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (C32) and the CKP sensor, then go to step 19.

NO—Go to step 15.

15. Connect CKP sensor 3P connector terminal No. 3 to body ground with a jumper wire.

CKP SENSOR 3P CONNECTOR



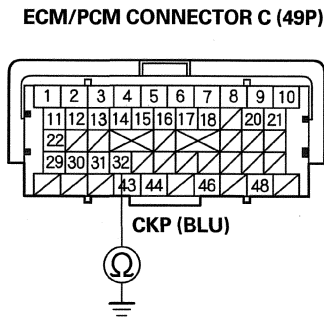
Wire side of female terminals

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

16. Check for continuity between ECM/PCM connector terminal C32 and body ground.



Terminal side of female terminals

Is there continuity?

YES—Go to step 25.

NO—Repair an open in the wire between the ECM/PCM (C32) and the CKP sensor, then go to step 19.

17. Turn the ignition switch to LOCK (0).
18. Replace the CKP sensor (see page 11-209).
19. Reconnect all connectors.
20. Turn the ignition switch to ON (II).
21. Reset the ECM/PCM with the HDS.
22. Do the ECM/PCM idle learn procedure (see page 11-268).
23. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-5).
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0335 indicated?

YES—Check for poor connections or loose terminals at the CKP sensor and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

25. Reconnect all connectors.

26. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0335 indicated?

YES—Check for poor connections or loose terminals at the CKP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P0339: CKP Sensor Intermittent Interruption

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle for 10 seconds.
4. Monitor the OBD STATUS for DTC P0339 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—If the HDS indicates PASSED, go to step 5. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

5. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
 - ENGINE SPEED
 - VEHICLE SPEED
6. Monitor the OBD STATUS for DTC P0339 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CKP sensor and the ECM/PCM. If the HDS indicates NOT COMPLETED, go to step 5 and recheck.

7. Check for poor connections or loose terminals at these locations:
 - CKP sensor
 - ECM/PCM
 - Engine ground
 - Body ground

Are the connections and terminals OK?

YES—Go to step 8.

NO—Repair the connections or terminals, then go to step 11.

8. Check for damage on the CKP sensor pulse plate.

Is the pulse plate damaged?

YES—Replace the CKP sensor pulse plate, then go to step 11.

NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).
10. Replace the CKP sensor (see page 11-209).
11. Turn the ignition switch to ON (II).
12. Reset the ECM/PCM with the HDS.
13. Do the ECM/PCM idle learn procedure (see page 11-268).
14. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-5).
15. Start the engine, and let it idle for 10 seconds.
16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0339 indicated?

YES—Check for poor connections or loose terminals at the CKP sensor and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0351: No. 1 Cylinder Ignition Coil Circuit Malfunction

DTC P0352: No. 2 Cylinder Ignition Coil Circuit Malfunction

DTC P0353: No. 3 Cylinder Ignition Coil Circuit Malfunction

DTC P0354: No. 4 Cylinder Ignition Coil Circuit Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Start the engine.

4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0351, P0352, P0353, and/or P0354 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ignition coil and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0).

6. Exchange the ignition coil from the problem cylinder with one from another cylinder (see page 4-20).

7. Start the engine.

8. Check for Pending or Confirmed DTCs with the HDS.

Is an ignition coil DTC indicated at the cylinder where the ignition coil was exchanged?

YES—Replace the faulty ignition coil (see page 4-20), then go to step 25.

NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).

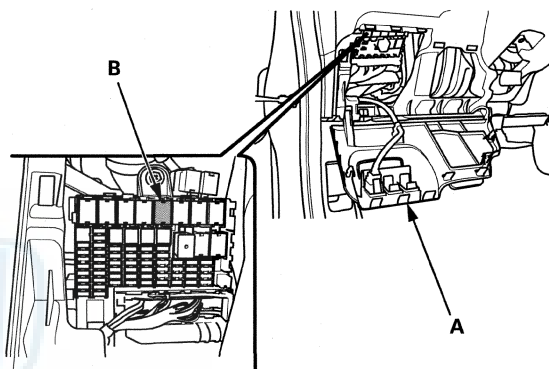
10. Check the No. 33 IGNITION COIL (15 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES—Go to step 11.

NO—Go to step 12.

11. Open the fuse access panel (A), then test the ignition coil relay (B) in the under-dash fuse/relay box (see page 22-65).

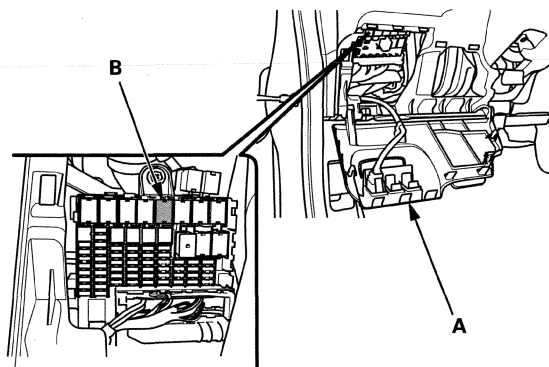


Is the ignition coil relay OK?

YES—Go to step 15.

NO—Replace the ignition coil relay, then go to step 25.

12. Open the fuse access panel (A), then remove the ignition coil relay (B) from the under-dash fuse/relay box.

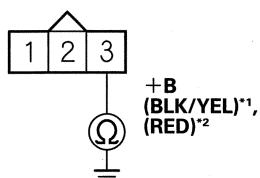


13. Disconnect all ignition coil 3P connectors.



14. Check for continuity between No. 1 ignition coil 3P connector terminal No. 3 and body ground.

No. 1 IGNITION COIL 3P CONNECTOR



Wire side of female terminals

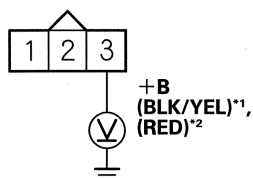
Is there continuity?

YES—Repair a short in the wire between the ignition coils and the ignition coil relay. Also replace the No. 33 IG COIL (15 A) fuse, then go to step 25.

NO—Check the under-dash fuse/relay box, and replace it if needed; USA models (see page 22-65), Canada models (see page 22-66), then go to step 25.

15. Reinstall the ignition coil relay.
16. Disconnect the ignition coil 3P connector from the problem cylinder.
17. Turn the ignition switch to ON (II).
18. Measure the voltage between ignition coil 3P connector terminal No. 3 and body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

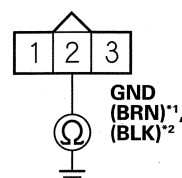
YES—Go to step 19.

NO—Repair an open in the wire between the ignition coil and the ignition coil relay, then go to step 25.

19. Turn the ignition switch to LOCK (0).

20. Check for continuity between ignition coil 3P connector terminal No. 2 and body ground.

IGNITION COIL 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 21.

NO—Repair an open in the wire between the ignition coil and G101 (see page 22-16), then go to step 25.

21. Jump the SCS line with the HDS.
22. Disconnect ECM/PCM connector C (49P).

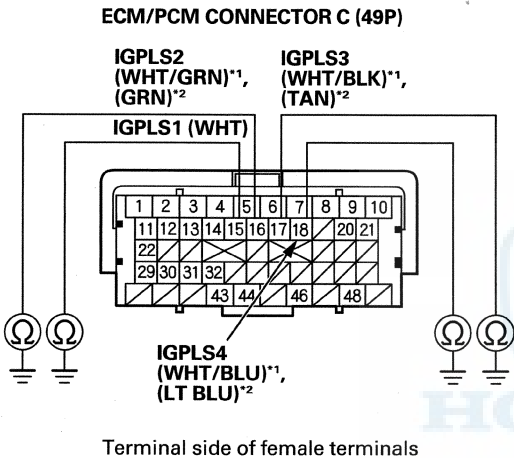
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

23. Check for continuity between body ground and the ECM/PCM connector terminal of the problem ignition coil (see table).

PROBLEM CYLINDER	DTC	ECM/PCM TERMINAL	WIRE COLOR
No. 1	P0351	C15	WHT
No. 2	P0352	C16	WHT/GRN* ¹ , GRN* ²
No. 3	P0353	C17	WHT/BLK* ¹ , TAN* ²
No. 4	P0354	C18	WHT/BLU* ¹ , LT BLU* ²



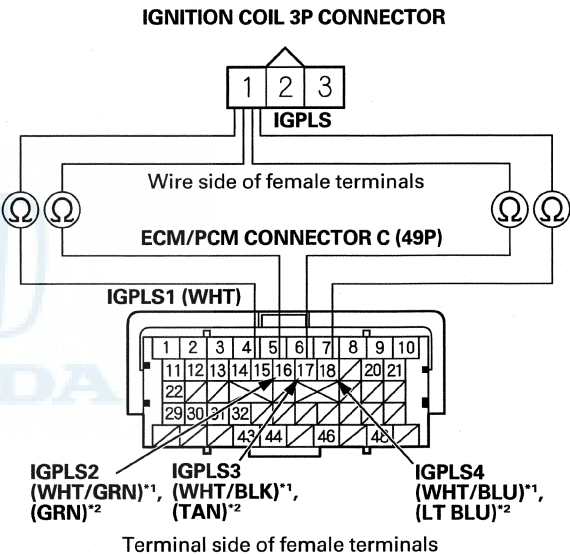
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM and the ignition coil, then go to step 25.

NO—Go to step 24.

24. Check for continuity between appropriate ignition coil 3P connector terminal No. 1 and the ECM/PCM connector terminal of the problem ignition coil (see table).

PROBLEM CYLINDER	DTC	ECM/PCM TERMINAL	WIRE COLOR
No. 1	P0351	C15	WHT
No. 2	P0352	C16	WHT/GRN* ¹ , GRN* ²
No. 3	P0353	C17	WHT/BLK* ¹ , TAN* ²
No. 4	P0354	C18	WHT/BLU* ¹ , LT BLU* ²



Is there continuity?

YES—Go to step 31.

NO—Repair an open in the wire between the ECM/PCM and the ignition coil, then go to step 25.



25. Turn the ignition switch to LOCK (0).
26. Reconnect all connectors.
27. Turn the ignition switch to ON (II).
28. Reset the ECM/PCM with the HDS.
29. Do the ECM/PCM idle learn procedure (see page 11-268).
30. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0351, P0352, P0353, and/or P0354 indicated?

YES—Check for poor connections or loose terminals at the ignition coil and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

31. Reconnect all connectors.
32. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
33. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0351, P0352, P0353, and/or P0354 indicated?

YES—Check for poor connections or loose terminals at the ignition coil and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0365: CMP Sensor No Signal

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check for Pending or Confirmed DTCs with the HDS.

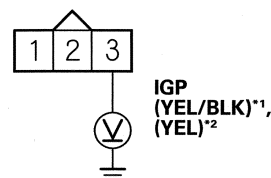
Is DTC P0365 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CMP sensor and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the CMP sensor 3P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between CMP sensor 3P connector terminal No. 3 and body ground.

CMP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 9.

NO—Repair an open in the wire between the CMP sensor and PGM-FI main relay 1, then go to step 18.

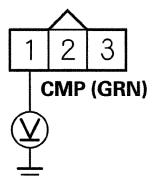
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

9. Measure the voltage between CMP sensor 3P connector terminal No. 1 and body ground.

CMP SENSOR 3P CONNECTOR



Wire side of female terminals

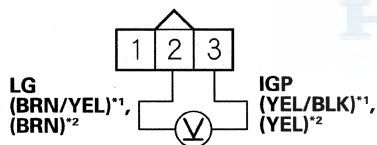
Is there about 5 V?

YES—Go to step 10.

NO—Go to step 11.

10. Measure the voltage between CMP sensor 3P connector terminals No. 2 and No. 3.

CMP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

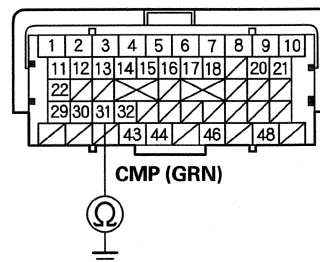
YES—Go to step 16.

NO—Repair an open in the wire between the CMP sensor and G101 (see page 22-16), then go to step 18.

11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector C (49P).

14. Check for continuity between ECM/PCM connector terminal C31 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

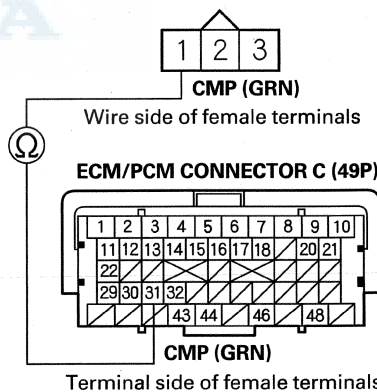
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (C31) and the CMP sensor, then go to step 18.

NO—Go to step 15.

15. Check for continuity between CMP sensor 3P connector terminal No. 1 and ECM/PCM connector terminal C31.

CMP SENSOR 3P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 23.

NO—Repair an open in the wire between the ECM/PCM (C31) and the CMP sensor, then go to step 18.



16. Turn the ignition switch to LOCK (0).
17. Replace the CMP sensor (see page 11-209).
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure (see page 11-268).
22. Check for Pending or Confirmed DTCs with the HDS.
Is DTC P0365 indicated?
YES—Check for poor connections or loose terminals at the CMP sensor and the ECM/PCM, then go to step 1.
NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting.■
23. Reconnect all connectors.
24. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
25. Check for Pending or Confirmed DTCs with the HDS.
Is DTC P0365 indicated?
YES—Check for poor connections or loose terminals at the CMP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.
NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P0369: CMP Sensor Circuit Intermittent Interruption

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle for 10 seconds.
4. Monitor the OBD STATUS for DTC P0369 in the DTCs MENU with the HDS.
Does the HDS indicate FAILED?
YES—Go to step 7.
NO—If the HDS indicates PASSED, go to step 5. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.
5. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
 - ENGINE SPEED
 - VEHICLE SPEED
6. Monitor the OBD STATUS for DTC P0369 in the DTCs MENU with the HDS.
Does the HDS indicate FAILED?
YES—Go to step 7.
NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CMP sensor and the ECM/PCM. If the HDS indicates NOT COMPLETED, go to step 5 and recheck.
7. Check for poor connections or loose terminals at these locations:
 - CMP sensor
 - ECM/PCM
 - Engine ground
 - Body ground*Are the connections and terminals OK?*
YES—Go to step 8.
NO—Repair the connections or terminals, then go to step 11.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

8. Check for damage on the CMP sensor pulse plate (see page 6-26).

Is the pulse plate damaged?

YES—Replace the CMP sensor pulse plate (see page 6-26), then go to step 11.

NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).
10. Replace the CMP sensor (see page 11-209).
11. Turn the ignition switch to ON (II).
12. Reset the ECM/PCM with the HDS.
13. Do the ECM/PCM idle learn procedure (see page 11-268).
14. Start the engine, and let it idle for 10 seconds.
15. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0369 indicated?

YES—Check for poor connections or loose terminals at the CMP sensor and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P050A: Cold Start Idle Air Control System Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check for Pending or Confirmed DTCs with the HDS.

Are any Pending or Confirmed DTCs other than P050A indicated?

YES—Go to the indicated DTC's troubleshooting. ■

NO—Go to step 3.

3. Check for a blocked or an incorrectly installed intake air duct.

Is it OK?

YES—Go to step 4.

NO—Reconnect or repair the intake air duct, then go to step 19.

4. Check for damage at the air cleaner housing.

Is it OK?

YES—Go to step 5.

NO—Replace the air cleaner housing (see page 11-307), then go to step 19.

5. Check for dirt or debris in the air cleaner element.

Is it dirty?

YES—Replace the air cleaner element or remove the debris (see page 11-308), then go to step 19.

NO—Go to step 6.

6. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.

7. Clear the DTC with the HDS.

8. Start the engine, and let it idle for 10 seconds or more.

9. Monitor the OBD STATUS for DTC P050A in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 10.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 6.



10. Do the ETCS TEST in the INSPECTION MENU with the HDS.

Is the THROTTLE ACTUATOR CONTROL VALVE normal?

YES—Go to step 11.

NO—Replace the throttle body (see page 11-309), then go to step 19.

11. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

12. While holding the engine speed at 2,500 rpm for 30 seconds, check the MAF SENSOR in the DATA LIST with the HDS.

Is there about 4.6—5.7 gm/s (M/T) or 4.7—5.7 gm/s (A/T)?

YES—Go to step 13.

NO—Replace the MAF sensor/IAT sensor (see page 11-211), then go to step 19.

13. Turn the ignition switch to LOCK (0).

14. Allow the engine to cool to the ambient temperature.

15. Note the ambient temperature.

16. Turn the ignition switch to ON (II).

17. Quickly note the value of the IAT SENSOR (2) in the DATA LIST with the HDS.

18. Compare the value of the IAT SENSOR (2) to the ambient temperature.

Does the value of the IAT SENSOR (2) differ 5.4 °F (3 °C) or more from the ambient temperature?

YES—Replace the MAF sensor/IAT sensor (see page 11-211), then go to step 19.

NO—Check for dirt, carbon, or damage in the throttle bore. If there is dirt or carbon, clean the throttle body (see page 11-306), then go to step 19. If there is damage in the throttle bore, replace the throttle body (see page 11-309), then go to step 19.

19. Turn the ignition switch to ON (II).

20. Reset the ECM/PCM with the HDS.

21. Do the ECM/PCM idle learn procedure (see page 11-268).

22. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.

23. Start the engine, and let it idle for 10 seconds or more.

24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P050A indicated?

YES—Check for poor connections or loose terminals at the throttle body, the MAF sensor/IAT sensor, and the ECM/PCM, then go to step 1.

NO—Go to step 25.

25. Monitor the OBD STATUS for DTC P050A in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 24, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the throttle body, the MAF sensor/IAT sensor, and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 22.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P050B: Cold Start Ignition Timing Control System Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check for Pending or Confirmed DTCs with the HDS.

Are any Pending or Confirmed DTCs other than P050B indicated?

YES—Go to the indicated DTC's troubleshooting. ■

NO—Go to step 3.

3. Check for a blocked or an incorrectly installed intake air duct.

Is it OK?

YES—Go to step 4.

NO—Reconnect or repair the intake air duct, then go to step 21.

4. Check for damage at the air cleaner housing.

Is it OK?

YES—Go to step 5.

NO—Replace the air cleaner housing (see page 11-307), then go to step 21.

5. Check for dirt or debris in the air cleaner element.

Is it dirty?

YES—Replace the air cleaner element or remove the debris (see page 11-308), then go to step 21.

NO—Go to step 6.

6. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.

7. Clear the DTC with the HDS.

8. Start the engine, and let it idle for 10 seconds or more.

9. Monitor the OBD STATUS for DTC P050B in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 10.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the CKP sensor, the throttle body, the MAF sensor/IAT sensor, ECT sensor 1, ECT sensor 2, and the ECM/PCM. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 6.

10. Inspect the ignition timing (see page 4-19).

Is the ignition timing OK?

YES—Go to step 12.

NO—Go to step 11.

11. Check for damage at the CKP sensor (see page 11-209) and the CKP sensor pulser plate (see page 7-27).

Is the CKP sensor or the CKP sensor pulse plate damaged?

YES—Replace the CKP sensor (see page 11-209) and/or the CKP sensor pulse plate (see page 7-27), then go to step 21.

NO—Go to step 28.

12. Do the ETCS TEST in the INSPECTION MENU with the HDS.

Is the THROTTLE ACTUATOR CONTROL VALVE normal?

YES—Go to step 13.

NO—Replace the throttle body (see page 11-309), then go to step 21.



13. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

14. While holding the engine speed at 2,500 rpm for 30 seconds, check the MAF SENSOR in the DATA LIST with the HDS.

Is there about 4.6–5.7 gm/s (M/T) or 4.7–5.7 gm/s (A/T)?

YES—Go to step 15.

NO—Replace the MAF sensor/IAT sensor (see page 11-211), then go to step 21.

15. Turn the ignition switch to LOCK (0).

16. Allow the sensors to cool to the ambient temperature.

17. Note the ambient temperature.

18. Turn the ignition switch to ON (II).

19. Quickly note the value of ECT SENSOR 1 and ECT SENSOR 2 in the DATA LIST with the HDS.

20. Compare the value of ECT SENSOR 1 and the ambient temperature, and the value of ECT SENSOR 2 and the ambient temperature individually.

Does either sensor differ more than 5.4 °F (3 °C) from the ambient temperature?

YES—Replace the sensor that differed more than 5.4 °F (3 °C) from the ambient temperature, then go to step 21.

NO—Check and repair any problems with the following items. Repair or replace them if needed, then go to step 21.

- Engine compression and cylinder leakdown
- VTEC system
- Engine oil
- A/C system
- Power steering

21. Turn the ignition switch to ON (II).

22. Reset the ECM/PCM with the HDS.

23. Do the ECM/PCM idle learn procedure (see page 11-268).

24. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.

25. Start the engine, and let it idle for 10 seconds or more.

26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P050B indicated?

YES—Check for poor connections or loose terminals at the CKP sensor, the throttle body, the MAF sensor/IAT sensor, ECT sensor 1, ECT sensor 2, and the ECM/PCM, then go to step 1.

NO—Go to step 27.

27. Monitor the OBD STATUS for DTC P050B in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 26, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the CKP sensor, the throttle body, the MAF sensor/IAT sensor, ECT sensor 1, ECT sensor 2, and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 24.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

28. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
29. Do the ECM/PCM idle learn procedure (see page 11-268).
30. Let the engine cool until the value of ECT SENSOR 1 is 122 °F (50 °C) or less.
31. Start the engine, and let it idle for 10 seconds or more.
32. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P050B indicated?

YES—Check for poor connections or loose terminals at the CKP sensor, the throttle body, the MAF sensor/IAT sensor, ECT sensor 1, ECT sensor 2, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 30. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 33.

33. Monitor the OBD STATUS for DTC P050B in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 32, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the CKP sensor, the throttle body, the MAF sensor/IAT sensor, ECT sensor 1, ECT sensor 2, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 30. If the ECM/PCM was substituted, go to step 1. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 30.

DTC P0562: Charging System Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If any high current load accessories are installed, this DTC can be set.
- If DTC P16BB and/or P16BC is stored at the same time as DTC P0562, troubleshoot DTC P16BB and/or P16BC first, then recheck for DTC P0562.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check under these conditions:
 - A/C on
 - Temperature control at maximum cool
 - Blower fan at maximum speed
 - Rear window defogger on
 - Headlights on high beam
5. Hold the engine speed at 2,000 rpm (A/T in P or N, M/T in neutral) for 1 minute.
6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0562 indicated?

YES—

- Check for poor connections or loose terminals at the alternator and the under-hood fuse/relay box, then go to step 7.
- Replace the alternator if needed (see page 4-32), then go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator and the under-hood fuse/relay box, and check the battery performance (see page 22-68). ■



7. Turn the ignition switch to ON (II).
8. Reset the ECM/PCM with the HDS.
9. Do the ECM/PCM idle learn procedure (see page 11-268).
10. Start the engine.
11. Check under these conditions:
 - A/C on
 - Temperature control at maximum cool
 - Blower fan at maximum speed
 - Rear window defogger on
 - Headlights on high beam
12. Hold the engine speed at 2,000 rpm (A/T in P or N, M/T in neutral) for 1 minute.
13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0562 indicated?

YES—Check for poor connections or loose terminals at the alternator and the under-hood fuse/relay box, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0563: ECM/PCM Power Source Circuit Unexpected Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Wait 10 seconds.
5. Turn the ignition switch to ON (II).
6. Check for Pending or Confirmed DTCs with the HDS.

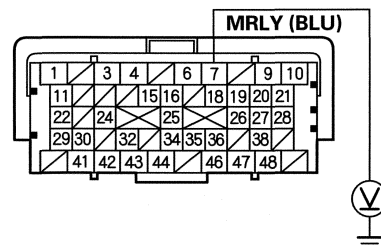
Is DTC P0563 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at PGM-FI main relay 1 and the ECM/PCM. ■

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).
10. Measure the voltage between ECM/PCM connector terminal A7 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 13.

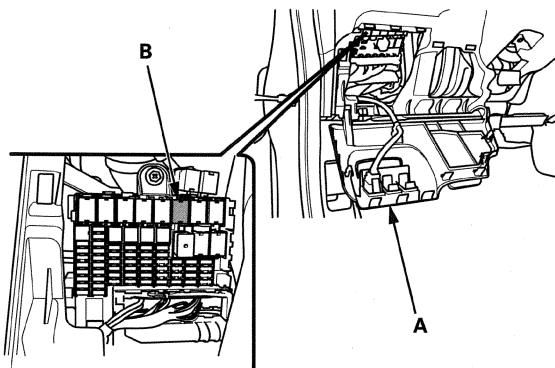
NO—Go to step 11.

(cont'd)

PGM-FI System

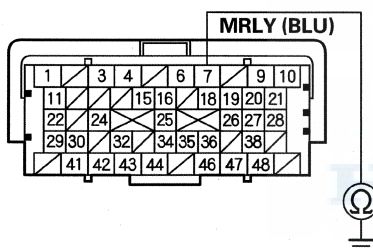
DTC Troubleshooting (cont'd)

11. Open the fuse access panel (A), then remove PGM-FI main relay 1 (B) from the under-dash fuse/relay box.



12. Check for continuity between ECM/PCM connector terminal A7 and body ground.

ECM/PCM CONNECTOR A (49P)



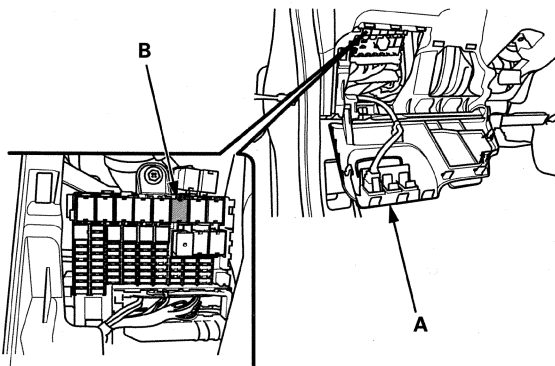
Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (A7) and PGM-FI main relay 1, then go to step 16.

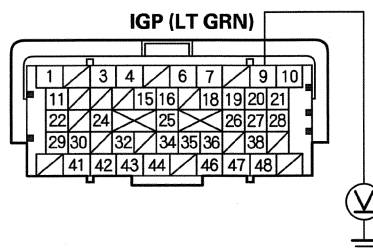
NO—Go to step 15.

13. Open the fuse access panel (A), then remove PGM-FI main relay 1 (B) from the under-dash fuse/relay box.



14. Measure the voltage between ECM/PCM connector terminal A9 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there battery voltage?

YES—Repair a short to power in the wire between the ECM/PCM (A9) and PGM-FI main relay 1, then go to step 16.

NO—Go to step 15.

15. Test PGM-FI main relay 1 (see page 22-76).

Is PGM-FI main relay 1 OK?

YES—Go to step 23.

NO—Replace PGM-FI main relay 1, then go to step 16.

16. Reconnect all connectors.

17. Turn the ignition switch to ON (II).

18. Reset the ECM/PCM with the HDS.

19. Do the ECM/PCM idle learn procedure (see page 11-268).

20. Turn the ignition switch to LOCK (0).

21. Wait 10 seconds.

22. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0563 indicated?

YES—Check for poor connections or loose terminals at PGM-FI main relay 1 and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



23. Reconnect all connectors.

24. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

25. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0563 indicated?

YES—Check for poor connections or loose terminals at PGM-FI main relay 1 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 20. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0602: ECM/PCM Programming Error

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- This DTC is indicated when an ECM/PCM update is not completed.
- Do not turn the ignition switch to ACCESSORY (I) or to LOCK (0) while updating the ECM/PCM. If you do, the ECM/PCM can be damaged.

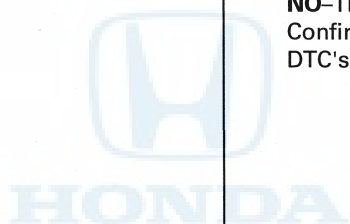
1. Do the ECM/PCM update procedure (see page 11-213).

2. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0602 indicated?

YES—Replace the original ECM/PCM (see page 11-215). ■

NO—The update is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P0606: ECM/PCM Processor Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine, and let it idle for 40 seconds.
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0606 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. ■

6. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
7. Turn the ignition switch to LOCK (0).
8. Start the engine, and let it idle for 40 seconds.
9. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0606 indicated?

YES—If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 7. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P060A: PCM (A/T system) Internal Control Module Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P060A indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Update the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P060A indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P062F: ECM/PCM Internal Control Module Keep Alive Memory (KAM) Error

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P062F indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P062F indicated?

YES—If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0630: VIN Not Programmed or Mismatch

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- This DTC is stored only when the ECM/PCM does not have the VIN information of the vehicle. Use the HDS to input the missing VIN information.

1. Turn the ignition switch to ON (II).
2. Check the VIN with the HDS.

Does the HDS show the vehicle's VIN?

YES—Go to step 5.

NO—Go to step 3.

3. Input the VIN to the ECM/PCM with the HDS.

Does the HDS indicate COMPLETE?

YES—Go to step 5.

NO—Go to step 4.

4. Check for DTCs with the HDS.

Is DTC P062F indicated?

YES—Go to the DTC P062F troubleshooting (see page 11-141). ■

NO—Go to step 9.

5. Clear the DTC with the HDS.
6. Turn the ignition switch to LOCK (0).
7. Turn the ignition switch to ON (II), and wait 5 seconds.
8. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0630 indicated?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

9. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

10. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0630 indicated?

YES—If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0685: ECM/PCM Power Control Circuit/Internal Circuit Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If the problem doesn't return after you clear the DTC, or if this DTC is stored intermittently, check for loose terminals at the IGP line connectors before replacing the ECM/PCM.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle for 30 seconds.
4. Turn the ignition switch to LOCK (0).
5. Start the engine, then let it idle for 30 seconds.
6. Turn the ignition switch to LOCK (0).
7. Turn the ignition switch to ON (II).
8. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0685 indicated?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time. ■

9. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

10. Start the engine, then let it idle for 30 seconds.

11. Turn the ignition switch to LOCK (0).

12. Start the engine, then let it idle for 30 seconds.

13. Turn the ignition switch to LOCK (0).

14. Turn the ignition switch to ON (II).

15. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0685 indicated?

YES—If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 10. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P0720: Output Shaft (Countershaft) Speed Sensor Circuit Malfunction (M/T model)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*) applies to '11-12 models (A/T).

1. Start the engine. Hold the engine speed at 3,000 rpm without load (in neutral) until the radiator fan comes on, then let it idle.
2. Test-drive for several minutes.
3. Check the C SHAFT SPD in the DATA LIST with the HDS.

Is any vehicle speed indicated?

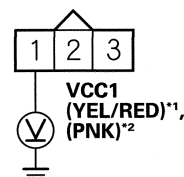
YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM. ■

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).
5. Disconnect the output shaft (countershaft) speed sensor 3P connector.
6. Turn the ignition switch to ON (II).

7. Measure the voltage between output shaft (countershaft) speed sensor 3P connector terminal No. 1 and body ground.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR 3P CONNECTOR



Wire side of female terminals

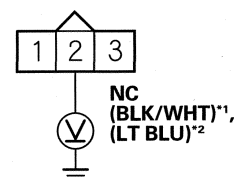
Is there about 5 V?

YES—Go to step 8.

NO—Repair an open in the wire between the ECM (C13) and the output shaft (countershaft) speed sensor, then go to step 18.

8. Measure the voltage between output shaft (countershaft) speed sensor 3P connector terminal No. 2 and body ground.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR 3P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 9.

NO—Go to step 10.

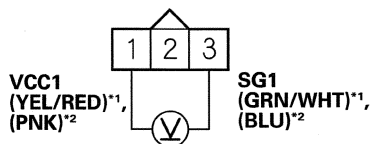
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

9. Measure the voltage between output shaft (countershaft) speed sensor 3P connector terminals No. 1 and No. 3.

OUTPUT SHAFT (COUNTERSHAFT)
SPEED SENSOR 3P CONNECTOR



Wire side of female terminals

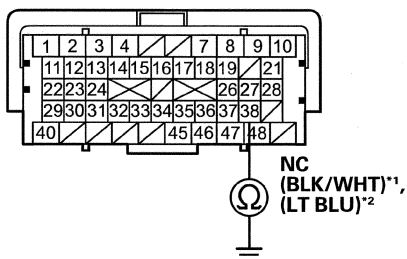
Is there about 5 V?

YES—Go to step 16.

NO—Repair an open in the wire between the ECM (C14) and the output shaft (countershaft) speed sensor, then go to step 18.

10. Turn the ignition switch to LOCK (0).
11. Jump the SCS line with the HDS.
12. Disconnect ECM connector B (49P).
13. Check for continuity between ECM connector terminal B38 and body ground.

ECM CONNECTOR B (49P)



Terminal side of female terminals

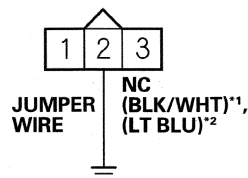
Is there continuity?

YES—Repair a short in the wire between the ECM (B38) and the output shaft (countershaft) speed sensor, then go to step 18.

NO—Go to step 14.

14. Connect output shaft (countershaft) speed sensor 3P connector terminal No. 2 to body ground with a jumper wire.

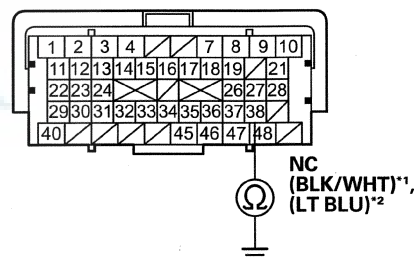
OUTPUT SHAFT (COUNTERSHAFT)
SPEED SENSOR 3P CONNECTOR



Wire side of female terminals

15. Check for continuity between ECM connector terminal B38 and body ground.

ECM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 25.

NO—Repair an open in the wire between the ECM (B38) and the output shaft (countershaft) speed sensor, then go to step 18.

16. Turn the ignition switch to LOCK (0).
17. Replace the output shaft (countershaft) speed sensor (see page 11-210).
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM with the HDS.
21. Do the ECM idle learn procedure (see page 11-268).



22. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 176 °F (80 °C)
- Transmission in 3rd gear
- Engine speed 4,000 rpm or more
- Drive for several minutes, then decelerate (with the throttle fully closed) for 5 seconds

23. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0720 indicated?

YES—Check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM, then go to step 1.

NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P0720 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 23, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM, then go to step 1. If the HDS indicates NOT COMPLETED, go to step 22.

25. Reconnect all connectors.

26. Update the ECM if it does not have the latest software (see page 11-213), or substitute a known-good ECM (see page 11-7).

27. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 176 °F (80 °C)
- Transmission in 3rd gear
- Engine speed 4,000 rpm or more
- Drive for several minutes, then decelerate (with the throttle fully closed) for 5 seconds

28. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0720 indicated?

YES—Check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-7), then go to step 27. If the ECM was substituted, go to step 1.

NO—Go to step 29.

29. Monitor the OBD STATUS for DTC P0720 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM was updated, troubleshooting is complete. If the ECM was substituted, replace the original ECM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 28, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the output shaft (countershaft) speed sensor and the ECM. If the ECM was updated, substitute a known-good ECM (see page 11-7), then go to step 27. If the ECM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, go to step 27.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P1109: BARO Sensor Circuit Out of Range High

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Reset the ECM/PCM with the HDS.
2. Start the engine.
3. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1109 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1109 indicated?

YES—If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P1116: ECT Sensor 1 Range/Performance Problem

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P0111 is stored at the same time as DTC P1116, troubleshoot DTC P0111 first, then recheck for DTC P1116.

1. Check for poor connections or loose terminals at ECT sensor 1 and ECT sensor 2.

Are the connections and terminals OK?

YES—Go to step 2.

NO—Repair the connections or terminals, then go to step 21.

2. Turn the ignition switch to ON (II).

3. Check for Pending or Confirmed DTCs with the HDS.

Are DTC P1116 and P2183 indicated at the same time?

YES—Go to step 12.

NO—Go to step 4.

4. Start the engine, and let it idle for 10 minutes.

5. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 100 °F (38 °C) or less indicated?

YES—Replace ECT sensor 1 (see page 11-212), then go to step 21.

NO—Go to step 6.



6. Turn the ignition switch to LOCK (0).
7. Allow ECT sensors to cool to the ambient temperature.
8. Note the ambient temperature.
9. Turn the ignition switch to ON (II).
10. Quickly note the value of ECT SENSOR 1 in the DATA LIST with the HDS.
11. Compare the value of ECT SENSOR 1 and the ambient temperature.

Does the value of ECT SENSOR 1 differ 5.4 °F (3 °C) or more from the ambient temperature?

YES—Replace ECT sensor 1 (see page 11-212), then go to step 21.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM/PCM.■
12. Start the engine, and let it idle for 10 minutes.
13. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 100 °F (38 °C) or less indicated?

YES—Replace ECT sensor 1 (see page 11-212), then go to step 21.

NO—Go to step 14.
14. Check ECT SENSOR 2 in the DATA LIST with the HDS.

Is about 133 °F (56 °C) or less indicated?

YES—Replace ECT sensor 2 (see page 11-212), then go to step 21.

NO—Go to step 15.

15. Turn the ignition switch to LOCK (0).
16. Allow the sensors to cool to ambient temperature.
17. Note the ambient temperature.
18. Turn the ignition switch to ON (II).
19. Quickly note the value of ECT SENSOR 1 and ECT SENSOR 2 in the DATA LIST with the HDS.
20. Compare the value of ECT SENSOR 1 and the ambient temperature, and the value of ECT SENSOR 2 and the ambient temperature individually.

Does either sensor differ more than 5.4 °F (3 °C) from the ambient temperature?

YES—Replace the sensor that differed more than 5.4 °F (3 °C) from the ambient temperature, then go to step 21.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM/PCM.■
21. Turn the ignition switch to ON (II).
22. Reset the ECM/PCM with the HDS.
23. Do the ECM/PCM idle learn procedure (see page 11-268).
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1116 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting.■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P1128: MAP Sensor Signal Lower Than Expected

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Before you troubleshoot, check for poor connections or a blockage at the intake air duct.

1. Turn the ignition switch to ON (II).
2. Check the MAP SENSOR in the DATA LIST with the HDS.

Is less than 54.1 kPa (16.0 in Hg, 406 mmHg), or 1.61 V held for more than 5 seconds?

YES—Go to step 7.

NO—Go to step 3.

3. Clear the DTC with the HDS.
4. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
5. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Engine speed between 1,400–5,400 rpm
 - A/T in D, M/T in 3rd
 - Vehicle speed accelerated from 16–31 mph (25–50 km/h) under half throttle

6. Monitor the OBD STATUS for DTC P1128 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM. If the HDS indicates NOT COMPLETED, go to step 4 and recheck.

7. Turn the ignition switch to LOCK (0).
8. Replace the MAP sensor (see page 11-211).
9. Turn the ignition switch to ON (II).
10. Reset the ECM/PCM with the HDS.
11. Do the ECM/PCM idle learn procedure (see page 11-268).
12. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
13. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Engine speed between 1,400–5,400 rpm
 - A/T in D, M/T in 3rd
 - Vehicle speed accelerated from 16–31 mph (25–50 km/h) under half throttle

14. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1128 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM, then go to step 1.

NO—Go to step 15.

15. Monitor the OBD STATUS for DTC P1128 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 14, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the MAP sensor and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, go to step 12.



DTC P1129: MAP Sensor Signal Higher Than Expected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Check for vacuum leaks in these parts:

- PCV valve
- PCV hose
- EVAP canister purge valve
- Throttle body
- Intake manifold
- Brake booster
- Brake booster hose

Are there any vacuum leaks?

YES—Repair or replace the part(s) with vacuum leaks, then go to step 9.

NO—Go to step 2.

2. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

3. Check the MAP SENSOR in the DATA LIST with the HDS.

Is more than 36.9 kPa (11.0 in.Hg, 277 mmHg), or 1.14 V held for more than for 5 seconds?

YES—Go to step 7.

NO—Go to step 4.

4. Clear the DTC with the HDS.

5. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- A/T in D, M/T in 5th
- Drive at a steady speed between 55—75 mph (90—120 km/h) for 10 seconds
- During the drive, decelerate (with the throttle fully closed) for at least 2 seconds

6. Monitor the OBD STATUS for DTC P1129 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM. If the HDS indicates NOT COMPLETED, go to step 5 and recheck.

7. Turn the ignition switch to LOCK (0).

8. Replace the MAP sensor (see page 11-211).

9. Turn the ignition switch to ON (II).

10. Reset the ECM/PCM with the HDS.

11. Do the ECM/PCM idle learn procedure (see page 11-268).

12. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

13. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- A/T in D, M/T in 5th
- Drive at a steady speed between 55—75 mph (90—120 km/h) for 10 seconds
- During the drive, decelerate (with the throttle fully closed) for at least 2 seconds

14. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1129 indicated?

YES—Check for poor connections or loose terminals at the MAP sensor and the ECM/PCM, then go to step 1.

NO—Go to step 15.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

15. Monitor the OBD STATUS for DTC P1129 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 14, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the MAP sensor and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, go to step 12.

DTC P1157: A/F Sensor (Sensor 1) Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and wait about 20 seconds.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1157 indicated?

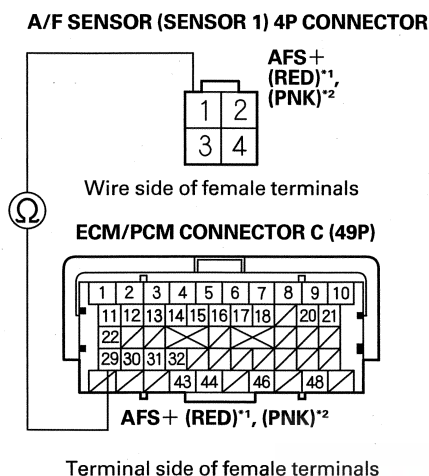
YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Remove the under-cowl panel (see page 20-185).
8. Disconnect the A/F sensor (Sensor 1) 4P connector.
9. Disconnect ECM/PCM connector C (49P).



10. Check for continuity between A/F sensor (Sensor 1) 4P connector terminal No. 1 and ECM/PCM connector terminal C29.

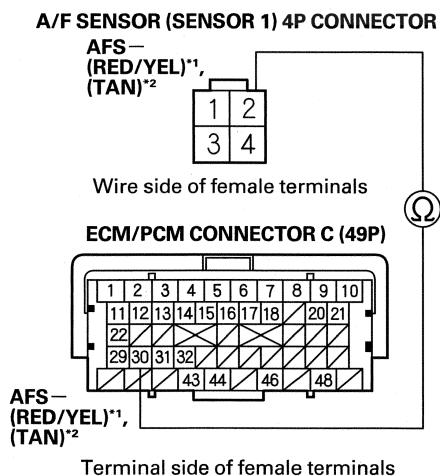


Is there continuity?

YES—Go to step 11.

NO—Repair an open in the wire between the ECM/PCM (C29) and the A/F sensor (Sensor 1), then go to step 13.

11. Check for continuity between A/F sensor (Sensor 1) 4P connector terminal No. 2 and ECM/PCM connector terminal C30.



Is there continuity?

YES—Go to step 12.

NO—Repair an open in the wire between the ECM/PCM (C30) and the A/F sensor (Sensor 1), then go to step 13.

12. Replace the A/F sensor (Sensor 1) (see page 11-208).

13. Reconnect all connectors.

14. Turn the ignition switch to ON (II).

15. Reset the ECM/PCM with the HDS.

16. Do the ECM/PCM idle learn procedure (see page 11-268).

17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1157 indicated?

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 1. If the connections and the terminals are OK, go to step 19.

NO—Go to step 18.

18. Monitor the OBD STATUS for DTC P1157 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 17, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, go to step 16.

19. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

20. Start the engine, and let it idle.

21. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1157 indicated?

YES—If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 20. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 22.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

22. Monitor the OBD STATUS for DTC P1157 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 21, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, go to step 1. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 20. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, let the engine idle until a result comes on.

DTC P1172: A/F Sensor (Sensor 1) Circuit Out of Range High

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Monitor the OBD STATUS for DTC P1172 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 5.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 3 and recheck.

5. Turn the ignition switch to LOCK (0).
6. Replace the A/F sensor (Sensor 1) (see page 11-208).
7. Turn the ignition switch to ON (II).
8. Reset the ECM/PCM with the HDS.
9. Do the ECM/PCM idle learn procedure (see page 11-268).
10. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
11. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1172 indicated?

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 1.

NO—Go to step 12.



12. Monitor the OBD STATUS for DTC P1172 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 11, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 10.

DTC P1297: ELD Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check the ELD in the DATA LIST with the HDS.

Is 72 A or more indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and the ECM/PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the ELD 3P connector.
5. Turn the ignition switch to ON (II).
6. Check the ELD in the DATA LIST with the HDS.

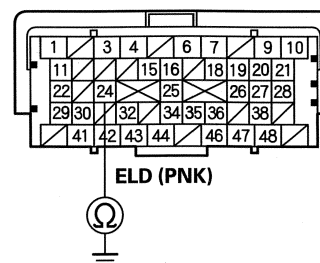
Is 72 A or more indicated?

YES—Go to step 7.

NO—Go to step 11.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).
10. Check for continuity between ECM/PCM connector terminal A24 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (A24) and the ELD, then go to step 13.

NO—Go to step 20.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

11. Turn the ignition switch to LOCK (0).
12. Replace the ELD (see page 11-213).
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure (see page 11-268).
17. Start the engine.
18. Turn on the headlights.
19. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1297 indicated?

YES—Check for poor connections or loose terminals at the ELD and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

20. Reconnect all connectors.
21. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
22. Start the engine.
23. Turn on the headlights.
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1297 indicated?

YES—Check for poor connections or loose terminals at the ELD and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 22. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P1298: ELD Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check the ELD in the DATA LIST with the HDS.

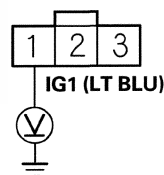
Is 0.2 A or less indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ELD and the ECM/PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the ELD 3P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between ELD 3P connector terminal No. 1 and body ground.

ELD 3P CONNECTOR



Wire side of female terminals

Is there battery voltage?

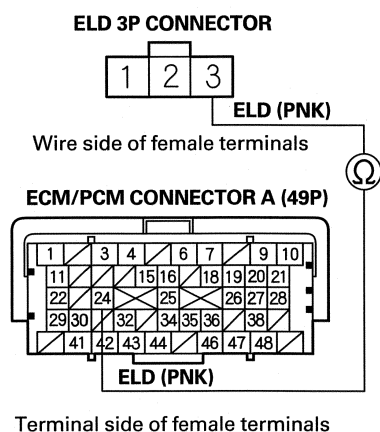
YES—Go to step 7.

NO—Check the No. 22 METER (7.5 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair an open in the wire between the No. 22 METER (7.5 A) fuse and the ELD, then go to step 13.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).



10. Check for continuity between ELD 3P connector terminal No. 3 and ECM/PCM connector terminal A24.



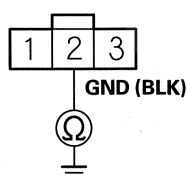
Is there continuity?

YES—Go to step 11.

NO—Repair an open in the wire between the ECM/PCM (A24) and the ELD, then go to step 13.

11. Check for continuity between ELD 3P connector terminal No. 2 and body ground.

ELD 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair an open in the wire between the ELD and G501 (see page 22-30), then go to step 13.

12. Replace the ELD (see page 11-213).

13. Reconnect all connectors.

14. Turn the ignition switch to ON (II).

15. Reset the ECM/PCM with the HDS.

16. Do the ECM/PCM idle learn procedure (see page 11-268).

17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1298 indicated?

YES—Go to step 18.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

18. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

19. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1298 indicated?

YES—Check for poor connections or loose terminals at the ELD and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P1549: Charging System High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If a high voltage battery (24 V, etc.) is connected to the vehicle, this DTC can be stored.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Check under these conditions:
 - A/C off
 - Headlights off
 - Rear window defogger off
5. Hold the engine speed at 2,000 rpm (A/T in P or N, M/T in neutral) for 1 minute.
6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1549 indicated?

YES—Replace the alternator (see page 4-32), then go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator and the battery terminal fuse box. ■

7. Turn the ignition switch to ON (II).
8. Reset the ECM/PCM with the HDS.
9. Do the ECM/PCM idle learn procedure (see page 11-268).
10. Start the engine.
11. Check under these conditions:
 - A/C off
 - Headlights off
 - Rear window defogger off
12. Hold the engine speed at 2,000 rpm (A/T in P or N, M/T in neutral) for 1 minute.
13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1549 indicated?

YES—Check for poor connections or loose terminals at the alternator and the battery terminal fuse box, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P16BB: Alternator B Terminal Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with HDS.
3. Start the engine.
4. Check under these conditions:
 - A/C on
 - Temperature control at maximum cool
 - Blower fan at maximum speed
 - Rear window defogger on
 - Headlights on high beam
5. Hold the engine speed at 2,000 rpm (A/T in P or N, M/T in neutral) for 1 minute.
6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BB indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator and the battery terminal fuse box, and check the battery performance (see page 22-68). ■

7. Check for poor connections or loose terminals at the alternator and the battery terminal fuse box (+B line).

Are the connections and terminals OK?

YES—Go to step 8.

NO—Repair the connection or terminals, then go to step 9.

8. Check for an open in the engine wire harness between the alternator and the battery terminal fuse box.

Is the harness OK?

YES—Replace the alternator (see page 4-32), then go to step 9.

NO—Repair open in the wire between the alternator and the battery terminal fuse box, then go to step 9.



9. Turn the ignition switch to ON (II).
10. Reset the ECM/PCM with the HDS.
11. Do the ECM/PCM idle learn procedure (see page 11-268).
12. Start the engine.
13. Check under these conditions:
 - A/C on
 - Temperature control at maximum cool
 - Blower fan at maximum speed
 - Rear window defogger on
 - Headlights on high beam
14. Hold the engine speed at 2,000 rpm (A/T in P or N, M/T in neutral) for 1 minute.
15. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BB indicated?

YES—Check for poor connections or loose terminals at the alternator and the battery terminal fuse box, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P16BC: Alternator FR Terminal Circuit/IGP Circuit Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Check for a poor connection or loose terminals at the alternator 4P connector.

Are the connection and the terminals OK?

YES—Go to step 2.

NO—Repair the connection or terminals, then go to step 18.

2. Check the alternator mounting surfaces for corrosion.

Are the mounting surfaces corroded?

YES—Remove the alternator (see page 4-32). Clean all of its mounting surfaces, then reinstall the alternator, and go to step 18.

NO—Go to step 3.

3. Turn the ignition switch to ON (II).
4. Clear the DTC with the HDS.
5. Start the engine.
6. Check under these conditions:
 - A/C on
 - Temperature control at maximum cool
 - Blower fan at maximum speed
 - Rear window defogger on
 - Headlights on high beam
7. Hold the engine speed at 2,000 rpm (A/T in P or N, M/T in neutral) for 1 minute.
8. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BC indicated?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the alternator. ■

9. Turn the ignition switch to LOCK (0).
10. Disconnect the alternator 4P connector.

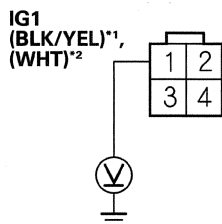
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PGM-FI System

DTC Troubleshooting (cont'd)

11. Turn the ignition switch to ON (II).
12. Measure the voltage between alternator 4P connector terminal No. 1 and body ground.

ALTERNATOR 4P CONNECTOR



Wire side of female terminals

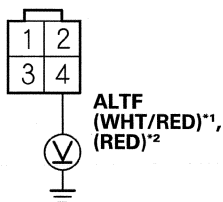
Is there battery voltage?

YES—Go to step 13.

NO—Repair an open in the wire between the alternator (IG1 line) and the No. 12 ACG (ALTERNATOR) (10 A) fuse in the under-dash fuse/relay box, then go to step 18.

13. Measure the voltage between alternator 4P connector terminal No. 4 and body ground.

ALTERNATOR 4P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Replace the alternator (see page 4-32), then go to step 18.

NO—Go to step 14.

14. Turn the ignition switch to LOCK (0).
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector B (49P).

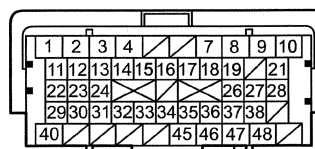
17. Check for continuity between ECM/PCM connector terminal B47 and alternator 4P connector terminal No. 4.

ALTERNATOR 4P CONNECTOR



Wire side of female terminals

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 27.

NO—Repair an open in the wire between the ECM/PCM (B47) and the alternator, then go to step 18.



18. Turn the ignition switch to LOCK (0).
19. Reconnect all connectors.
20. Turn the ignition switch to ON (II).
21. Reset the ECM/PCM with the HDS.
22. Do the ECM/PCM idle learn procedure (see page 11-268).

23. Start the engine.

24. Check under these conditions:

- A/C on
- Temperature control at maximum cool
- Blower fan at maximum speed
- Rear window defogger on
- Headlights on high beam

25. Hold the engine speed at 2,000 rpm (A/T in P or N, M/T in neutral) for 1 minute.

26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BC indicated?

YES—Check for poor connections or loose terminals at the alternator and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

27. Reconnect all connectors.

28. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

29. Start the engine.

30. Check under these conditions:

- A/C on
- Temperature control at maximum cool
- Blower fan at maximum speed
- Rear window defogger on
- Headlights on high beam

31. Hold the engine speed 2,000 rpm (A/T in P or N, M/T in neutral) for 1 minute.

32. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P16BC indicated?

YES—Check for poor connections or loose terminals at the alternator and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 29. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P2183: ECT Sensor 2 Range/Performance Problem

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P0111 is stored at the same time as DTC P2183, troubleshoot DTC P0111 first, then recheck for DTC P2183.

1. Check for poor connections or loose terminals at ECT sensor 1 and ECT sensor 2.

Are the connections and terminals OK?

YES—Go to step 2.

NO—Repair the connections or terminals, then go to step 21.

2. Turn the ignition switch to ON (II).

3. Check for Pending or Confirmed DTCs with the HDS.

Are DTC P1116 and P2183 indicated at the same time?

YES—Go to step 12.

NO—Go to step 4.

4. Start the engine, and let it idle for 10 minutes.

5. Check ECT SENSOR 2 in the DATA LIST with the HDS.

Is about 133 °F (56 °C) or less indicated?

YES—Replace ECT sensor 2 (see page 11-212), then go to step 21.

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0).

7. Allow ECT sensors to cool to the ambient temperature.

8. Note the ambient temperature.

9. Turn the ignition switch to ON (II).

10. Quickly note the value of ECT SENSOR 2 in the DATA LIST with the HDS.

11. Compare the value of ECT SENSOR 2 and the ambient temperature.

Does ECT SENSOR 2 differ 5.4 °F (3 °C) or more from ambient temperature?

YES—Replace ECT sensor 2 (see page 11-212), then go to step 21.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM/PCM. ■

12. Start the engine, and let it idle for 10 minutes.

13. Check ECT SENSOR 1 in the DATA LIST with the HDS.

Is about 100 °F (38 °C) or less indicated?

YES—Replace ECT sensor 1 (see page 11-212), then go to step 21.

NO—Go to step 14.

14. Check ECT SENSOR 2 in the DATA LIST with the HDS.

Is about 133 °F (56 °C) or less indicated?

YES—Replace ECT sensor 2 (see page 11-212), then go to step 21.

NO—Go to step 15.



15. Turn the ignition switch to LOCK (0).
16. Allow the sensors to cool to ambient temperature.
17. Note the ambient temperature.
18. Turn the ignition switch to ON (II).
19. Quickly note the value of ECT SENSOR 1 and ECT SENSOR 2 in the DATA LIST with the HDS.
20. Compare the value of ECT SENSOR 1 and the ambient temperature, and the value of ECT SENSOR 2 and the ambient temperature individually.

Does one of the sensors differ more than 5.4 °F (3 °C) from the ambient temperature?

YES—Replace the sensor that differed more than 5.4 °F (3 °C) from the ambient temperature, then go to step 21.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM/PCM.■
21. Turn the ignition switch to ON (II).
22. Reset the ECM/PCM with the HDS.
23. Do the ECM/PCM idle learn procedure (see page 11-268).
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2183 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 1, ECT sensor 2, and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting.■

DTC P2184: ECT Sensor 2 Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 2 in the DATA LIST with the HDS.

Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

YES—Go to step 3.

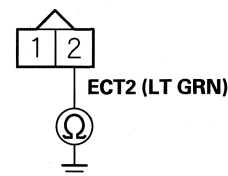
NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM.■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 2 2P connector.
5. Turn the ignition switch to ON (II).
6. Check ECT SENSOR 2 in the DATA LIST with the HDS.

Is about 356 °F (180 °C) or more, or 0.08 V or less indicated?

YES—Go to step 7.

NO—Go to step 11.
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).
10. Check for continuity between ECT sensor 2 2P connector terminal No. 2 and body ground.

ECT SENSOR 2 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between ECT sensor 2 and the ECM/PCM (A34), then go to step 13.

NO—Go to step 18.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

11. Turn the ignition switch to LOCK (0).
12. Replace ECT sensor 2 (see page 11-212).
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure (see page 11-268).
17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2184 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

18. Reconnect all connectors.
19. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2184 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2185: ECT Sensor 2 Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check ECT SENSOR 2 in the DATA LIST with the HDS.

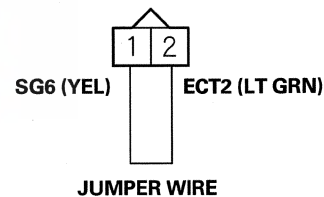
Is about -40°F (-40°C) or less, or 4.92 V or more indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the ECT sensor 2 2P connector.
5. Connect ECT sensor 2 2P connector terminals No. 1 and No. 2 with a jumper wire.

ECT SENSOR 2 2P CONNECTOR



Wire side of female terminals

6. Turn the ignition switch to ON (II).
7. Check ECT SENSOR 2 in the DATA LIST with the HDS.

Is about -40°F (-40°C) or less, or 4.92 V or more indicated?

YES—Go to step 8.

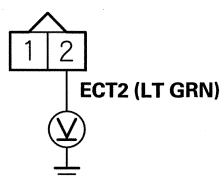
NO—Go to step 20.

8. Turn the ignition switch to LOCK (0).
9. Remove the jumper wire from the ECT sensor 2 2P connector.
10. Turn the ignition switch to ON (II).



11. Measure the voltage between ECT sensor 2 2P connector terminal No. 2 and body ground.

ECT SENSOR 2 2P CONNECTOR



Wire side of female terminals

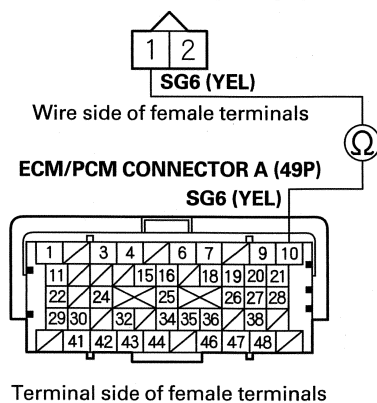
Is there about 5 V?

YES—Go to step 12.

NO—Go to step 16.

12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector A (49P).
15. Check for continuity between ECT sensor 2 2P connector terminal No. 1 and ECM/PCM connector terminal A10.

ECT SENSOR 2 2P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 27.

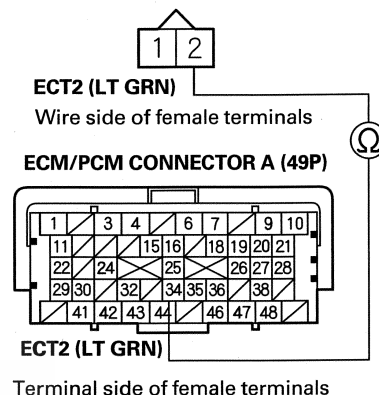
NO—Repair open in the wire between the ECM/PCM (A10) and ECT sensor 2, then go to step 22.

16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.

18. Disconnect ECM/PCM connector A (49P).

19. Check for continuity between ECT sensor 2 2P connector terminal No. 2 and ECM/PCM connector terminal A34.

ECT SENSOR 1 2P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 27.

NO—Repair open in the wire between the ECM/PCM (A34) and ECT sensor 2, then go to step 22.

20. Turn the ignition switch to LOCK (0).
21. Replace ECT sensor 2 (see page 11-212).
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Reset the ECM/PCM with the HDS.
25. Do the ECM/PCM idle learn procedure (see page 11-268).
26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2185 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

27. Reconnect all connectors.

28. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

29. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2185 indicated?

YES—Check for poor connections or loose terminals at ECT sensor 2 and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2195: A/F Sensor (Sensor 1) Signal Stuck Lean

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If the vehicle was out of fuel and the engine stalled before this DTC was stored, refuel and clear the DTC with the HDS.
- If DTC P2101, P2118, P2135, P2138, P2176, or a combination of P2122 and P2127, P2122, and P2138, or P2127 and P2138 is stored at the same time, troubleshoot them first, then recheck for DTC P2195.

1. Check for dirt or debris in the MAF sensor/IAT sensor.

Is it dirty?

YES—Remove the debris. If needed, replace the MAF sensor/IAT sensor (see page 11-211), then go to step 9.

NO—Go to step 2.

2. Check the installation of the A/F sensor (Sensor 1).

Is the A/F sensor loose or disconnected from the exhaust pipe?

YES—Go to step 7.

NO—Go to step 3.

3. Turn the ignition switch to ON (II).

4. Clear the DTC with the HDS.

5. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.

6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2195 indicated?

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 14.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



7. Turn the ignition switch to LOCK (0).
8. Reinstall the A/F sensor (Sensor 1) (see page 11-208).
9. Turn the ignition switch to ON (II).
10. Reset the ECM/PCM with the HDS.
11. Do the ECM/PCM idle learn procedure (see page 11-268).
12. Check for Pending or Confirmed DTCs with the HDS.
Is DTC P2195 indicated?
YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 13.
NO—Go to step 13.
13. Monitor the OBD STATUS for DTC P2195 in the DTCs MENU with the HDS.
Does the HDS indicate PASSED?
YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 12, go to the indicated DTC's troubleshooting. ■
NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.
14. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
15. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
16. Check for Pending or Confirmed DTCs with the HDS.
Is DTC P2195 indicated?
YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 15. If the ECM/PCM was substituted, go to step 1.
NO—Go to step 17.

17. Monitor the OBD STATUS for DTC P2195 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 16, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 15. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P219A: Air-Fuel Ratio Variation of Cylinders

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If any of the DTCs listed below are indicated at the same time as DTC P219A, troubleshoot those DTCs first, then recheck for P219A.
P0133, P1157, P1172, P2195, P2238, P2252, P2A00: A/F sensor (Sensor 1)
P0134, P0135: A/F sensor (Sensor 1) heater
P0201, P0202, P0203, P0204: No. 1 - No. 4 cylinder injector(s)
P0300: Random misfire
P0301, P0302, P0303, P0304: No. 1, No. 2, No. 3, or No. 4 cylinder misfire detected
P0351, P0352, P0353, P0354: No. 1 - No. 4 cylinder ignition coil(s)
P0400, P0401, P0404, P0406, P2413: EGR system
- If the engine speed fluctuates at highway speeds, the EGR line may be blocked by carbon or sludge.

1. Turn the ignition switch to ON (II).

2. Record following HDS parameters (On-board snapshot):

- VEHICLE SPEED
- ENGINE SPEED
- MAP SENSOR
- ECT SENSOR 1
- APP SENSOR
- AF FB (ST FUEL TRIM)
- EGR COMMAND
- EGR LIFT

3. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

4. Check under these conditions:

- A/C off
- All electrical loads off

5. Do the Cylinder AF Test three times in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Go to step 6.

NO—Go to step 9.

6. Clear the DTC with the HDS.

7. Test-drive the vehicle in the range of these recorded on-board snapshot parameters:

- VEHICLE SPEED
- ENGINE SPEED
- MAP SENSOR
- ECT SENSOR 1
- APP SENSOR
- AF FB (ST FUEL TRIM)
- EGR COMMAND
- EGR LIFT

8. Monitor the OBD STATUS for DTC P219A in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 20.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION, go to step 7 and recheck.

9. Do a cylinder compression test (see page 6-6).

Is the engine compression of the problem cylinder lower than the other cylinders?

YES—Adjust the engine compression (see page 6-6), then go to step 23.

NO—Go to step 10.

10. Inspect the valve clearances (see page 6-8).

Are the valve clearances OK?

YES—Go to step 11.

NO—Adjust the valve clearances (see page 6-8), then go to step 11.

11. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

12. Check under these conditions:

- A/C off
- All electrical loads off

13. Do the Cylinder AF Test three times in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Go to step 23.

NO—Go to step 14.

14. Turn the ignition switch to LOCK (0).



15. Exchange the injector from the problem cylinder with one from the another cylinder.

16. Reconnect all connectors.

17. Start the engine, and let it idle for 10 minutes.

18. Check under these conditions:

- A/C off
- All electrical loads off

19. Do the Cylinder AF Test three times in the INSPECTION MENU with the HDS.

Is an injector failure indicated at the cylinder where the injector was exchanged?

YES—Replace the faulty injector (see page 11-206), then go to step 23.

NO—Go to step 22.

20. Inspect the valve clearances (see page 6-8).

Are the valve clearances OK?

YES—Go to step 21.

NO—Adjust the valve clearances (see page 6-8), then go to step 23 and recheck. If DTC P219A is indicated go to step 21. If DTC P219A is not indicated, troubleshooting is complete.

21. Check for carbon or sludge in the EGR line.

Is there carbon or sludge?

YES—Clean the intake manifold EGR port (see page 11-327) and the EGR pipe with throttle plate cleaner (see page 11-328). Also, clean the passage inside the EGR valve with throttle plate cleaner, then go to step 23.

NO—Go to step 22.

22. Check for carbon build-up in the intake manifold (see page 9-6), and the exhaust line (see page 9-12).

Is there carbon build-up in the intake manifold and/or the cylinder head?

YES—Remove the carbon, then go to step 23.

NO—Check the engine oil leak. If needed, repair the engine, then go to step 23.

NOTE: If engine oil burning occurs, this code can be stored.

23. Turn the ignition switch to ON (II).

24. Reset the ECM/PCM with the HDS.

25. Do the ECM/PCM idle learn procedure (see page 11-268).

26. Test-drive the vehicle in the range of these recorded on-board snapshot parameters:

- VEHICLE SPEED
- ENGINE SPEED
- MAP SENSOR
- ECT SENSOR 1
- APP SENSOR
- AF FB (ST FUEL TRIM)
- EGR COMMAND
- EGR LIFT

27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P219A indicated?

YES—Check for poor connections or loose terminals at the injectors and the ECM/PCM, then go to step 1.

NO—Go to step 28.

28. Monitor the OBD STATUS for DTC P219A in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 27, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, go to step 1 and recheck. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION, go to step 26.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P2227: BARO Sensor Range/Performance Problem

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P0107, P0108, P1128, and/or P1129 are stored at the same time as DTC P2227, troubleshoot those DTCs first, then recheck for DTC P2227.

1. Turn the ignition switch to ON (II), and wait 2 seconds.
2. Check the BARO SENSOR in the DATA LIST with the HDS.

Is about 101 kPa (29.9 in.Hg, 760 mmHg), or about 2.9 V at sea level indicated?

YES—Go to step 3.

NO—Go to step 15.

3. Clear the DTC with the HDS.
4. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
5. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - A/T in D, M/T in 4th
 - REL TP SENSOR between 16 deg and 28 deg for at least 3 seconds
6. Monitor the OBD STATUS for DTC P2227 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for something that may have clogged the intake air system. If the HDS indicates NOT COMPLETED, go to step 4 and recheck.

7. Check the intake air system for clogging or restrictions (foreign material, dirty air cleaner element, etc.).

Is the intake air system clogged or restricted?

YES—Remove the clog or restriction, then go to step 8.

NO—Go to step 15.

8. Turn the ignition switch to ON (II).

9. Reset the ECM/PCM with the HDS.

10. Do the ECM/PCM idle learn procedure (see page 11-268).

11. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

12. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- A/T in D, M/T in 4th
- REL TP SENSOR between 16 deg and 28 deg for at least 3 seconds

13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2227 indicated?

YES—Check for poor connections or loose terminals at the ECM/PCM, then go to step 1.

NO—Go to step 14.

14. Monitor the OBD STATUS for DTC P2227 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, go to step 11.



15. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
16. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
17. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - A/T in D, M/T in 4th
 - REL TP SENSOR between 16 deg and 28 deg for at least 3 seconds

18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2227 indicated?

YES—Check for poor connections or loose terminals at the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 16. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 19.

19. Monitor the OBD STATUS for DTC P2227 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 18, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 16. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, go to step 16.

DTC P2228: BARO Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check the BARO SENSOR in the DATA LIST with the HDS.

Is about 43 kPa (12.7 in.Hg, 323 mmHg), or 1.3 V or less indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. ■

3. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2228 indicated?

YES—Check for poor connections or loose terminals at the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P2229: BARO Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check the BARO SENSOR in the DATA LIST with the HDS.

Is about 160 kPa (47.2 in.Hg, 1,200 mmHg), or 4.5 V or more indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. ■

3. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2229 indicated?

YES—Check for poor connections or loose terminals at the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2238: A/F Sensor (Sensor 1) AFS + Line Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until radiator fan comes on.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2238 indicated?

YES—Go to step 5.

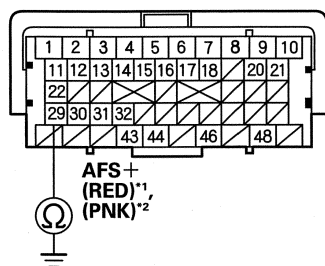
NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Remove the under-cowl panel (see page 20-185).
8. Disconnect the A/F sensor (Sensor 1) 4P connector.
9. Disconnect ECM/PCM connector C (49P).



10. Check for continuity between ECM/PCM connector terminal C29 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (C29) and the A/F sensor (Sensor 1), then go to step 12.

NO—Go to step 11.

11. Replace the A/F sensor (Sensor 1) (see page 11-208).
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure (see page 11-268).
16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2238 indicated?

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 1. If the connections and the terminals are OK, go to step 18.

NO—Go to step 17.

17. Monitor the OBD STATUS for DTC P2238 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 16, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

18. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

19. Start the engine, and let it idle.

20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2238 indicated?

YES—If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 19. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 21.

21. Monitor the OBD STATUS for DTC P2238 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 20, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, go to step 1. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 19. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result come on.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC P2252: A/F Sensor (Sensor 1) AFS— Line Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until radiator fan comes on.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2252 indicated?

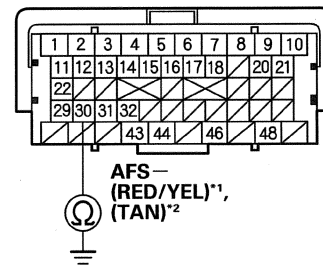
YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Remove the under-cowl panel (see page 20-185).
8. Disconnect the A/F sensor (Sensor 1) 4P connector.
9. Disconnect ECM/PCM connector C (49P).

10. Check for continuity between ECM/PCM connector terminal C30 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (C30) and the A/F sensor (Sensor 1), then go to step 12.

NO—Go to step 11.

11. Replace the A/F sensor (Sensor 1) (see page 11-208).
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure (see page 11-268).
16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2252 indicated?

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 1. If the connector and the terminals are OK, go to step 18.

NO—Go to step 17.

17. Monitor the OBD STATUS for DTC P2252 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 16, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.



18. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

19. Start the engine, and let it idle.

20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2252 indicated?

YES—If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 19. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 21.

21. Monitor the OBD STATUS for DTC P2252 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 20, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, go to step 1. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 19. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

DTC P2270: Secondary HO2S (Sensor 2) Circuit Signal Stuck Lean

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.

4. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- Vehicle speed at 35 mph (56 km/h) or more for at least 25 seconds

5. Monitor the OBD STATUS for DTC P2270 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 6.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION, go to step 3 and recheck.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

6. Turn the ignition switch to LOCK (0).
7. Replace the secondary HO2S (Sensor 2) (see page 11-208).
8. Turn the ignition switch to ON (II).
9. Reset the ECM/PCM with the HDS.
10. Do the ECM/PCM idle learn procedure (see page 11-268).
11. Start the engine, and let it idle without load (A/T in P or N, M/T in neutral) until the radiator fan comes on.
12. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Vehicle speed at 35 mph (56 km/h) or more for at least 25 seconds
13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2270 indicated?

YES—Check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to step 1.

NO—Go to step 14.
14. Monitor the OBD STATUS for DTC P2270 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the secondary HO2S (Sensor 2) and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION, go to step 12.

DTC P2610: ECM/PCM Ignition Off Internal Timer Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2610 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. ■
4. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2610 indicated?

YES—If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P2A00: A/F Sensor (Sensor 1) Range/Performance Problem

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - A/T in D, M/T in 3rd or 4th
 - Vehicle speed between 25–55 mph (40–88 km/h) for 5 minutes
 - Drive at a steady speed between 55–75 mph (88–120 km/h) for 10 seconds, then decelerate (with the throttle fully closed) for 5 seconds
5. Monitor the OBD STATUS for DTC P2A00 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 6.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 3 and recheck.

6. Turn the ignition switch to LOCK (0).
7. Replace the A/F sensor (Sensor 1) (see page 11-208).
8. Turn the ignition switch to ON (II).
9. Reset the ECM/PCM with the HDS.
10. Do the ECM/PCM idle learn procedure (see page 11-268).
11. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - A/T in D, M/T in 3rd or 4th
 - Vehicle speed between 25–55 mph (40–88 km/h) for 5 minutes
 - Drive at a steady speed between 55–75 mph (88–120 km/h) for 10 seconds, then decelerate (with the throttle fully closed) for 5 seconds
12. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2A00 indicated?

YES—Check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 1.

NO—Go to step 13.

13. Monitor the OBD STATUS for DTC P2A00 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 12, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the A/F sensor (Sensor 1) and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 11.

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

DTC U0029: F-CAN Malfunction (BUS-OFF (ECM/PCM))

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0029 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0029 indicated?

YES—If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC U0121: F-CAN Malfunction (ECM/PCM-ABS Modulator-Control Unit)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check for Pending or Confirmed DTCs with the HDS.

Are DTC U0029 and U0121 indicated at the same time?

YES—Go to the troubleshooting for DTC U0029 (see page 11-176). ■

NO—Go to step 3.

3. Clear the DTC with the HDS.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0121 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ABS modulator-control unit and the ECM/PCM. ■

5. Check for communication to the ABS system with the HDS.

Does the HDS communicate with the ABS modulator-control unit?

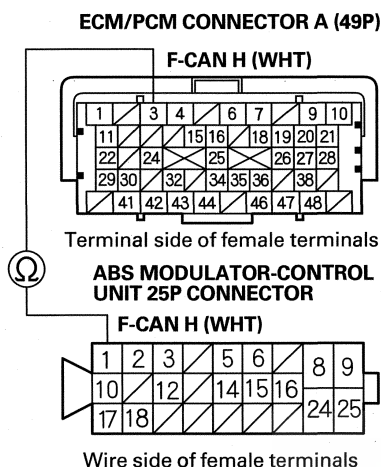
YES—Go to step 6.

NO—Go to the symptom troubleshooting for ABS indicator and brake system indicator do not go off (see page 19-78). ■

6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect the ABS modulator-control unit 25P connector.
9. Disconnect ECM/PCM connector A (49P).



10. Check for continuity between ECM/PCM connector terminal A3 and ABS modulator-control unit 25P connector terminal No. 1.



PGM-FI System

DTC Troubleshooting (cont'd)

DTC U0122: F-CAN Malfunction (ECM/PCM-VSA Modulator-Control Unit)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check for Pending or Confirmed DTCs with the HDS.

Are DTC U0029 and U0122 indicated at the same time?

YES—Go to troubleshooting for DTC U0029 (see page 11-176). ■

NO—Go to step 3.

3. Clear the DTC with the HDS.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0122 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the VSA modulator-control unit and the ECM/PCM. ■

5. Check for communication to the VSA system with the HDS.

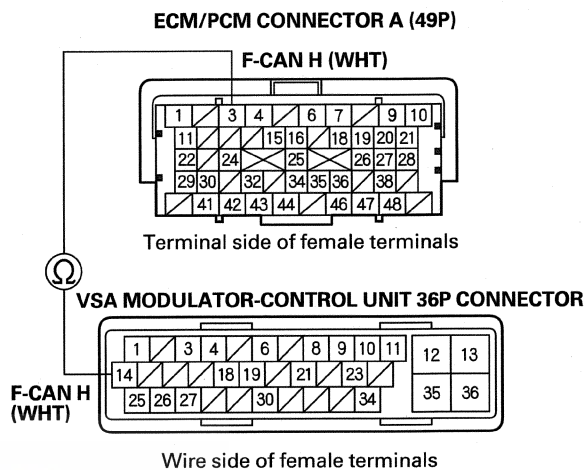
Does the HDS communicate with the VSA modulator-control unit?

YES—Go to step 6.

NO—Go to symptom troubleshooting for ABS indicator, brake system indicator, and VSA indicator do not go off (see page 19-164). ■

6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect the VSA modulator-control unit 36P connector.
9. Disconnect ECM/PCM connector A (49P).

10. Check for continuity between ECM/PCM connector terminal A3 and VSA modulator-control unit 36P connector terminal No. 14.



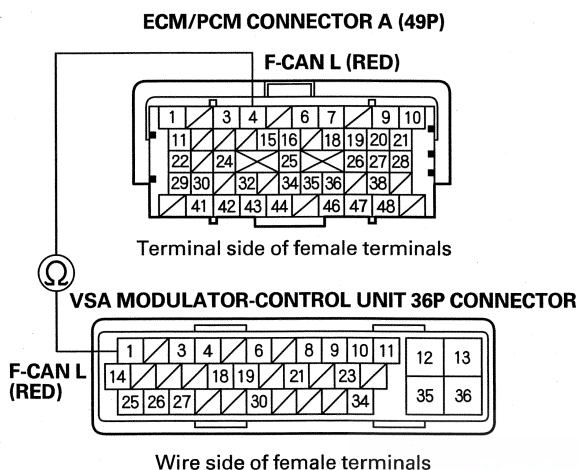
Is there continuity?

YES—Go to step 11.

NO—Repair an open in the wire between the ECM/PCM (A3) and the VSA modulator-control unit, then go to step 12.



11. Check for continuity between ECM/PCM connector terminal A4 and VSA modulator-control unit 36P connector terminal No. 1.



Is there continuity?

YES—Update the VSA modulator-control unit if it does not have the latest software (see page 19-170), or substitute a known-good VSA modulator-control unit (see page 19-171), then go to step 12 and recheck. If DTC U0122 is not indicated after substitution, replace the original VSA modulator-control unit (see page 19-171), then go to step 12.

NO—Repair an open in the wire between the ECM/PCM (A4) and the VSA modulator-control unit, then go to step 12.

12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure (see page 11-268).
16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0122 indicated?

YES—Check for poor connections or loose terminals at the VSA modulator unit and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC U0131: F-CAN Malfunction (ECM/PCM-EPS Control Unit)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check for Pending or Confirmed DTCs with the HDS.

Are DTC U0029 and U0131 indicated at the same time?

YES—Go to the troubleshooting for DTC U0029 (see page 11-176). ■

NO—Go to step 3.

3. Clear the DTC with the HDS.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0131 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EPS control unit and the ECM/PCM. ■

5. Check for communication to the EPS system with the HDS.

Does the HDS communicate with the EPS control unit?

YES—Go to step 6.

NO—Go to the symptom troubleshooting for EPS indicator does not go off, and no DTCs are stored (see page 17-59). ■

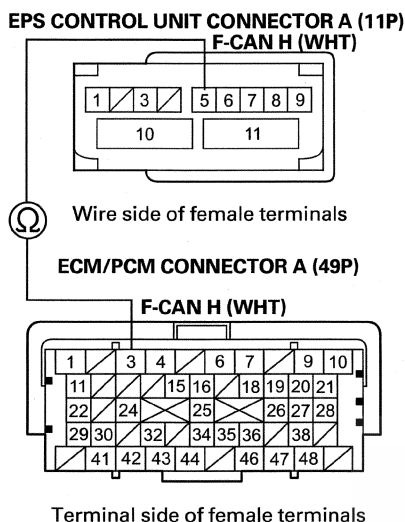
6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect EPS control unit connector A (11P).
9. Disconnect ECM/PCM connector A (49P).

(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

10. Check for continuity between ECM/PCM connector terminal A3 and EPS control unit connector terminal A5.

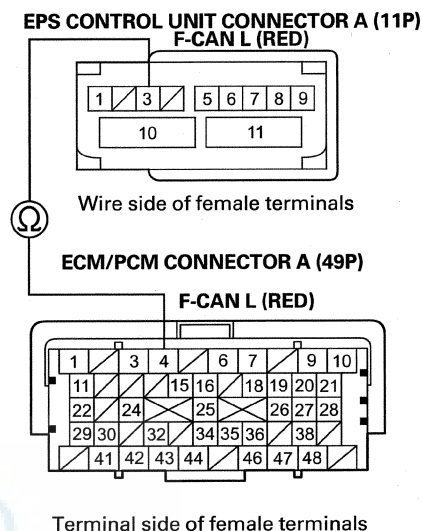


Is there continuity?

YES—Go to step 11.

NO—Repair an open in the wire between the ECM/PCM (A3) and the EPS control unit, then go to step 12.

11. Check for continuity between ECM/PCM connector terminal A4 and EPS control unit connector terminal A3.



Is there continuity?

YES—Substitute a known-good EPS control unit, then go to step 12 and recheck. If DTC U0131 is not indicated after substitution, replace the original EPS control unit, then go to step 12.

NO—Repair an open in the wire between the ECM/PCM (A4) and the EPS control unit, then go to step 12.

12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure (see page 11-268).
16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0131 indicated?

YES—Check for poor connections or loose terminals at the EPS control unit and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC U0155: F-CAN Malfunction (ECM/PCM-Gauge Control Module)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0155 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module and the ECM/PCM. ■

4. Check for body electrical DTCs in the DTCs MENU with the HDS.

Is DTC B1168, B1169, and/or B1178 indicated?

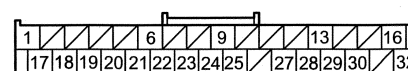
YES—Go to step 5.

NO—Do the gauge control module input test (see page 22-290). ■

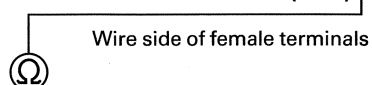
5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Remove the gauge control module (see page 22-294).
8. Disconnect the gauge control module 32P connector.
9. Disconnect ECM/PCM connector A (49P).

10. Check for continuity between ECM/PCM connector terminal A3 and gauge control module 32P connector terminal No. 30.

GAUGE CONTROL MODULE 32P CONNECTOR

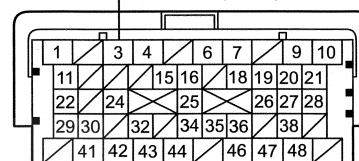


F-CAN H (WHT)



ECM/PCM CONNECTOR A (49P)

F-CAN H (WHT)



Terminal side of female terminals

Is there continuity?

YES—Go to step 11.

NO—Repair an open in the wire between the ECM/PCM (A3) and the gauge control module, then go to step 12.

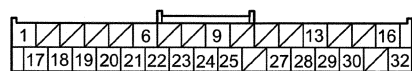
(cont'd)

PGM-FI System

DTC Troubleshooting (cont'd)

11. Check for continuity between ECM/PCM connector terminal A4 and gauge control module 32P connector terminal No. 29.

GAUGE CONTROL MODULE 32P CONNECTOR

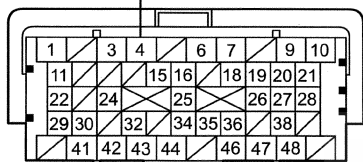


F-CAN L (RED)

Wire side of female terminals

ECM/PCM CONNECTOR A (49P)

F-CAN L (RED)



Terminal side of female terminals

Is there continuity?

YES—Substitute a known-good gauge control module, then go to step 12 and recheck. If DTC U0155 is not indicated after substitution, replace the original gauge control module, then go to step 12.

NO—Repair an open in the wire between the ECM/PCM (A4) and the gauge control module, then go to step 12.

12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Reset the ECM/PCM with the HDS.
15. Do the ECM/PCM idle learn procedure (see page 11-268).
16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0155 indicated?

YES—Check for poor connections or loose terminals at the gauge control module and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC U0300: PGM-FI System and A/T System Program Version Mismatch

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Do not turn the ignition switch to ACCESSORY (I) or to LOCK (0) while updating the PCM. If you turn the ignition switch to ACCESSORY (I) or to LOCK (0) before completion, the PCM will be damaged.

1. Do the PCM update procedure for the PGM-FI and the A/T systems (see page 11-213).
2. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0300 indicated?

YES—Replace the original PCM (see page 11-215). ■

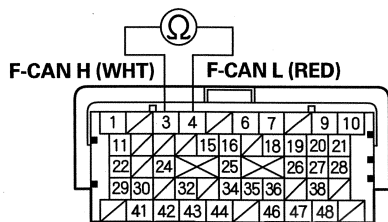
NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



F-CAN Circuit Troubleshooting

1. Turn the ignition switch to LOCK (0).
2. Jump the SCS line with the HDS.
3. Disconnect ECM/PCM connector A (49P), then disconnect the HDS.
4. Measure the resistance between ECM/PCM connector terminals A3 and A4.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there about 85—111 Ω?

YES—Go to step 38.

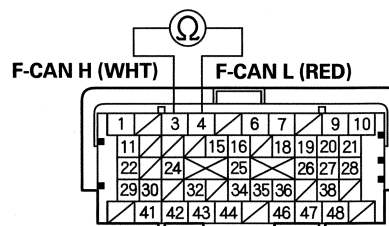
NO—Go to step 5.

5. Disconnect these connectors:

- Gauge control module 32P (see page 22-294).
- VSA modulator-control unit 36P (with VSA system) (see page 19-171).
- Yaw rate-lateral acceleration sensor 5P (with VSA system) (see page 19-168).
- ABS modulator-control unit 25P (with ABS) (see page 19-81).
- EPS control unit A (11P) (see page 17-79).
- SRS unit A (39P) (see page 24-188).
- TPMS control unit 20P (see page 18-71).
- Audio-navigation unit D (20P) (see page 23-304).

6. Check for continuity between ECM/PCM connector terminals A3 and A4.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

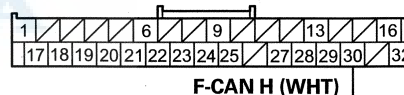
Is there continuity?

YES—Repair a short in the wire between ECM/PCM terminals A3 and A4. ■

NO—Go to step 7.

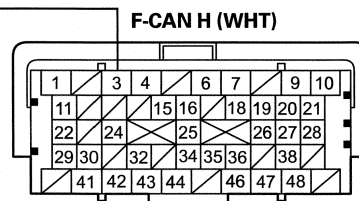
7. Check for continuity between ECM/PCM connector terminal A3 and gauge control module 32P connector terminal No. 30.

GAUGE CONTROL MODULE 32P CONNECTOR



Wire side of female terminals

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—

- With VSA system: Go to step 8.
- With ABS: Go to step 9.

NO—Repair an open in the wire between the ECM/PCM (A3) and the gauge control module. ■

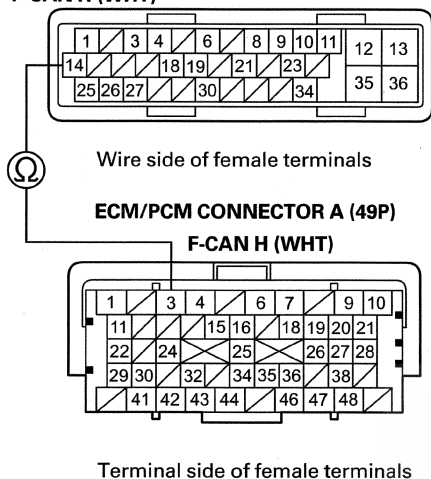
(cont'd)

PGM-FI System

F-CAN Circuit Troubleshooting (cont'd)

8. Check for continuity between ECM/PCM connector terminal A3 and VSA modulator-control unit 36P connector terminal No. 14.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR F-CAN H (WHT)



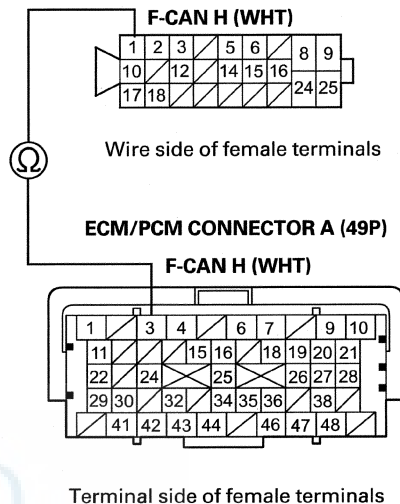
Is there continuity?

YES—Go to step 10.

NO—Repair an open in the wire between the ECM/PCM (A3) and the VSA modulator-control unit. ■

9. Check for continuity between ECM/PCM connector terminal A3 and ABS modulator-control unit 25P connector terminal No. 1.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR F-CAN H (WHT)



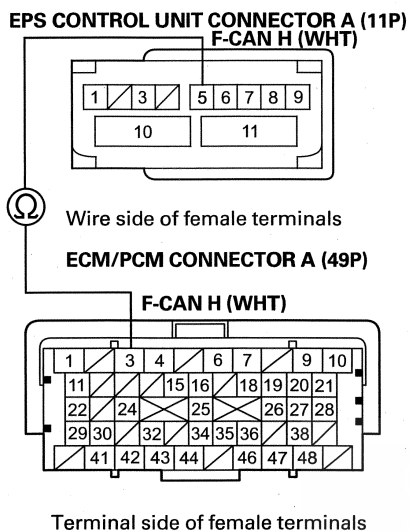
Is there continuity?

YES—Go to step 10.

NO—Repair an open in the wire between the ECM/PCM (A3) and the ABS modulator-control unit. ■



10. Check for continuity between ECM/PCM connector terminal A3 and EPS control unit connector A (11P) terminal No. 5.

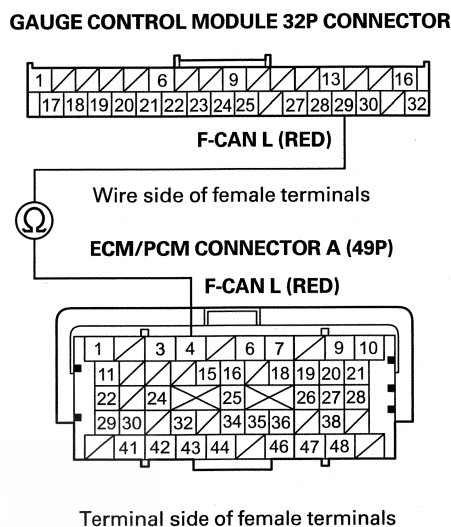


Is there continuity?

YES—Go to step 11.

NO—Repair an open in the wire between the ECM/PCM (A3) and the EPS control unit. ■

11. Check for continuity between ECM/PCM connector terminal A4 and gauge control module 32P connector terminal No. 29.



Is there continuity?

YES—

- With VSA system: Go to step 12.
- With ABS: Go to step 13.

NO—Repair an open in the wire between the ECM/PCM (A4) and the gauge control module. ■

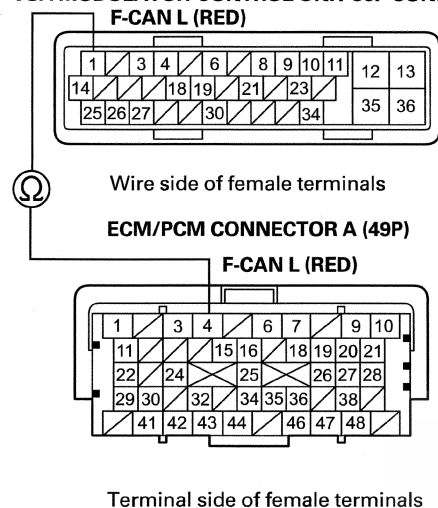
(cont'd)

PGM-FI System

F-CAN Circuit Troubleshooting (cont'd)

12. Check for continuity between ECM/PCM connector terminal A4 and VSA modulator-control unit 36P connector terminal No. 1.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



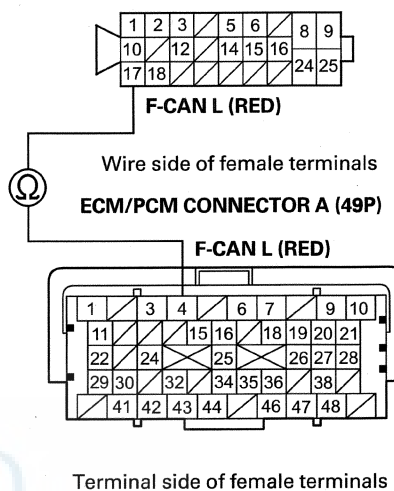
Is there continuity?

YES—Go to step 14.

NO—Repair an open in the wire between the ECM/PCM (A4) and the VSA modulator-control unit. ■

13. Check for continuity between ECM/PCM connector terminal A4 and ABS modulator-control unit 25P connector terminal No. 17.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



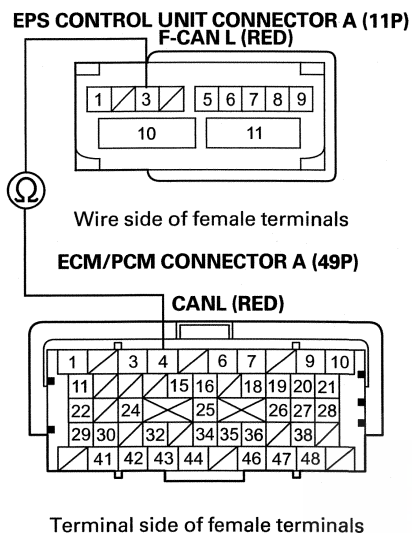
Is there continuity?

YES—Go to step 14.

NO—Repair an open in the wire between the ECM/PCM (A4) and the ABS modulator-control unit. ■



14. Check for continuity between ECM/PCM connector terminal A4 and EPS control unit connector A (11P) terminal No. 3.



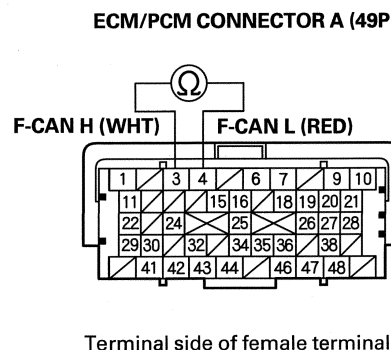
Is there continuity?

YES—Go to step 15.

NO—Repair an open in the wire between the ECM/PCM (A4) and the EPS control unit. ■

15. Reconnect the gauge control module 32P connector.

16. Measure the resistance between ECM/PCM connector terminals A3 and A4.



Is there about 2.34—2.86 k Ω ?

YES—

- With VSA system: Go to step 17.
- With ABS: Go to step 23.

NO—Substitute a known-good gauge control module (see page 22-294), then reconnect ECM/PCM connector A. If the HDS identifies the vehicle, replace the original gauge control module (see page 22-294). ■

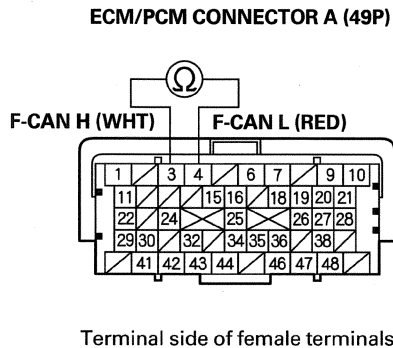
17. Disconnect the gauge control module 32P connector.
18. Reconnect the VSA modulator-control unit 36P connector.

(cont'd)

PGM-FI System

F-CAN Circuit Troubleshooting (cont'd)

19. Measure the resistance between ECM/PCM connector terminals A3 and A4.

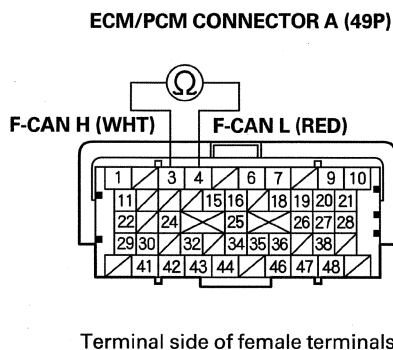


Is there about 108—132 Ω ?

YES—Go to step 20.

NO—Substitute a known-good VSA modulator-control unit (see page 19-171), then reconnect ECM/PCM connector A. If the HDS identifies the vehicle, replace the original VSA modulator-control unit (see page 19-171). ■

20. Disconnect the VSA modulator-control unit 36P connector.
21. Reconnect the yaw rate-lateral acceleration sensor 5P connector.
22. Measure the resistance between ECM/PCM connector terminals A3 and A4.



Is there about 2.34—2.86 k Ω ?

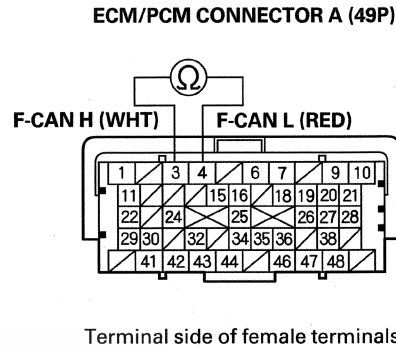
YES—Go to step 26.

NO—Substitute a known-good yaw rate-lateral acceleration sensor (see page 19-168), then reconnect ECM/PCM connector A. If the HDS identifies the vehicle, replace the original yaw rate-lateral acceleration sensor (see page 19-168). ■

23. Disconnect the gauge control module 32P connector.

24. Reconnect the ABS modulator-control unit 25P connector.

25. Measure the resistance between ECM/PCM connector terminals A3 and A4.



Is there about 108—132 Ω ?

YES—Go to step 26.

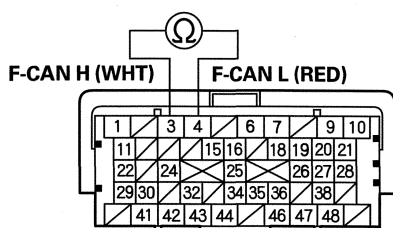
NO—Substitute a known-good ABS modulator-control unit (see page 19-81), then reconnect ECM/PCM connector A. If the HDS identifies the vehicle, replace the original ABS modulator-control unit (see page 19-81). ■

26. Disconnect the yaw rate/lateral acceleration sensor 5P connector (with VSA system) or the ABS modulator-control unit 25P connector (with ABS).
27. Reconnect EPS control unit connector A (11P).



28. Measure the resistance between ECM/PCM connector terminals A3 and A4.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

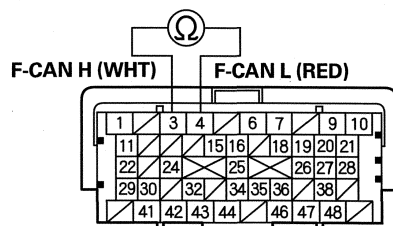
Is there about 2.34—2.86 k Ω ?

YES—Go to step 29.

NO—Substitute a known-good EPS control unit (see page 17-79), then reconnect ECM/PCM connector A. If the HDS identifies the vehicle, replace the original EPS control unit (see page 17-79).■

29. Disconnect EPS control unit connector A (11P).
30. Reconnect SRS unit connector A (39P).
31. Measure the resistance between ECM/PCM connector terminals A3 and A4.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there about 2.34—2.86 k Ω ?

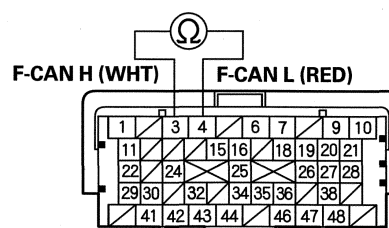
YES—Go to step 32.

NO—Substitute a known-good SRS unit (see page 24-188), then reconnect ECM/PCM connector A. If the HDS identifies the vehicle, replace the original SRS unit (see page 24-188).■

32. Disconnect SRS unit connector A (39P).
33. Reconnect the TPMS control unit 20P connector.

34. Measure the resistance between ECM/PCM connector terminals A3 and A4.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there about 2.34—2.86 k Ω ?

YES—

- '12 model with navigation system: Go to step 35.
- Except '12 model with navigation system: Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215).■

NO—Substitute a known-good TPMS control unit (see page 18-71), then reconnect ECM/PCM connector A. If the HDS identifies the vehicle, replace the original TPMS control unit (see page 18-71).■

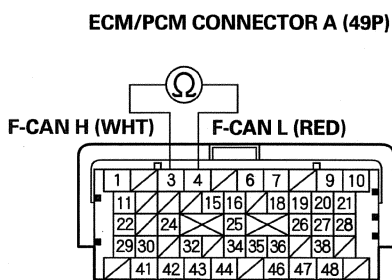
35. Disconnect the TPMS control unit 20P connector.
36. Reconnect audio-navigation unit connector D (20P).

(cont'd)

PGM-FI System

F-CAN Circuit Troubleshooting (cont'd)

37. Measure the resistance between ECM/PCM connector terminals A3 and A4.



Terminal side of female terminals

Is there about 2.34—2.86 kΩ?

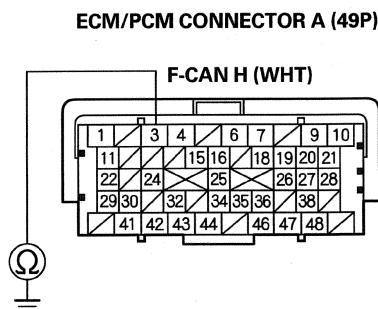
YES—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

NO—Substitute a known-good audio-navigation unit (see page 23-154), then reconnect ECM/PCM connector A. If the HDS identifies the vehicle, replace the original audio-navigation unit (see page 23-154). ■

38. Disconnect these connectors:

- Gauge control module 32P (see page 22-294).
- VSA modulator-control unit 36P (with VSA system) (see page 19-171).
- Yaw rate-lateral acceleration sensor 5P (with VSA system) (see page 19-168).
- ABS modulator-control unit 25P (with ABS) (see page 19-81).
- EPS control unit A (11P) (see page 17-79).
- SRS unit A (39P) (see page 24-188).
- TPMS control unit 20P (see page 18-71).
- Audio-navigation unit D (20P) (see page 23-304)

39. Check for continuity between ECM/PCM connector terminal A3 and body ground.



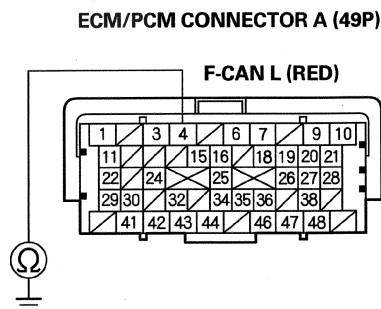
Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between ECM/PCM terminal A3 and the gauge control module, the VSA modulator-control unit (with VSA system), the yaw rate-lateral acceleration sensor (with VSA system), the ABS modulator-control unit (with ABS), the EPS control unit, the SRS unit, the TPMS control unit, or the DLC. ■

NO—Go to step 40.

40. Check for continuity between ECM/PCM connector terminal A4 and body ground.



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between ECM/PCM terminal A4 and the gauge control module, the VSA modulator-control unit (with VSA system), the yaw rate-lateral acceleration sensor (with VSA system), the ABS modulator-control unit (with ABS), the EPS control unit, the SRS unit, the TPMS control unit, or the DLC. ■

NO—Go to step 41.



41. Reconnect all connectors.

42. Connect the HDS to the DLC (see page 11-3).

43. Disconnect the gauge control module 32P connector.

44. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the gauge control module (see page 22-294).■

NO—

- With VSA system: Go to step 45.
- With ABS: Go to step 53.

45. Turn the ignition switch to LOCK (0).

46. Reconnect the gauge control module 32P connector.

47. Disconnect the VSA modulator-control unit 36P connector.

48. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the VSA modulator-control unit (see page 19-171).■

NO—Go to step 49.

49. Turn the ignition switch to LOCK (0).

50. Reconnect the VSA modulator-control unit 36P connector.

51. Disconnect the yaw rate-lateral acceleration sensor 5P connector.

52. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the yaw rate-lateral acceleration sensor (see page 19-168).■

NO—Go to step 57.

53. Turn the ignition switch to LOCK (0).

54. Reconnect the gauge control module 32P connector.

55. Disconnect the ABS modulator-control unit 25P connector.

56. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the ABS modulator-control unit (see page 19-81).■

NO—Go to step 57.

57. Turn the ignition switch to LOCK (0).

58. Reconnect the yaw rate-lateral acceleration sensor 5P connector (with VSA system) or the ABS modulator-control unit (with ABS).

59. Disconnect EPS control unit connector A (11P).

60. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the EPS control unit (see page 17-79).■

NO—Go to step 61.

61. Turn the ignition switch to LOCK (0).

62. Reconnect EPS control unit connector A (11P).

63. Disconnect SRS unit connector A (39P).

64. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the SRS unit (see page 24-188).■

NO—Go to step 65.

65. Turn the ignition switch to LOCK (0).

66. Reconnect SRS unit connector A (39P).

67. Disconnect the TPMS control unit 20P connector.

68. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the TPMS control unit (see page 18-71).■

NO—

- '12 model with navigation system: Go to step 69.
- Except '12 model with navigation system: Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215).■

(cont'd)

PGM-FI System

F-CAN Circuit Troubleshooting (cont'd)

69. Turn the ignition switch to LOCK (0).
70. Reconnect the TPMS control unit 20P connector.
71. Disconnect audio-navigation unit connector D (20P).
72. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

MIL Circuit Troubleshooting

1. Turn the ignition switch to ON (II).
2. Do the gauge self-diagnostic function (see page 22-274).

Does the MIL flash?

YES—Go to step 3.

NO—Substitute a known-good gauge control module (see page 22-294), and recheck. If the symptom/indication goes away with a known-good gauge control module, replace the original gauge control module (see page 22-294). ■

3. Connect the HDS to the DLC (see page 11-3).
4. Check the SCS in the DATA LIST with the HDS.

Is a short indicated?

YES—Go to step 5.

NO—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

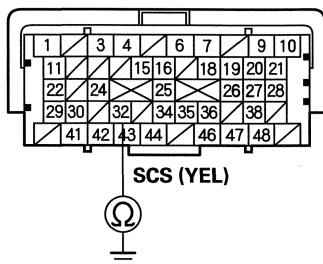
5. Turn the ignition switch to LOCK (0).
6. Disconnect ECM/PCM connector A (49P), then disconnect the HDS.



DLC Circuit Troubleshooting

7. Check for continuity between ECM/PCM connector terminal A32 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (A32) and the DLC. ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

NOTE:

- If you suspect the HDS or the HDS DLC cable may be the source of the communication problem, verify that they are working properly by connecting them to a known-good, like vehicle and system, and checking for communication problems.
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to LOCK (0).
2. Connect the HDS to the DLC (see page 11-3).

NOTE: Make sure the HDS is properly connected to the DLC.

3. Turn the ignition switch to ON (II), and read the HDS.

Does the HDS identify the vehicle?

YES—Go to step 4.

NO—Go to step 25.

4. Check for Pending or Confirmed DTCs in the PGM-FI system with the HDS.

Are any Pending or Confirmed DTCs indicated?

YES—Go to the indicated DTC's troubleshooting. ■

NO—

- If the HDS does not communicate with the SRS, go to step 5.
- If the HDS does not communicate with the VSA system, go to step 7.
- If the HDS does not communicate with the ABS, go to step 9.
- If the HDS does not communicate with the EPS system, go to step 11.
- If the HDS does not communicate with the TPMS, go to step 13.
- If the HDS does not communicate with the IMMOBI (immobilizer) system, go to step 15.
- If the HDS does not communicate with the BODY ELECTRICAL system, go to step 17.

(cont'd)

PGM-FI System

DLC Circuit Troubleshooting (cont'd)

5. Turn the ignition switch to LOCK (0).

6. Turn the ignition switch to ON (II), and watch the SRS indicator.

Does the SRS indicator come on and go off?

YES—Go to step 17.

NO—Go to the SRS symptom troubleshooting for SRS indicator stays on, but no DTCs are stored (see page 24-165).■

7. Turn the ignition switch to LOCK (0).

8. Turn the ignition switch to ON (II), and watch the VSA indicator.

Does the VSA indicator come on and go off?

YES—Go to step 17.

NO—Go to the VSA system symptom troubleshooting for ABS indicator, brake system indicator, and VSA indicator do not go off (see page 19-164).■

9. Turn the ignition switch to LOCK (0).

10. Turn the ignition switch to ON (II), and watch the ABS indicator.

Does the ABS indicator come on and go off?

YES—Go to step 17.

NO—Go to the ABS symptom troubleshooting for ABS indicator and brake system indicator do not go off (see page 19-78).■

11. Turn the ignition switch to LOCK (0).

12. Start the engine, and watch the EPS indicator.

Does the EPS indicator come on and go off?

YES—Go to step 17.

NO—Go to the EPS system symptom troubleshooting for EPS indicator does not go off, and no DTCs are stored (see page 17-59).■

13. Turn the ignition switch to LOCK (0).

14. Turn the ignition switch to ON (II), and watch the TPMS indicator.

Does the TPMS indicator stay on?

YES—Go to the TPMS general troubleshooting information (see page 18-47).■

NO—Go to step 17.

15. Turn the ignition switch to LOCK (0).

16. Turn the ignition switch to ON (II), and watch the immobilizer indicator.

Does the immobilizer indicator stay on or flash?

YES—Go to the immobilizer system troubleshooting (see page 22-323).■

NO—Go to step 17.

17. Do the gauge self-diagnostic function (see page 22-274).

18. Check the gauge display.

Is Error 2 indicated?

YES—Check for B-CAN system DTCs (see page 22-87).■

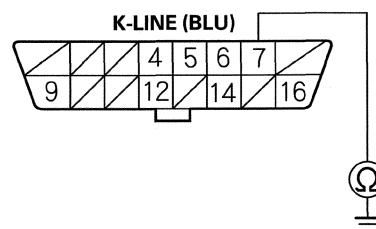
NO—Go to step 19.

19. Turn the ignition switch to LOCK (0), then do the battery terminal disconnection procedure (see page 22-69), and wait at least 3 minutes before starting work.

20. Disconnect the HDS from the DLC.

21. Check for continuity between DLC terminal No. 7 and body ground.

DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

Is there continuity?

YES—Go to step 22.

NO—Go to step 23.



22. Continue to check for continuity between DLC terminal No. 7 and body ground, while disconnecting these connectors, one at a time:

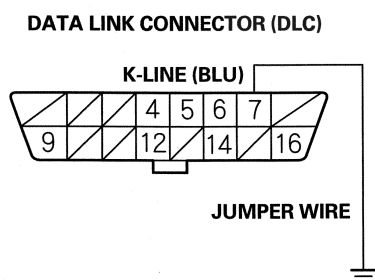
- SRS unit connector A (39P)
- ABS modulator-control unit 25P connector (with ABS)
- VSA modulator-control unit 36P connector (with VSA system)
- EPS control unit connector A (11P)
- TPMS control unit 20P connector
- Immobilizer-keyless control unit 7P connector
- Audio unit 24P connector
- Under-dash fuse/relay box Q (16P) connector

Does continuity go away when one of the above parts is disconnected?

YES—Replace the part that caused continuity to go away when it was disconnected. ■

NO—Repair a short in the wire between the DLC (K-line) and the ABS modulator-control unit (with ABS), the VSA modulator-control unit (with VSA system), the SRS unit, the EPS control unit, the TPMS control unit, the immobilizer-keyless control unit, the audio-navigation unit, the audio unit, or the under-dash fuse/relay box. ■

23. Connect DLC terminal No. 7 to body ground with a jumper wire.



Terminal side of female terminals

24. Check for continuity between body ground and these connector terminals:

Connector	Terminal
SRS unit A (39P)	No. 18 (BLU)
VSA modulator-control unit 36P (with VSA system)	No. 3 (BLU)
ABS control unit 25P (with ABS)	No. 10 (BLU)
EPS control unit A (11P)	No. 7 (BLU)
TPMS control unit 20P	No. 7 (BLU)
Immobilizer-keyless control unit 7P	No. 5 (BLU)
Audio unit/ Audio-navigation unit 24P	No. 3 (BLU)
Under-dash fuse/relay box Q (16P)	No. 2 (BLU)

Is there continuity between the DLC terminal and each of the terminals in the chart?

YES—Replace the part that does not communicate with the HDS. ■

NO—Repair an open in the wire between the DLC (K-line) and the appropriate connector. ■

25. Do the gauge self-diagnostic function (see page 22-274).

Is Error 1 indicated?

YES—Go to step 36.

NO—Go to step 26.

26. Turn the ignition switch to LOCK (0).

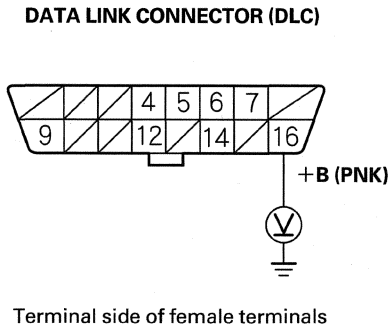
27. Disconnect the HDS from the DLC.

(cont'd)

PGM-FI System

DLC Circuit Troubleshooting (cont'd)

28. Measure the voltage between DLC terminal No. 16 and body ground.

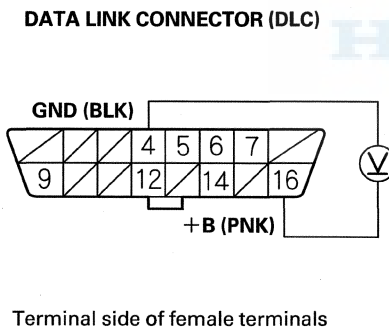


Is there battery voltage?

YES—Go to step 29.

NO—Repair an open in the wire between DLC terminal No. 16 and the No. 1 BACK UP (10 A) fuse in the under-dash fuse/relay box. ■

29. Measure the voltage between DLC terminals No. 4 and No. 16.



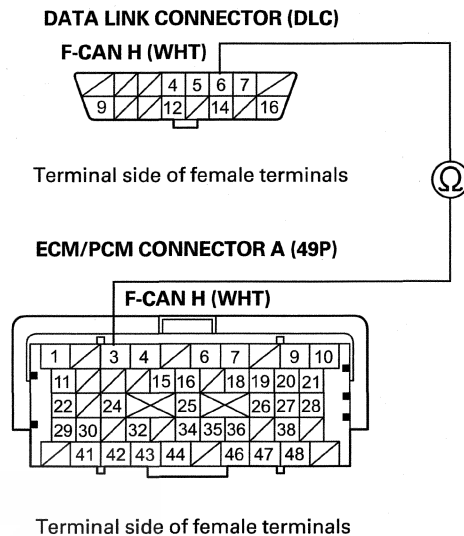
Is there battery voltage?

YES—Go to step 30.

NO—Repair an open in the wire between DLC terminal No. 4 and body ground G502 (see page 22-30). ■

30. Connect the HDS to the DLC (see page 11-3).
31. Jump the SCS line with the HDS.
32. Disconnect ECM/PCM connector A (49P).
33. Disconnect the HDS from the DLC.

34. Check for continuity between ECM/PCM connector terminal A3 and DLC terminal No. 6.



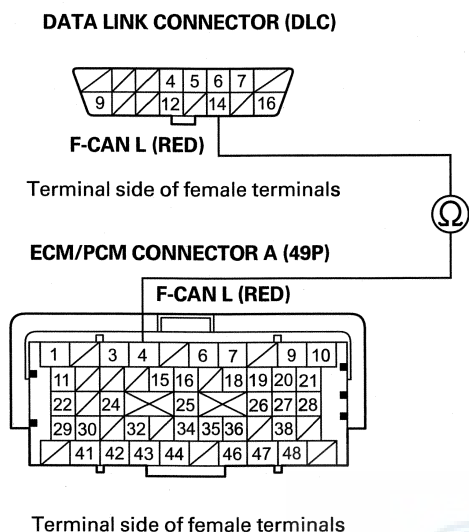
Is there continuity?

YES—Go to step 35.

NO—Repair an open in the wire between the ECM/PCM (A3) and DLC terminal No. 6. ■



35. Check for continuity between ECM/PCM connector terminal A4 and DLC terminal No. 14.



Is there continuity?

YES—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

NO—Repair an open in the wire between the ECM/PCM (A4) and DLC terminal No. 14. ■

36. Try to start the engine.

Does the engine start and idle smoothly?

YES—Go to the F-CAN circuit troubleshooting (see page 11-183). ■

NO—Go to step 37.

37. Turn the ignition switch to LOCK (0).

38. Check the No. 60 IG MAIN (50 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES—Repair an open in the wire the No. 60 IG MAIN (50 A) fuse and the ignition switch. If the wire is OK go to step 39.

NO—Repair a short in the wire between the No. 60 IG MAIN (50 A) fuse and the under-dash fuse/relay box. Also replace the No. 60 IG MAIN (50 A) fuse. ■

39. Inspect the No. 39 IGP (15 A) fuse in the under-dash fuse/relay box.

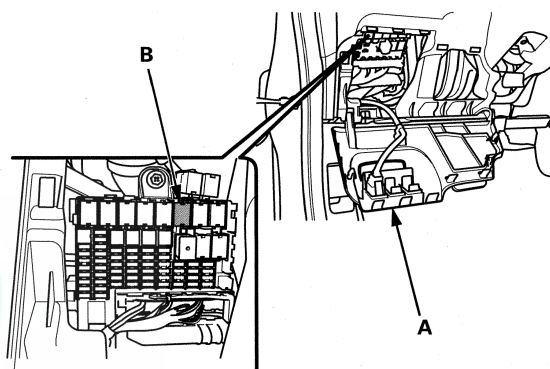
Is the fuse OK?

YES—Go to step 46.

NO—Go to step 40.

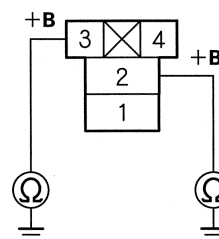
40. Remove the blown No. 39 IGP (15 A) fuse from the under-hood fuse/relay box.

41. Open the fuse access panel (A), then remove PGM-FI main relay 1 (B) from the under-dash fuse/relay box.



42. Check for continuity between body ground and PGM-FI main relay 1 4P connector terminals No. 2 and No. 3 individually.

PGM-FI MAIN RELAY 1 4P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Replace the under-dash fuse/relay box; USA models (see page 22-65), Canada models (see page 22-66). ■

NO—Go to step 43.

(cont'd)

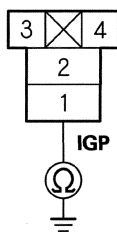
PGM-FI System

DLC Circuit Troubleshooting (cont'd)

43. While disconnecting each of the parts or connectors below, one at a time, check for continuity between PGM-FI main relay 1 4P connector terminal No. 1 and body ground.

- PGM-FI main relay 2
- ECM/PCM connector A (49P)
- Each injector 2P connector
- Camshaft position (CMP) sensor 3P connector
- Crankshaft position (CKP) sensor 3P connector
- Electronic throttle control system (ETCS) control relay

PGM-FI MAIN RELAY 1 4P CONNECTOR



Terminal side of female terminals

Does continuity go away when one of the above parts is disconnected?

YES—Replace the part that made the short to body ground go away when disconnected. If the part is the ECM/PCM, update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). Also replace the No. 39 IGP (15 A) fuse. ■

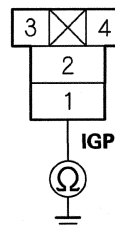
NO—Go to step 44.

44. Disconnect these parts or connectors:

- PGM-FI main relay 2
- ECM/PCM connector A
- Injectors
- Camshaft position (CMP) sensor
- Crankshaft position (CKP) sensor
- Electronic throttle control system (ETCS) control relay

45. Check for continuity between PGM-FI main relay 1 4P connector terminal No. 1 and body ground.

PGM-FI MAIN RELAY 1 4P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between PGM-FI main relay 1 and each part. Also replace the No. 39 IGP (15 A) fuse. ■

NO—Replace PGM-FI main relay 1. Also replace the No. 39 IGP (15 A) fuse. ■

46. Inspect the No. 20 FUEL PUMP (15 A) fuse in the under-dash fuse/relay box.

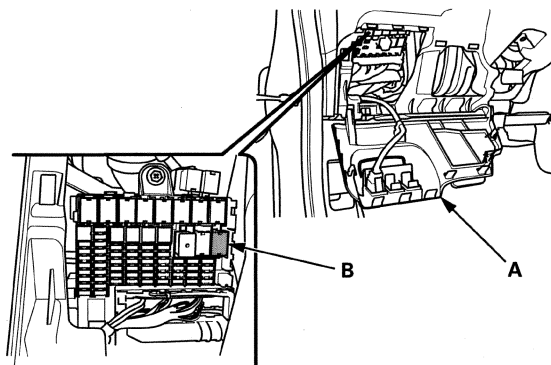
Is the fuse OK?

YES—Go to step 56.

NO—Go to step 47.

47. Remove the blown No. 20 FUEL PUMP (15 A) fuse from the under-dash fuse/relay box.

48. Open the fuse access panel (A), then remove PGM-FI main relay 2 (B) from the under-dash fuse/relay box.





49. Test PGM-FI main relay 2 (see page 22-76).

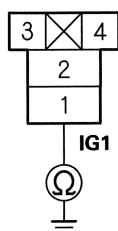
Is the relay OK?

YES—Go to step 50.

NO—Replace PGM-FI main relay 2. Also replace the No. 20 FUEL PUMP (15 A) fuse. ■

50. Check for continuity between PGM-FI main relay 2 4P connector terminal No. 1 and body ground.

PGM-FI MAIN RELAY 2 4P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 51.

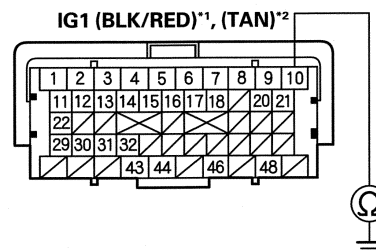
NO—Go to step 54.

51. Jump the SCS line with the HDS

52. Disconnect ECM/PCM connector C (49P).

53. Check for continuity between ECM/PCM connector terminal C10 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between the No. 20 FUEL PUMP (15 A) fuse and the ECM/PCM (C10) or PGM-FI main relay 2. Also replace the No. 20 FUEL PUMP (15 A) fuse.

NO—

Replace the No. 20 FUEL PUMP (15 A) fuse, and update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

54. Disconnect the fuel pump 4P connector (see page 11-295).

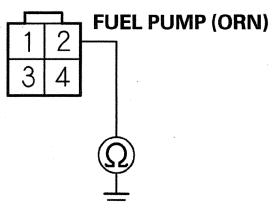
(cont'd)

PGM-FI System

DLC Circuit Troubleshooting (cont'd)

55. Check for continuity between fuel pump 4P connector terminal No. 2 and body ground.

FUEL PUMP 4P CONNECTOR



Wire side of female terminals

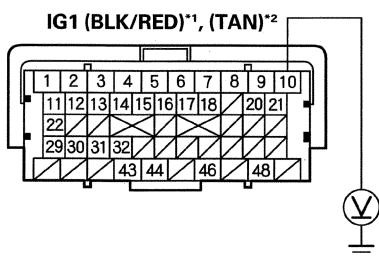
Is there continuity?

YES—Repair a short in the wire between the fuel pump and PGM-FI main relay 2. Also replace the No. 20 FUEL PUMP (15 A) fuse. ■

NO—Check the fuel pump, and replace it if needed (see page 11-298). Also replace the No. 20 FUEL PUMP (15 A) fuse. ■

56. Jump the SCS line with the HDS.
57. Disconnect ECM/PCM connectors A (49P) and C (49P).
58. Turn the ignition switch to ON (II).
59. Measure the voltage between ECM/PCM connector terminal C10 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

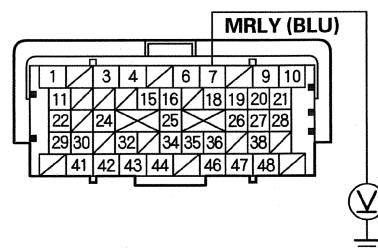
Is there battery voltage?

YES—Go to step 60.

NO—Repair an open in the wire between the No. 20 FUEL PUMP (15 A) fuse and the ECM/PCM (C10). ■

60. Measure the voltage between ECM/PCM connector terminal A7 and body ground.

ECM/PCM CONNECTOR A (49P)



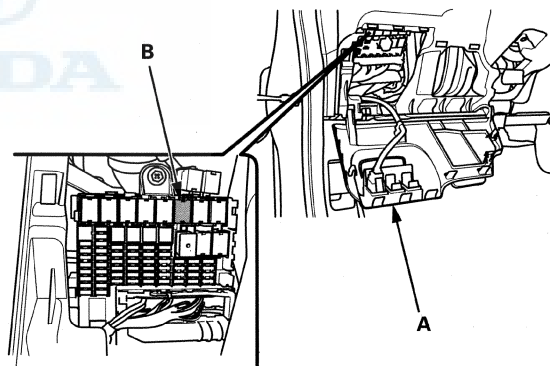
Terminal side of female terminals

Is there battery voltage?

YES—Go to step 66.

NO—Go to step 61.

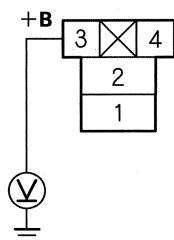
61. Turn the ignition switch to LOCK (0).
62. Open the fuse access panel (A), then remove PGM-FI main relay 1 (B) from the under-dash fuse/relay box.





63. Measure the voltage between PGM-FI main relay 1 4P connector terminal No. 3 and body ground.

PGM-FI MAIN RELAY 1 4P CONNECTOR



Terminal side of female terminals

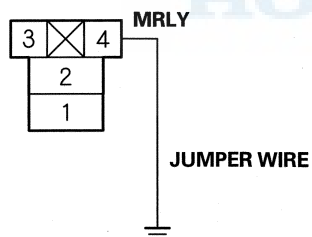
Is there battery voltage?

YES—Go to step 64.

NO—Replace the under-dash fuse/relay box; USA models (see page 22-65), Canada models (see page 22-66). ■

64. Connect PGM-FI main relay 1 4P connector terminal No. 4 to body ground with a jumper wire.

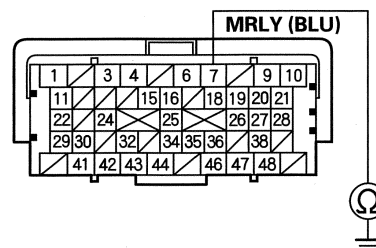
PGM-FI MAIN RELAY 1 4P CONNECTOR



Terminal side of female terminals

65. Check for continuity between ECM/PCM connector terminal A7 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

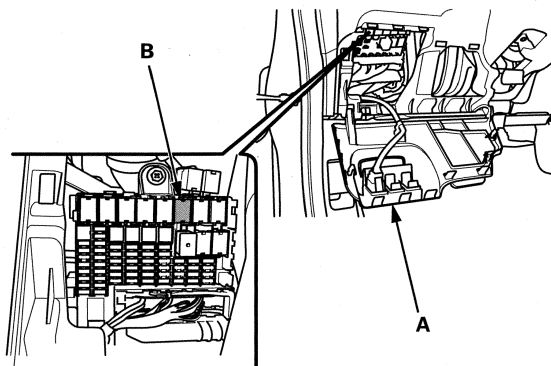
Is there continuity?

YES—Test PGM-FI main relay 1 (see page 22-76). If the relay is OK, update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

NO—Repair an open in the wire between the ECM/PCM (A7) and PGM-FI main relay 1. ■

66. Turn the ignition switch to LOCK (0).

67. Open the fuse access panel (A), then remove PGM-FI main relay 1 (B) from the under-dash fuse/relay box.



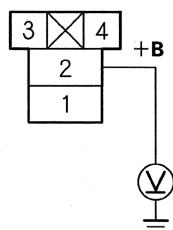
(cont'd)

PGM-FI System

DLC Circuit Troubleshooting (cont'd)

68. Measure the voltage between PGM-FI main relay 1 4P connector terminal No. 2 and body ground.

PGM-FI MAIN RELAY 1 4P CONNECTOR



Terminal side of female terminals

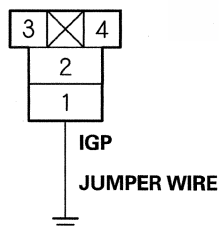
Is there battery voltage?

YES—Go to step 69.

NO—Replace the under-dash fuse/relay box; USA models (see page 22-65), Canada models (see page 22-66). ■

69. Connect PGM-FI main relay 1 4P connector terminal No. 1 to body ground with a jumper wire.

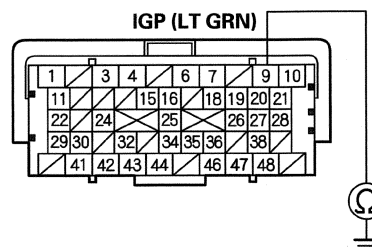
PGM-FI MAIN RELAY 1 4P CONNECTOR



Terminal side of female terminals

70. Check for continuity between ECM/PCM connector terminal A9 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 71.

NO—Repair an open in the wire between the ECM/PCM (A9) and PGM-FI main relay 1. ■

71. Test PGM-FI main relay 1 (see page 22-76).

Is PGM-FI main relay 1 OK?

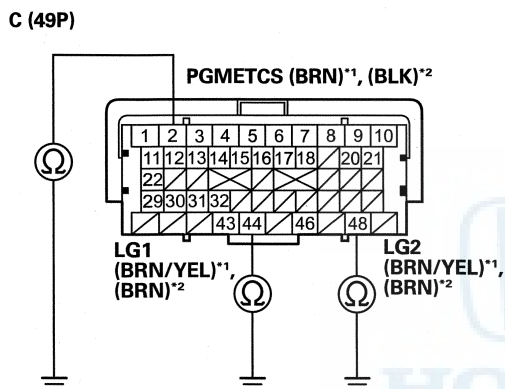
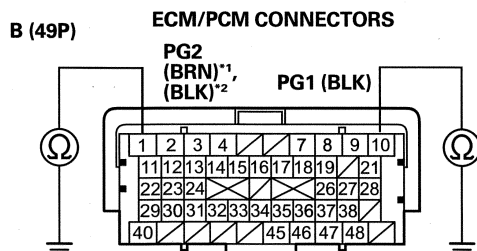
YES—Go to step 72.

NO—Replace PGM-FI main relay 1. ■

72. Disconnect ECM/PCM connector B (49P).



73. Check for continuity between body ground and ECM/PCM connector terminals B1, B10, C2, C44, and C48 individually.



Terminal side of female terminals

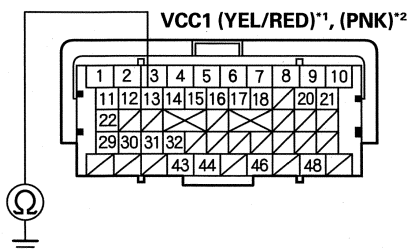
Is there continuity?

YES—Go to step 74.

NO—Repair an open in the wire between the ECM/PCM (B1, B10, C2, C44, C48) and G101 (see page 22-16). ■

74. Check for continuity between ECM/PCM connector terminal C13 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 75.

NO—Go to step 76.

75. Continue to check for continuity between ECM/PCM connector terminal C13 and body ground, while disconnecting these connectors, one at a time:

- MAP sensor 3P connector
- Output shaft (countershaft) speed sensor 3P connector

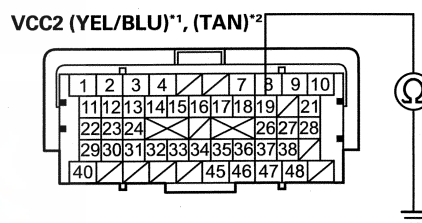
Does continuity go away when one of the above parts is disconnected?

YES—Replace the part that caused continuity to go away when it was disconnected. ■

NO—Repair a short in the wire between the ECM/PCM (C13) and the MAP sensor or the output shaft (countershaft) speed sensor. ■

76. Check for continuity between ECM/PCM connector terminal B19 and body ground.

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 77.

NO—Go to step 78.

77. Continue to check for continuity between ECM/PCM connector terminal B19 and body ground, while disconnecting these connectors, one at a time:

- EGR valve 6P connector
- Input shaft (mainshaft) speed sensor 3P connector

Does continuity go away when one of the above parts is disconnected?

YES—Replace the part that caused continuity to go away when it was disconnected. ■

NO—Repair a short in the wire between the ECM/PCM (B19) and the EGR valve or the input shaft (mainshaft) speed sensor. ■

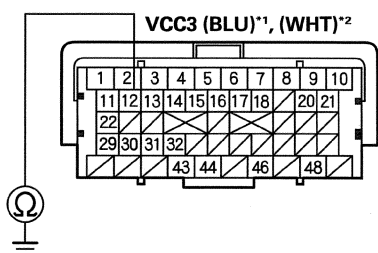
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PGM-FI System

DLC Circuit Troubleshooting (cont'd)

78. Check for continuity between ECM/PCM connector terminal C12 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 79.

NO—Go to step 80.

79. Continue to check for continuity between ECM/PCM connector terminal C12 and body ground, while disconnecting the throttle body 6P connector.

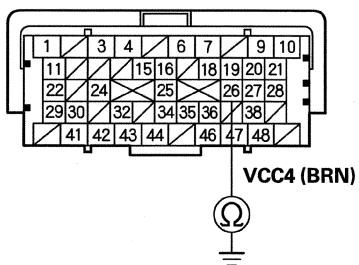
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (C12) and the throttle body. ■

NO—Replace the throttle body (see page 11-309). ■

80. Check for continuity between ECM/PCM connector terminal A26 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 81.

NO—Go to step 82.

81. Continue to check for continuity between ECM/PCM connector terminal A26 and body ground, while disconnecting the APP sensor 6P connector.

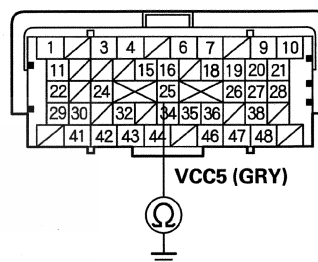
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (A26) and APP sensor A. ■

NO—Replace the accelerator pedal module (see page 11-250). ■

82. Check for continuity between ECM/PCM connector terminal A25 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 83.

NO—Go to step 84.

83. Continue to check for continuity between ECM/PCM connector terminal A25 and body ground, while disconnecting the APP sensor 6P connector.

Is there continuity?

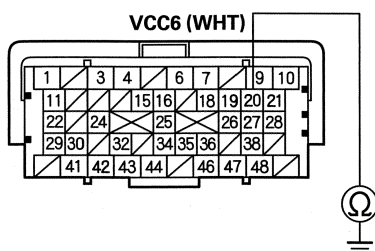
YES—Repair a short in the wire between the ECM/PCM (A25) and APP sensor B. ■

NO—Replace the accelerator pedal module (see page 11-250). ■



84. Check for continuity between ECM/PCM connector terminal A20 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 85.

NO—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

85. Continue to check for continuity between ECM/PCM connector terminal A20 and body ground, while disconnecting the FTP sensor 3P connector.

Is there continuity?

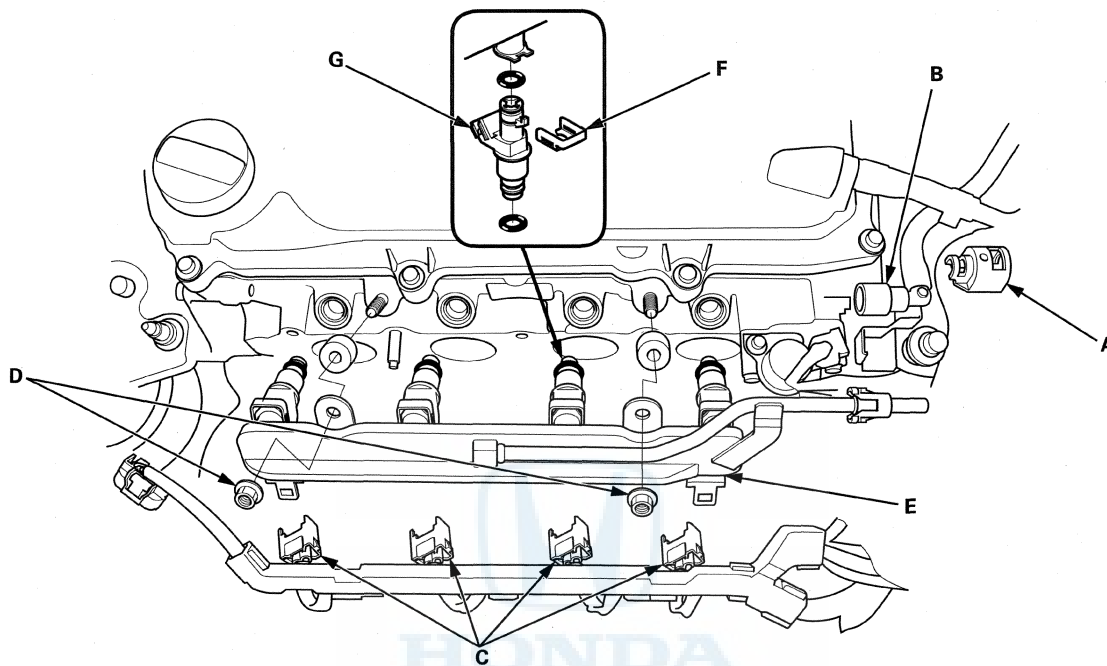
YES—Repair a short in the wire between the ECM/PCM (A20) and the FTP sensor. ■

NO—Replace the FTP sensor (see page 11-359). ■

PGM-FI System

Injector Replacement

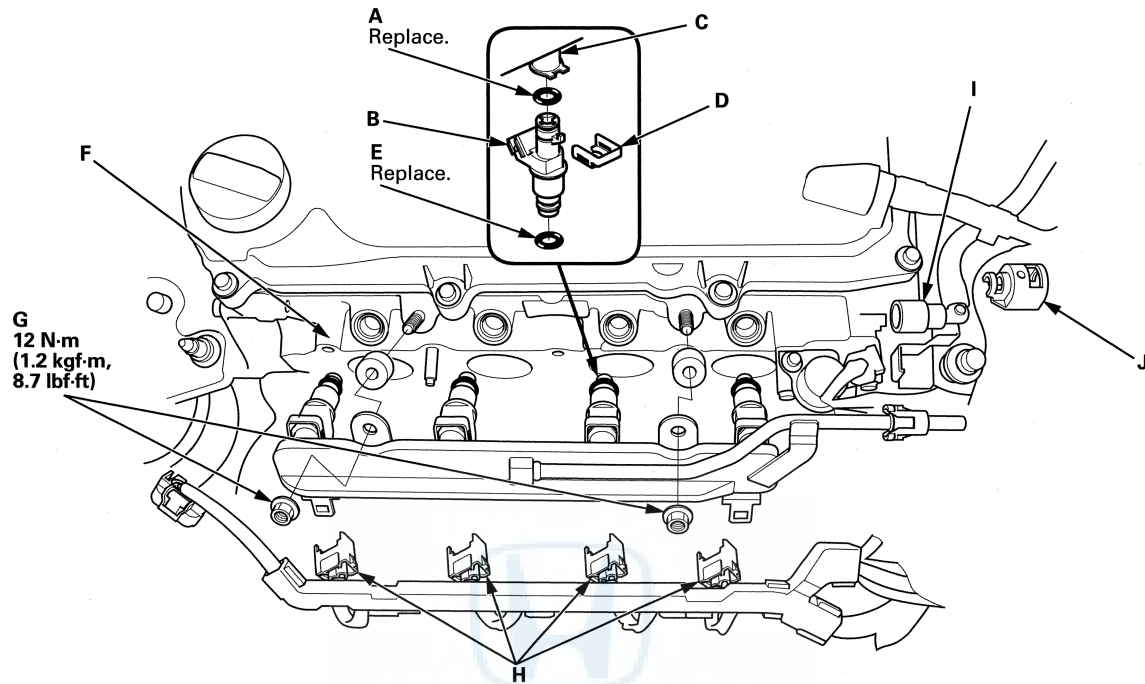
1. Relieve the fuel pressure (see page 11-279).
2. Remove the intake manifold and the intake manifold chamber (see page 9-9).
3. Remove the quick-connect fitting cover (A), then disconnect the quick-connect fitting (B).



4. Disconnect the injector connectors (C).
5. Remove the fuel rail mounting nuts (D) from the fuel rail (E).
6. Remove the fuel rail and the injectors from the cylinder head.
7. Remove the injector clips (F) from the fuel rail.
8. Remove the injectors (G) from the fuel rail.



9. Coat the new O-rings (black) (A) with clean engine oil, then insert the injectors (B) into the fuel rail (C).



10. Install the injector clips (D).
11. Coat the new injector O-rings (brown) (E) with clean engine oil.
12. Install the fuel rail and the injectors in the cylinder head (F).
13. Install the fuel rail mounting nuts (G).
14. Connect the injector connectors (H).
15. Connect the quick-connect fitting (I) and the quick-connect fitting cover (J).
16. Turn the ignition switch to ON (II), but do not operate the starter. After the fuel pump runs for about 2 seconds, the fuel rail is pressurized. Repeat this two or three times, then check for fuel leaks.
17. Reinstall the intake manifold and the intake manifold chamber (see page 9-10).

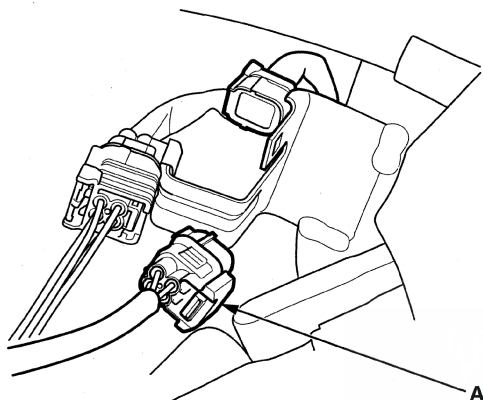
PGM-FI System

A/F Sensor Replacement

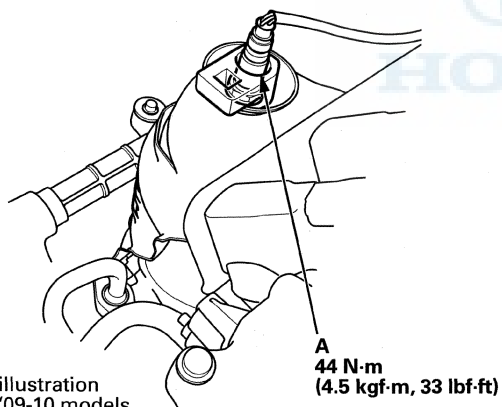
Special Tools Required

O2 Sensor Wrench Snap-on S6176 or equivalent, commercially available

1. Remove the cowl cover (see page 20-168) and the under-cowl panel (see page 20-185).
2. Disconnect the A/F sensor connector (A).



3. Remove the A/F sensor (A).



*: This illustration shows '09-10 models.

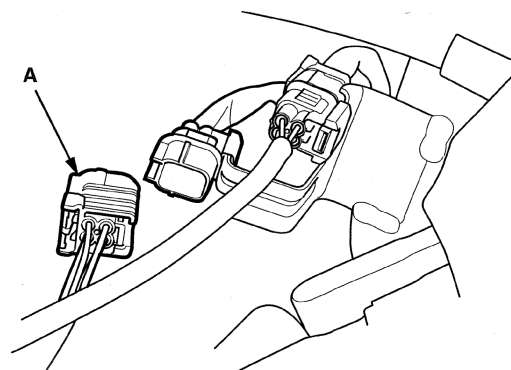
4. Install the parts in the reverse order of removal.

Secondary HO2S Replacement

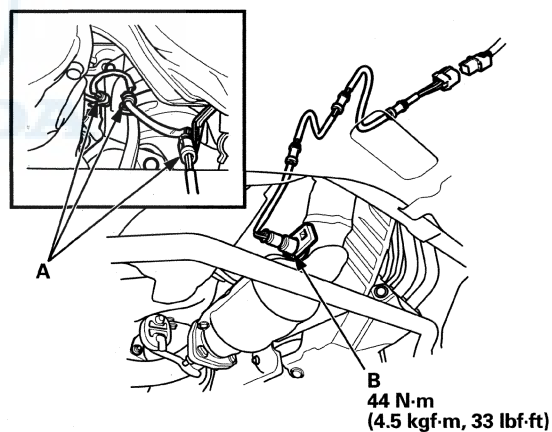
Special Tools Required

O2 Sensor Wrench Snap-on S6176 or equivalent, commercially available

1. Disconnect the secondary HO2S connector (A).



2. Raise the vehicle on a lift (see page 1-14).
3. Remove the supporters (A), then remove the secondary HO2S (B).

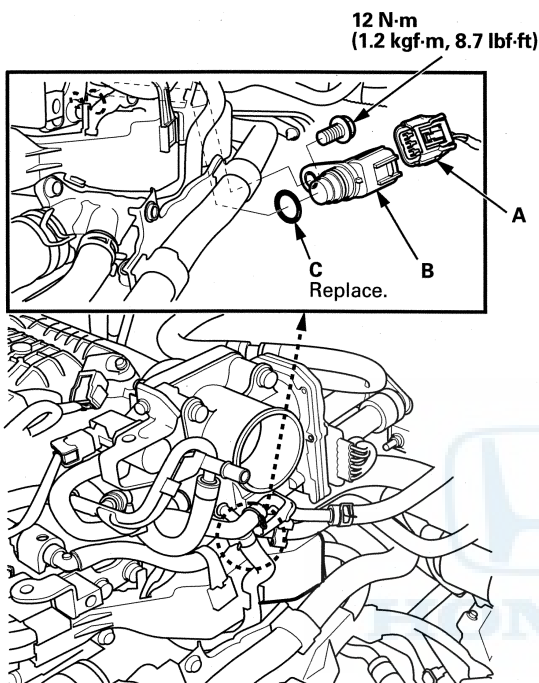


4. Install the parts in the reverse order of removal.



CMP Sensor Replacement

1. Remove the cowl cover (see page 20-168) and the under-cowl panel (see page 20-185).
2. Remove the air cleaner (see page 11-307).
3. Disconnect the CMP sensor connector (A).



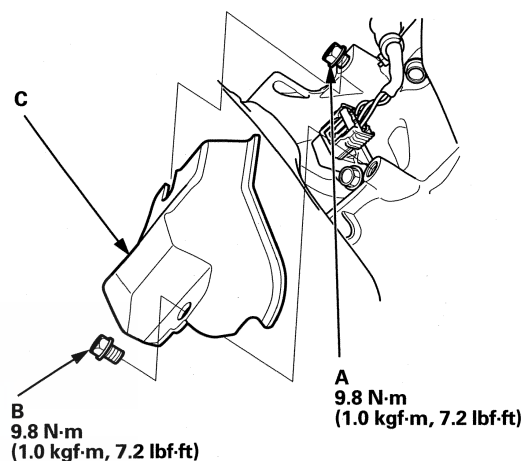
4. Remove the CMP sensor (B).
5. Install the parts in the reverse order of removal with a new O-ring (C).

CKP Sensor Replacement

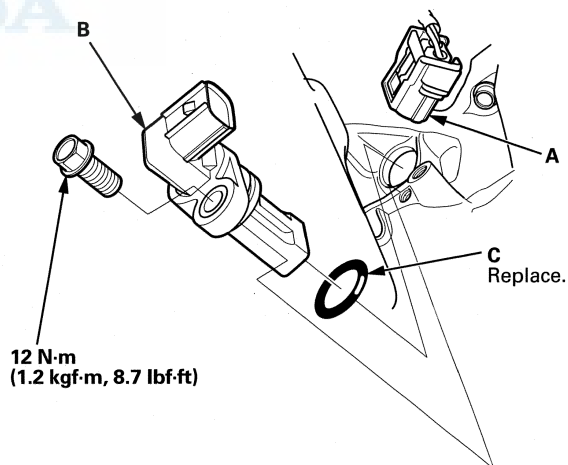
1. Raise the vehicle on a lift (see page 1-14).

NOTE: Make sure the vehicle is level, because engine oil will drip out when you remove the sensor.

2. Loosen the bolt (A). Remove the bolt (B) and the CKP sensor cover (C).



3. Disconnect the CKP sensor connector (A).



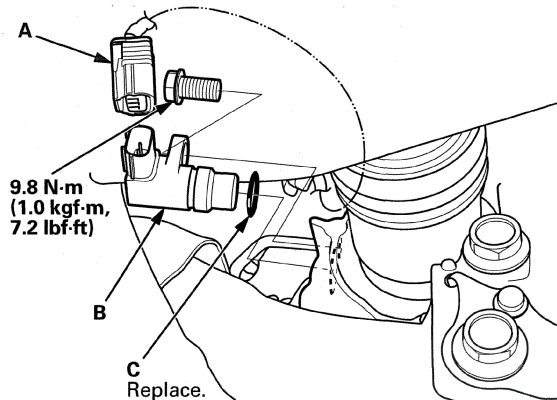
4. Remove the CKP sensor (B).
5. Install the parts in the reverse order of removal with a new O-ring (C).
6. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-5).
7. Check the engine oil level, and add more oil if needed.

PGM-FI System

Output Shaft (Countershaft) Speed Sensor Replacement

M/T

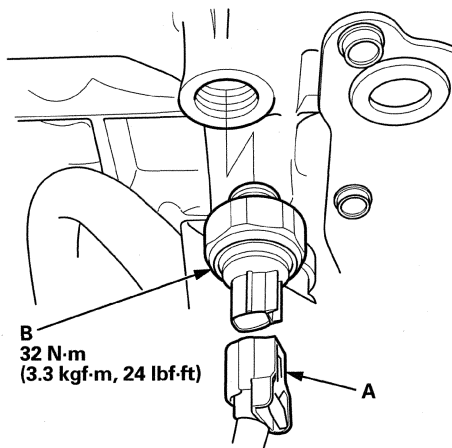
1. Raise the vehicle on a lift (see page 1-14).
2. Disconnect the output shaft (countershaft) speed sensor connector (A).



3. Remove the output shaft (countershaft) speed sensor (B).
4. Install the parts in the reverse order of removal with a new O-ring (C).

Knock Sensor Replacement

1. Disconnect the knock sensor connector (A).

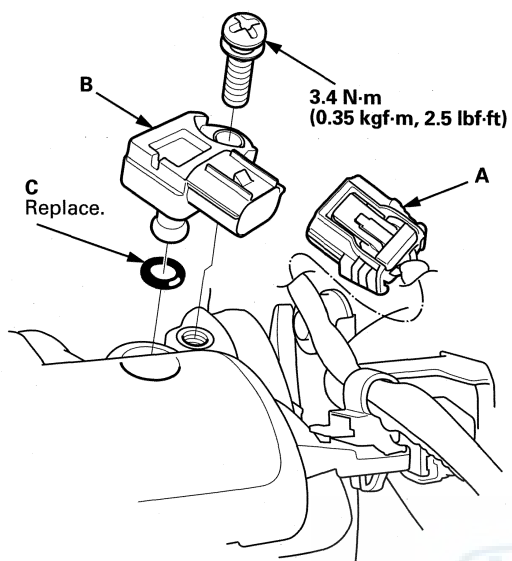


2. Remove the knock sensor (B).
3. Install the parts in the reverse order of removal.



MAP Sensor Replacement

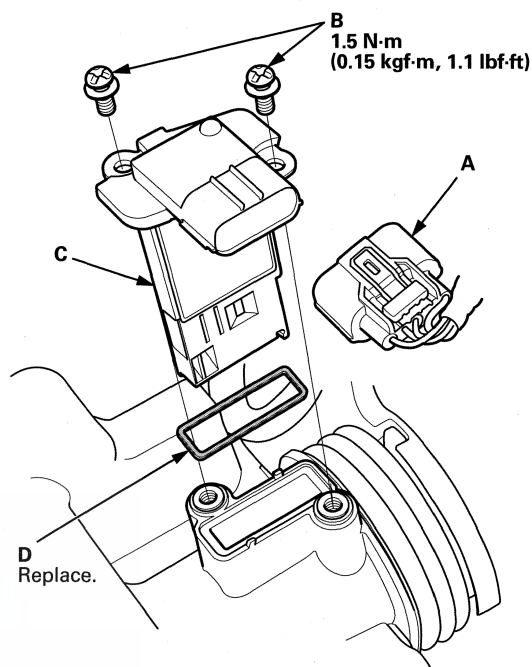
1. Disconnect the MAP sensor connector (A).



2. Remove the MAP sensor (B).
3. Install the parts in the reverse order of removal with a new O-ring (C).

MAF Sensor/IAT Sensor Replacement

1. Disconnect the MAF sensor/IAT sensor connector (A).

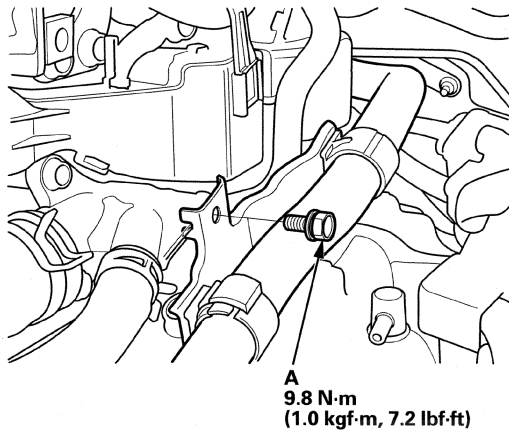


2. Remove the screws (B).
3. Remove the MAF sensor/IAT sensor (C).
4. Install the parts in the reverse order of removal with a new gasket (D).

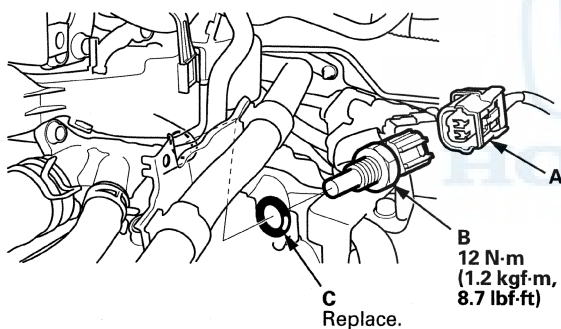
PGM-FI System

ECT Sensor 1 Replacement

1. Remove the air cleaner (see page 11-307).
2. Remove the hose clamp stay bolt (A).



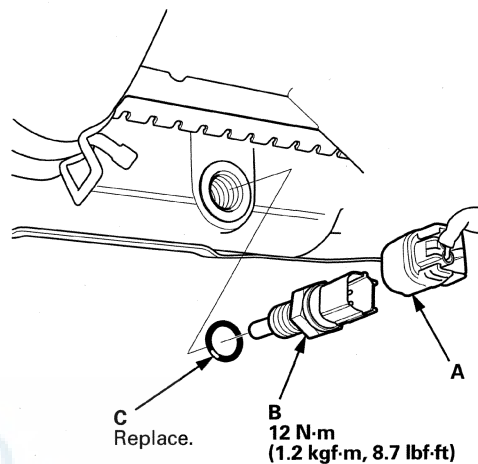
3. Disconnect the ECT sensor 1 connector (A).



4. Remove ECT sensor 1 (B).
5. Install the parts in the reverse order of removal with a new O-ring (C), then refill the radiator with engine coolant (see page 10-8).

ECT Sensor 2 Replacement

1. Drain the engine coolant (see page 10-8).
2. Raise the vehicle on a lift (see page 1-14).
3. Disconnect the ECT sensor 2 connector (A), then remove ECT sensor 2 (B).

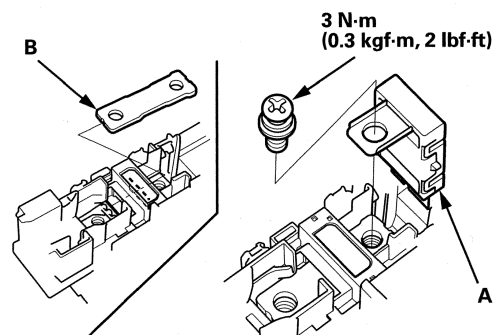


4. Install the parts in the reverse order of removal with a new O-ring (C), then refill the radiator with engine coolant (see page 10-8).

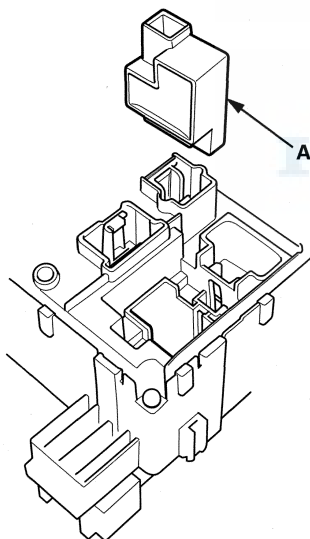


ELD Replacement

1. Remove the under-dash fuse/relay box (see page 22-65).
2. Remove the fuse (A).



3. Remove the joint bar (B).
4. Turn over the under-dash fuse/relay box, then remove the ELD (A).



5. Install the parts in the reverse order of removal.

ECM/PCM Update

Special Tools Required

- Honda diagnostic system (HDS) tablet tester
- Honda Interface Module (HIM) and an iN workstation with the latest HDS software version
- HDS pocket tester
- GNA600 and an iN workstation with the latest HDS software version
- MVCI unit with the latest control module (CM) update software installed

Any one of the above updating tools can be used.

NOTE:

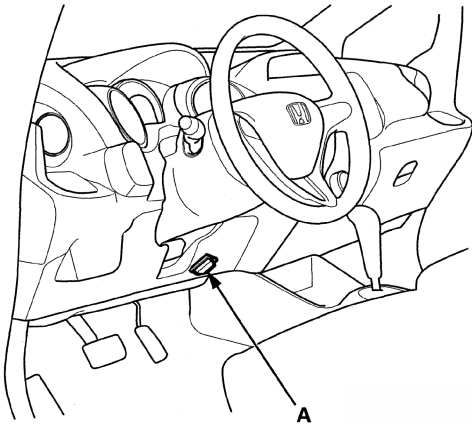
- Use this procedure when you need to update the ECM/PCM at any time.
- Make sure the HDS/iN workstation or the MVCI has the latest HDS software version.
- Before you update the ECM/PCM, make sure the battery in the vehicle is fully charged, and connect a jumper battery (not a battery charger) to maintain system voltage.
- Never turn the ignition switch to ACCESSORY (I) or LOCK (O) during the update. If there is a problem with the update, leave the ignition switch turned ON (II).
- To prevent ECM/PCM damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, door locks, etc.) during the update.
- To ensure the latest program is installed, do an ECM/PCM update whenever the ECM/PCM is substituted or replaced.
- You cannot update an ECM/PCM with a program it already has. It will only accept a new program.
- High temperature in the engine compartment might cause the ECM/PCM to become too hot to run the update. If the engine has been running before this procedure, open the hood and cool the engine compartment.
- If you need to diagnose the Honda interface module (HIM) because the HIM's red (#3) light came on or was flashing during the update, leave the ignition switch in ON (II) when you disconnect the HIM from the data link connector (DLC). This prevents damage to the ECM/PCM.

(cont'd)

PGM-FI System

ECM/PCM Update (cont'd)

1. Turn the ignition switch to ON (II), but do not start the engine.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting (see page 11-193). If you are returning from the DLC circuit troubleshooting, skip steps 4 and 5, and clean the throttle body after updating the ECM/PCM (see page 11-306).
4. Select the INSPECTION MENU with the HDS.
5. Select the ETCS TEST, then select the TP POSITION CHECK, and follow the HDS screen prompts.

NOTE: If the TP POSITION CHECK indicates FAILED, continue this procedure.

6. Exit the HDS diagnostic system, then select the update mode, and follow the screen prompts to update the ECM/PCM.

7. If the software in the ECM/PCM is the latest, disconnect the updating tool from the DLC, then go back to the procedure that you were doing. If the software in the ECM/PCM is not the latest, follow the instructions on the screen. If prompted to choose the PGM-FI system or the A/T system, make sure you update both.

NOTE: If the ECM/PCM update system requires you to cool the ECM/PCM, follow the instructions on screen. If you have a problem during the update procedure (programming takes over 15 minutes, status bar goes over 100 %, D (A/T) or immobilizer indicator flashes, HDS tablet freezes, etc.), follow these steps to minimize the chance of damaging the ECM/PCM:

- Leave the ignition switch in ON (II).
 - Connect a jumper battery (do not connect a battery charger).
 - Shut down the updating tool.
 - Disconnect the updating tool from the DLC.
 - Reboot the updating tool.
 - Reconnect the updating tool to the DLC, and try the update procedure again.
8. If the TP POSITION CHECK failed in step 5, clean the throttle body (see page 11-306).
 9. Do the ECM/PCM idle learn procedure (see page 11-268).
 10. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-5).
 11. Select the A/T SYSTEM, then reset the PCM with the HDS.



ECM/PCM Replacement

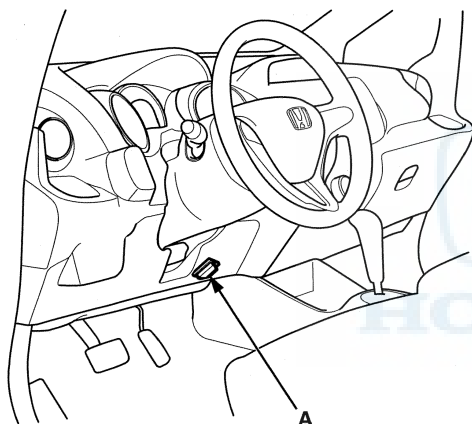
Special Tools Required

- Honda diagnostic system (HDS) tablet tester
- Honda Interface Module (HIM) and an iN workstation with the latest HDS software version
- HDS pocket tester
- GNA600 and an iN workstation with the latest HDS software version
- MVCI unit with the latest control module (CM) update software installed

Any one of the above updating tools can be used.

NOTE: Make sure the HDS/iN workstation or the MVCI has the latest HDS software version.

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).

3. Make sure the HDS communicates with the ECM/PCM and other vehicle systems. If it doesn't, go to the DLC circuit troubleshooting (see page 11-193). If you are returning from the DLC circuit troubleshooting, skip steps 4 through 9, 19 through 24, and 27 through 29, and do these procedures after replacing the ECM/PCM:

- Replace the engine oil (see page 8-10) and the engine oil filter (see page 8-11).
- Replace the ATF (A/T) (see page 14-191).
- Clean the throttle body (see page 11-306).

4. Select the PGM-FI system with the HDS.

5. Select the INSPECTION MENU with the HDS.

6. Select the ETCS TEST, then select the TP POSITION CHECK, and follow the screen prompts.

NOTE: If the TP POSITION CHECK indicates FAILED, continue with this procedure.

7. Select the REPLACE ECM/PCM MENU, then select READ DATA, and follow the screen prompts.

NOTE:

- Doing this step copies (READS) the engine oil life data from the original ECM/PCM so you can later download (WRITES) it into the new ECM/PCM.
- If READ DATA indicates FAILED, continue with this procedure.

8. A/T: Select the A/T system with the HDS.

9. A/T: Select the REPLACE TCM/PCM MENU, then READ DATA, and follow the screen prompts.

NOTE:

- A/T: Doing this step copies (READS) the ATF life data from the original PCM so you can later download (WRITES) it into the new PCM.
- A/T: If READ DATA indicates FAILED, continue with this procedure.

10. Jump the SCS line with the HDS.

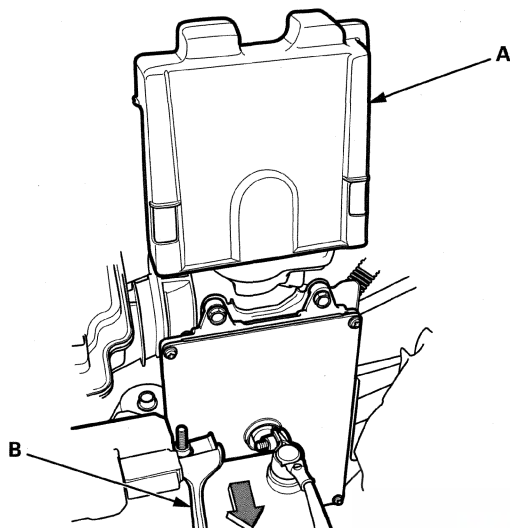
11. Turn the ignition switch to LOCK (0).

(cont'd)

PGM-FI System

ECM/PCM Replacement (cont'd)

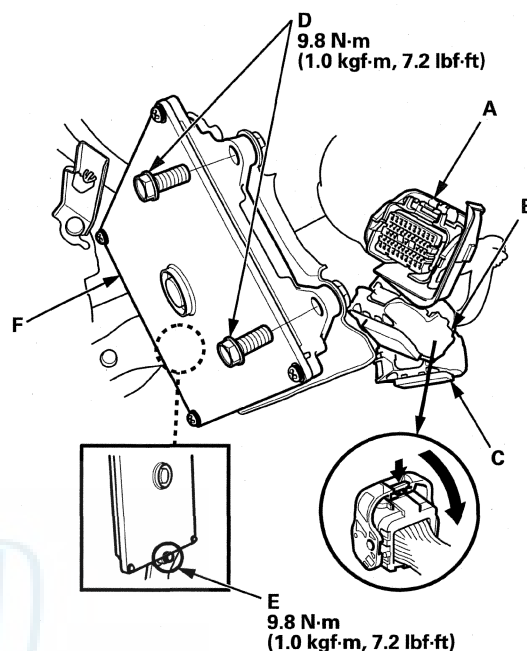
12. Remove the ECM/PCM cover (A).



13. Remove the battery setting plate (B), then reposition the battery away from the ECM/PCM.

NOTE: Do not disconnect the battery terminals.

14. Remove the bolts (D), and loosen the bolt (E).



15. Disconnect ECM/PCM connectors A, B, and C, then remove the ECM/PCM (F).

NOTE: ECM/PCM connectors A, B, and C have symbols (A=□, B=△, C=○) embossed on them for identification.

16. Install a known-good ECM/PCM in the reverse order of removal.

17. Turn the ignition switch to ON (II).

18. Manually input the VIN to the ECM/PCM with the HDS.

NOTE: DTC P0630 (VIN Not Programmed or Mismatch) may be stored because the VIN has not been programmed into the ECM/PCM; ignore it, and continue this procedure.

19. If the READ DATA (engine oil life) failed in step 7, go to step 22 (A/T) or step 25 (M/T). Otherwise, go to step 20.



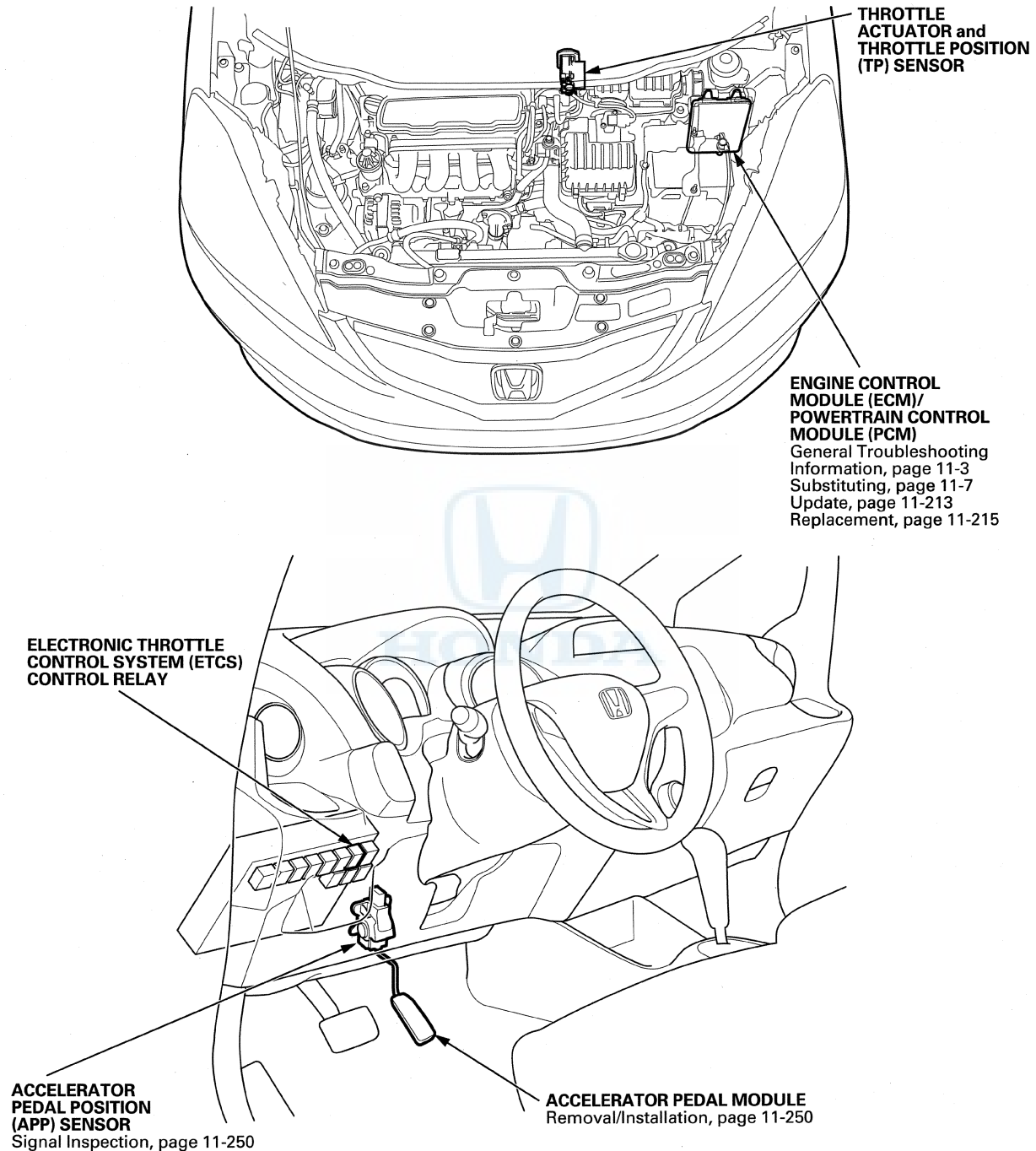
20. Select the PGM-FI system with the HDS.
21. Select the REPLACE ECM/PCM MENU, then WRITE DATA, and follow the screen prompts.

NOTE: If the WRITE DATA indicates FAILED, continue with this procedure.
22. A/T: If the READ DATA (ATF life) failed in step 8, go to step 25. Otherwise go to step 23.
23. A/T: Select the A/T SYSTEM with the HDS.
24. A/T: Select the REPLACE ECM/PCM MENU, then WRITE DATA, and follow the screen prompts.

NOTE: A/T: If the WRITE DATA indicates FAILED, continue with this procedure.
25. Select IMMOBI system with the HDS.
26. Enter the immobilizer ECM/PCM code that you got from the iN, and use the ECM/PCM replacement procedure in the HDS; it allows you to start the engine.
27. If the TP POSITION CHECK failed in step 6 clean the throttle body (see page 11-306), then go to step 28.
28. If the READ DATA failed in step 7 or the WRITE DATA failed in step 21, replace the engine oil (see page 8-10) and the engine oil filter (see page 8-11), then go to step 29 (A/T) or step 30 (M/T).
29. If the READ DATA failed in step 9 or the WRITE DATA failed in step 24, replace the ATF (see page 14-191), then go to step 30.
30. Select the PGM-FI system, and reset the ECM/PCM with the HDS.
31. Update the ECM/PCM if it does not have the latest software (see page 11-213).
32. Do the ECM/PCM idle learn procedure (see page 11-268).
33. Do the CKP pattern clear/CKP pattern learn procedure (see page 11-5).

Electronic Throttle Control System

Component Location Index





DTC Troubleshooting

DTC P0122: TP Sensor A Circuit Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR A in the DATA LIST with the HDS.

Is there about 0.3 V or less?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM. ■

4. Check for Pending or Confirmed DTCs with the HDS.

Are DTC P0122 and P0222 indicated at the same time?

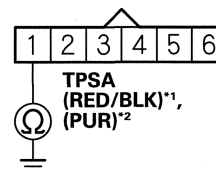
YES—Go to step 10.

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector C (49P).

9. Check for continuity between throttle body 6P connector terminal No. 1 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

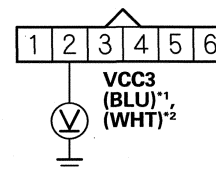
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (C20) and the throttle body, then go to step 20.

NO—Go to step 25.

10. Turn the ignition switch to LOCK (0).
11. Disconnect the throttle body 6P connector.
12. Turn the ignition switch to ON (II).
13. Measure the voltage between throttle body 6P connector terminal No. 2 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 18.

NO—Go to step 14.

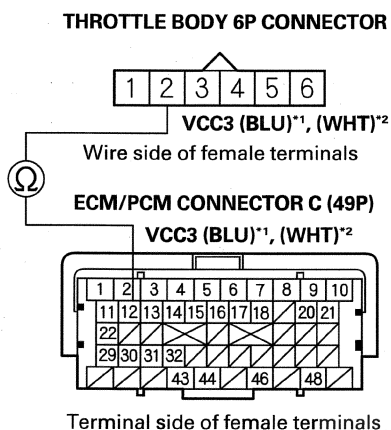
14. Turn the ignition switch to LOCK (0).
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector C (49P).

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

17. Check for continuity between ECM/PCM connector terminal C12 and throttle body 6P connector terminal No. 2.



Is there continuity?

YES—Go to step 25.

NO—Repair an open in the wire between the ECM/PCM (C12) and the throttle body, then go to step 20.

18. Turn the ignition switch to LOCK (0).
19. Replace the throttle body (see page 11-309).
20. Reconnect all connectors.
21. Turn the ignition switch to ON (II).
22. Reset the ECM/PCM with the HDS.
23. Do the ECM/PCM idle learn procedure (see page 11-268).
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0122 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

25. Reconnect all connectors.

26. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0122 indicated?

YES—Check for poor connections or loose terminals at TP sensor A and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P0123: TP Sensor A Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR A in the DATA LIST with the HDS.

Is there about 4.8 V or more?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM. ■

4. Check for Pending or Confirmed DTCs with the HDS.

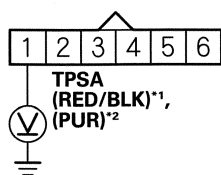
Are DTC P0123 and P0223 indicated at the same time?

YES—Go to step 13.

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between throttle body 6P connector terminal No. 1 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 18.

NO—Go to step 9.

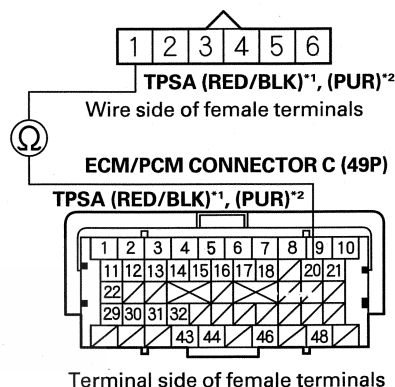
9. Turn the ignition switch to LOCK (0).

10. Jump the SCS line with the HDS.

11. Disconnect ECM/PCM connector C (49P).

12. Check for continuity between ECM/PCM connector terminal C20 and throttle body 6P connector terminal No. 1.

THROTTLE BODY 6P CONNECTOR



Is there continuity?

YES—Go to step 25.

NO—Repair an open in the wire between the ECM/PCM (C20) and the throttle body, then go to step 20.

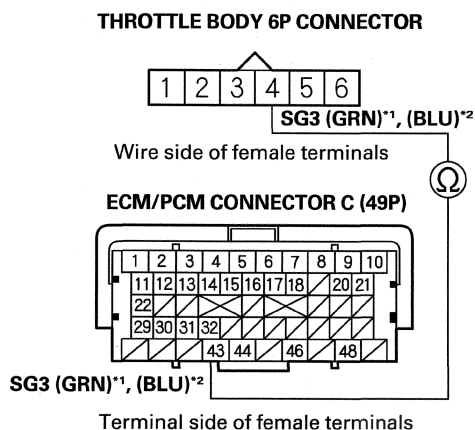
13. Turn the ignition switch to LOCK (0).
14. Disconnect the throttle body 6P connector.
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector C (49P).

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

17. Check for continuity between ECM/PCM connector terminal C43 and throttle body 6P connector terminal No. 4.



Is there continuity?

YES—Go to step 25.

NO—Repair an open in the wire between the ECM/PCM (C43) and the throttle body, then go to step 20.

18. Turn the ignition switch to LOCK (0).
19. Replace the throttle body (see page 11-309).
20. Reconnect all connectors.
21. Turn the ignition switch to ON (II).
22. Reset the ECM/PCM with the HDS.
23. Do the ECM/PCM idle learn procedure (see page 11-268).
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0123 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

25. Reconnect all connectors.

26. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0123 indicated?

YES—Check for poor connections or loose terminals at TP sensor A and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P0222: TP Sensor B Circuit Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR B in the DATA LIST with the HDS.

Is there about 0.3 V or less?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM.■

4. Check for Pending or Confirmed DTCs with the HDS.

Are DTC P0122 and P0222 indicated at the same time?

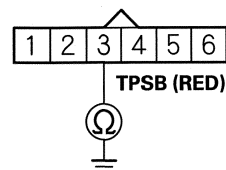
YES—Go to step 10.

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector C (49P).

9. Check for continuity between throttle body 6P connector terminal No. 3 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

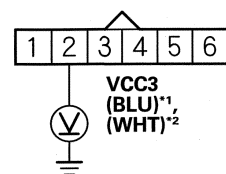
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (C21) and the throttle body, then go to step 20.

NO—Go to step 25.

10. Turn the ignition switch to LOCK (0).
11. Disconnect the throttle body 6P connector.
12. Turn the ignition switch to ON (II).
13. Measure the voltage between throttle body 6P connector terminal No. 2 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 18.

NO—Go to step 14.

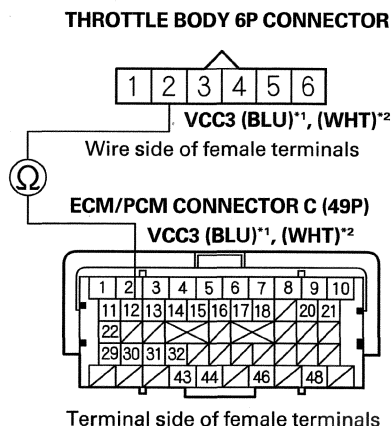
14. Turn the ignition switch to LOCK (0).
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector C (49P).

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

17. Check for continuity between ECM/PCM connector terminal C12 and throttle body 6P connector terminal No. 2.



Is there continuity?

YES—Go to step 25.

NO—Repair an open in the wire between the ECM/PCM (C12) and the throttle body, then go to step 20.

18. Turn the ignition switch to LOCK (0).
19. Replace the throttle body (see page 11-309).
20. Reconnect all connectors.
21. Turn the ignition switch to ON (II).
22. Reset the ECM/PCM with the HDS.
23. Do the ECM/PCM idle learn procedure (see page 11-268).
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0222 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

25. Reconnect all connectors.
26. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0222 indicated?

YES—Check for poor connections or loose terminals at TP sensor B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P0223: TP Sensor B Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check TP SENSOR B in the DATA LIST with the HDS.

Is there about 4.8 V or more?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM. ■

4. Check for Pending or Confirmed DTCs with the HDS.

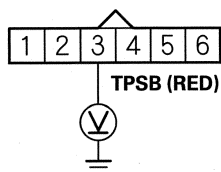
Are DTC P0123 and P0223 indicated at the same time?

YES—Go to step 13.

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Disconnect the throttle body 6P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between throttle body 6P connector terminal No. 3 and body ground.

THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 18.

NO—Go to step 9.

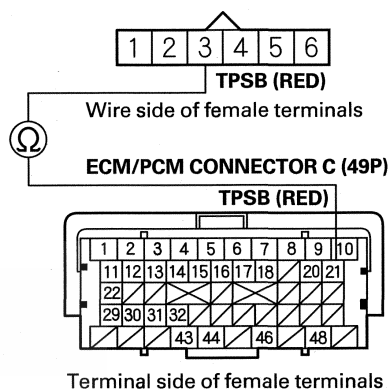
9. Turn the ignition switch to LOCK (0).

10. Jump the SCS line with the HDS.

11. Disconnect ECM/PCM connector C (49P).

12. Check for continuity between ECM/PCM connector terminal C21 and throttle body 6P connector terminal No. 3.

THROTTLE BODY 6P CONNECTOR



Is there continuity?

YES—Go to step 25.

NO—Repair an open in the wire between the ECM/PCM (C21) and the throttle body, then go to step 20.

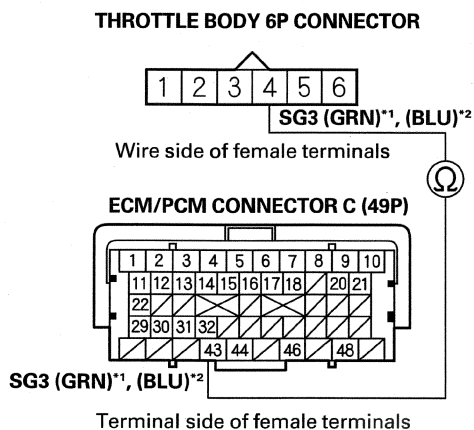
13. Turn the ignition switch to LOCK (0).
14. Disconnect the throttle body 6P connector.
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector C (49P).

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

17. Check for continuity between ECM/PCM connector terminal C43 and throttle body 6P connector terminal No. 4.



Is there continuity?

YES—Go to step 25.

NO—Repair an open in the wire between the ECM/PCM (C43) and the throttle body, then go to step 20.

18. Turn the ignition switch to LOCK (0).
19. Replace the throttle body (see page 11-309).
20. Reconnect all connectors.
21. Turn the ignition switch to ON (II).
22. Reset the ECM/PCM with the HDS.
23. Do the ECM/PCM idle learn procedure (see page 11-268).
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0223 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

25. Reconnect all connectors.

26. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0223 indicated?

YES—Check for poor connections or loose terminals at TP sensor B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P1658: ETCS Control Relay ON Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

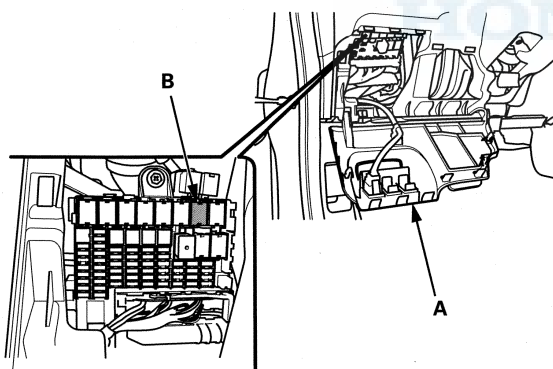
1. Turn the ignition switch to ON (II).
2. Do the ETCS TEST in the INSPECTION MENU with the HDS.

Is the RELAY circuit OK?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM.

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Open the fuse access panel (A), then remove the ETCS control relay (B) from the under-dash fuse/relay box.



5. Test the ETCS control relay (see page 22-76).

Is the ETCS control relay OK?

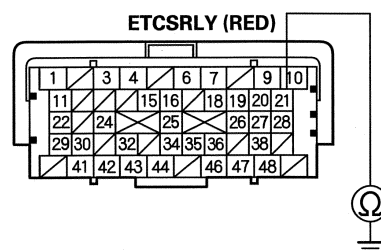
YES—Go to step 6.

NO—Replace the ETCS control relay, then go to step 13.

6. Jump the SCS line with the HDS.
7. Disconnect ECM/PCM connector A (49P).

8. Check for continuity between ECM/PCM connector terminal A21 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

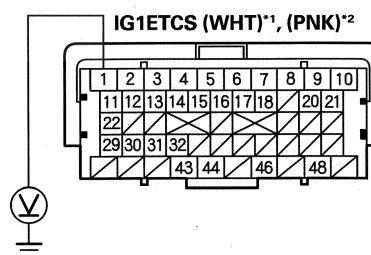
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (A21) and the ETCS control relay, then go to step 13.

NO—Go to step 9.

9. Disconnect ECM/PCM connector C (49P).
10. Turn the ignition switch to ON (II).
11. Measure the voltage between ECM/PCM connector terminal C1 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there battery voltage?

YES—Repair a short to power in the wire between the ECM/PCM (C1) and the ETCS control relay, then go to step 12.

NO—Go to step 18.

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

12. Turn the ignition switch to LOCK (0).
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure (see page 11-268).
17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1658 indicated?

YES—Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

18. Turn the ignition switch to LOCK (0).
19. Reconnect all connectors.
20. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
21. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1658 indicated?

YES—Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P1659: ETCS Control Relay OFF Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1659 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM. ■

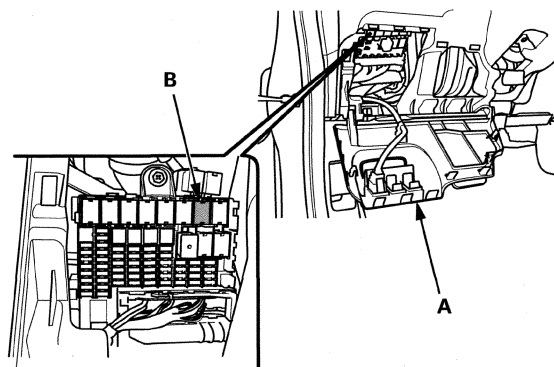
4. Turn the ignition switch to LOCK (0).
5. Check the No. 52 DBW (ETCS) (15 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES—Go to step 6.

NO—Go to step 19.

6. Open the fuse access panel (A), then remove the ETCS control relay (B) from the under-dash fuse/relay box.





7. Test the ETCS control relay (see page 22-76).

Is the ETCS control relay OK?

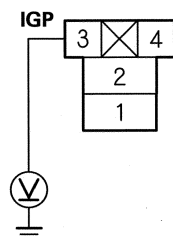
YES—Go to step 8.

NO—Replace the ETCS control relay, then go to step 25.

8. Turn the ignition switch to ON (II).

9. Measure the voltage between ETCS control relay 4P connector terminal No. 3 and body ground.

ETCS CONTROL RELAY 4P CONNECTOR



Terminal side of female terminals

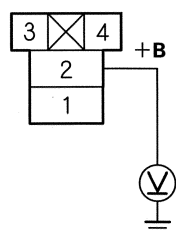
Is there battery voltage?

YES—Go to step 10.

NO—Replace the under-dash fuse/relay box; USA models (see page 22-65), Canada models (see page 22-66), then go to step 24.

10. Measure the voltage between ETCS control relay 4P connector terminal No. 2 and body ground.

ETCS CONTROL RELAY 4P CONNECTOR



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 11.

NO—Replace the under-dash fuse/relay box; USA models (see page 22-65), Canada models (see page 22-66), then go to step 24.

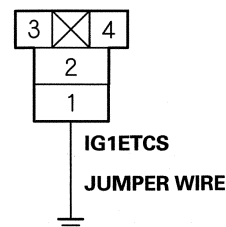
11. Turn the ignition switch to LOCK (0).

12. Jump the SCS line with the HDS.

13. Disconnect ECM/PCM connector C (49P).

14. Connect ETCS control relay 4P connector terminal No. 1 to body ground with the jumper wire.

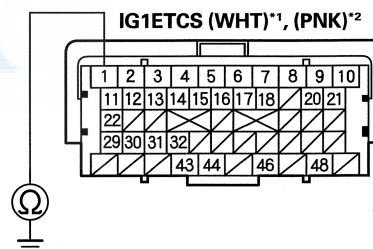
ETCS CONTROL RELAY 4P CONNECTOR



Terminal side of female terminals

15. Check for continuity between ECM/PCM connector terminal C1 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 16.

NO—Repair an open in the wire between the ECM/PCM (C1) and the ETCS control relay, then go to step 25.

16. Disconnect ECM/PCM connector A (49P).

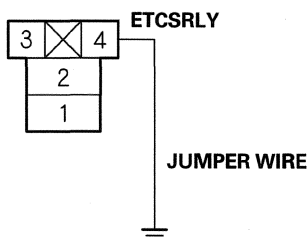
(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

17. Connect ETCS control relay 4P connector terminal No. 4 to body ground with the jumper wire.

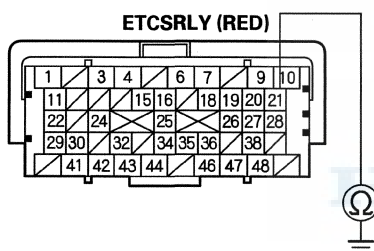
ETCS CONTROL RELAY 4P CONNECTOR



Terminal side of female terminals

18. Check for continuity between ECM/PCM connector terminal A21 and body ground.

ECM/PCM CONNECTOR A (49P)



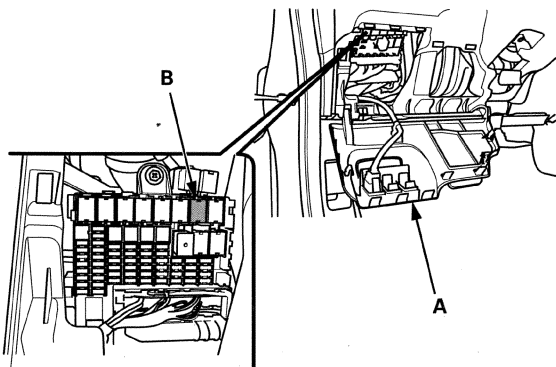
Terminal side of female terminals

Is there continuity?

YES—Go to step 30.

NO—Repair an open in the wire between the ECM/PCM (A21) and the ETCS control relay, then go to step 25.

19. Open the fuse access panel (A), then remove the ETCS control relay (B) from the under-dash fuse/relay box.

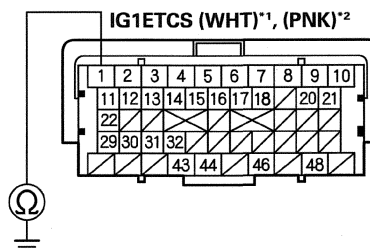


20. Jump the SCS line with the HDS.

21. Disconnect ECM/PCM connector C (49P).

22. Check for continuity between ECM/PCM connector terminal C1 and body ground.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

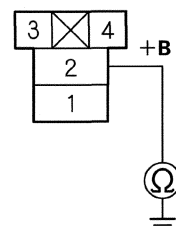
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (C1) and the ETCS control relay, then go to step 25.

NO—Go to step 23.

23. Check for continuity between ETCS control relay 4P connector terminal No. 2 and body ground.

ETCS CONTROL RELAY 4P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Replace the under-dash fuse/relay box; USA models (see page 22-65), Canada models (see page 22-66), then go to step 25.

NO—Go to step 30.



24. Turn the ignition switch to LOCK (0).
25. Reconnect all connectors.
26. Turn the ignition switch to ON (II).
27. Reset the ECM/PCM with the HDS.
28. Do the ECM/PCM idle learn procedure (see page 11-268).
29. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1659 indicated?

YES—Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

30. Reconnect all connectors.
31. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
32. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1659 indicated?

YES—Check for poor connections or loose terminals at the ETCS control relay and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P1683: Throttle Valve Default Position Spring Performance Problem

⚠ CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is in ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Turn the ignition switch to LOCK (0), and wait 10 seconds.
5. Turn the ignition switch to ON (II).
6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1683 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM. ■

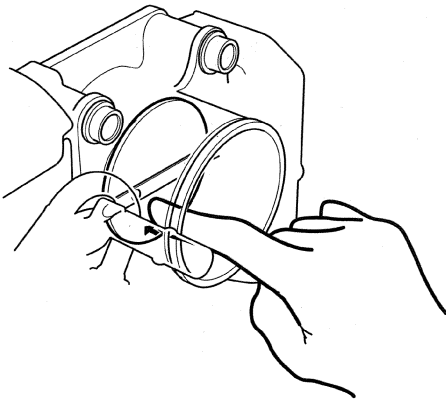
7. Turn the ignition switch to LOCK (0).
8. Remove the air cleaner (see page 11-307).

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

9. Push the throttle valve closed as shown.



10. Release the throttle valve.

Does the throttle valve return?

YES—Clean the throttle body (see page 11-306), then go to step 12.

NO—Go to step 11.

11. Replace the throttle body (see page 11-309).

12. Turn the ignition switch to ON (II).

13. Reset the ECM/PCM with the HDS.

14. Do the ECM/PCM idle learn procedure (see page 11-268).

15. Turn the ignition switch to LOCK (0), and wait 10 seconds.

16. Turn the ignition switch to ON (II).

17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1683 indicated?

YES—If the throttle body was cleaned, go to step 11. If the throttle body was replaced, check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P1684: Throttle Valve Return Spring Performance Problem

⚠ CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is in ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

4. Turn the ignition switch to LOCK (0), and wait 10 seconds.

5. Turn the ignition switch to ON (II).

6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1684 indicated?

YES—Go to step 7.

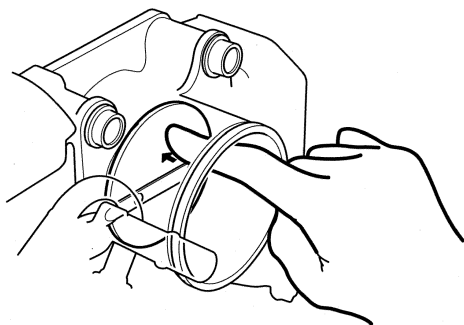
NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM. ■

7. Turn the ignition switch to LOCK (0).

8. Remove the air cleaner (see page 11-307).



9. Push the throttle valve open as shown.



10. Release the throttle valve.

Does the throttle valve return?

YES—Clean the throttle body (see page 11-306), then go to step 12.

NO—Go to step 11.

11. Replace the throttle body (see page 11-309).

12. Turn the ignition switch to ON (II).

13. Reset the ECM/PCM with the HDS.

14. Do the ECM/PCM idle learn procedure (see page 11-268).

15. Turn the ignition switch to LOCK (0), and wait 10 seconds.

16. Turn the ignition switch to ON (II).

17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1684 indicated?

YES—If the throttle body was cleaned, go to step 11. If the throttle body was replaced, check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2101: ETCS Malfunction

CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is in ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Do the ETCS TEST in the INSPECTION MENU with the HDS.

4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2101 indicated?

YES—Go to step 7.

NO—Go to step 5.

5. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VEHICLE SPEED
- APP SENSOR A

6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2101 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then clean the throttle body (see page 11-306). ■

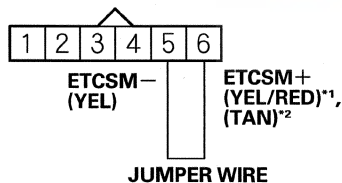
(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

7. Turn the ignition switch to LOCK (0).
8. Remove the air cleaner (see page 11-307).
9. Turn the ignition switch to ON (II).
10. Clear the DTC with the HDS.
11. Do the ETCS TEST in the INSPECTION MENU with the HDS.
12. Visually check the throttle valve operation.
Does the throttle valve operate smoothly?
YES—Clean the throttle body (see page 11-306), then go to step 22 and recheck. If DTC P2101 is indicated, go to step 19.
NO—Go to step 13.
13. Turn the ignition switch to LOCK (0).
14. Disconnect the throttle body 6P connector.
15. Jump the SCS line with the HDS.
16. Disconnect ECM/PCM connector C (49P).
17. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

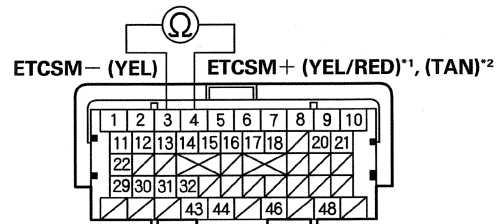
THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

18. Check for continuity between ECM/PCM connector terminals C3 and C4.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 27.

NO—Repair an open in the wires between the ECM/PCM (C3, C4) and the throttle body, then go to step 21.

19. Turn the ignition switch to LOCK (0).
20. Replace the throttle body (see page 11-309).
21. Reconnect all connectors.
22. Turn the ignition switch to ON (II).
23. Reset the ECM/PCM with the HDS.
24. Do the ECM/PCM idle learn procedure (see page 11-268).
25. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:
 - ENGINE SPEED
 - VEHICLE SPEED
 - APP SENSOR A
26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2101 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then clean the throttle body (see page 11-306), and go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



27. Reconnect all connectors.

28. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

29. Test-drive the vehicle for several minutes in the range of these recorded freeze data parameters:

- ENGINE SPEED
- VEHICLE SPEED
- APP SENSOR A

30. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2101 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 29. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2118: Throttle Actuator Current Range/Performance Problem

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Slowly press the accelerator pedal to the floor.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2118 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM. ■

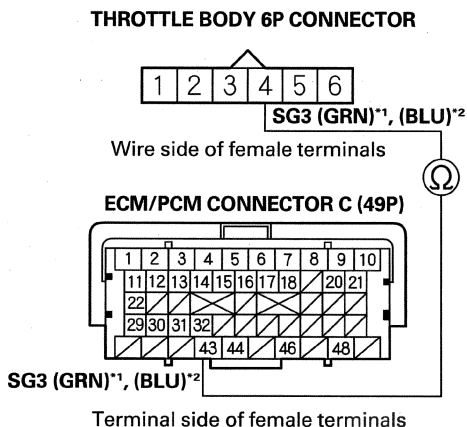
5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Disconnect the throttle body 6P connector.
8. Disconnect ECM/PCM connector C (49P).

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

9. Check for continuity between ECM/PCM connector terminal C43 and throttle body 6P connector terminal No. 4.



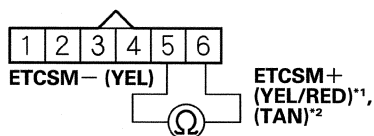
Is there continuity?

YES—Go to step 10.

NO—Repair an open in the wire between the ECM/PCM (C43) and the throttle body, then go to step 14.

10. Check for continuity between throttle body 6P connector terminals No. 5 and No. 6.

THROTTLE BODY 6P CONNECTOR



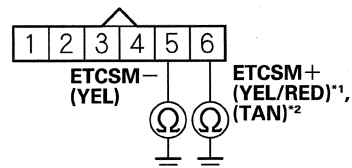
Is there continuity?

YES—Repair a short in the wires between throttle body 6P connector terminals No. 5 (ETCS- line) and No. 6 (ETCS+ line), then go to step 14.

NO—Go to step 11.

11. Check for continuity between body ground and throttle body 6P connector terminals No. 5 and No. 6 individually.

THROTTLE BODY 6P CONNECTOR



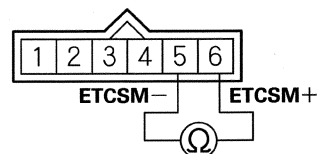
Is there continuity?

YES—Repair a short in the wire between the throttle body 6P connector and body ground, then go to step 14.

NO—Go to step 12.

12. At the throttle body side, measure the resistance between throttle body 6P connector terminals No. 5 and No. 6 with the throttle fully closed.

THROTTLE BODY 6P CONNECTOR



Is there about 1.0 Ω or less?

YES—Go to step 13.

NO—Go to step 22.



13. Replace the throttle body (see page 11-309).
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure (see page 11-268).
18. Turn the ignition switch to LOCK (0).
19. Turn the ignition switch to ON (II).
20. Slowly press the accelerator pedal to the floor.
21. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2118 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

22. Reconnect all connectors.
23. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
24. Turn the ignition switch to LOCK (0).
25. Turn the ignition switch to ON (II).
26. Slowly press the accelerator pedal to the floor.
27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2118 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 24. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2122: APP Sensor A (TP Sensor D) Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check APP SENSOR A in the DATA LIST with the HDS.

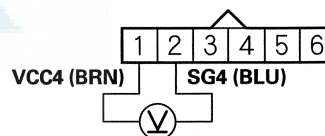
Is there about 0.2 V or less?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor A and the ECM/PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 1 and No. 2.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 7.

NO—Go to step 17.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

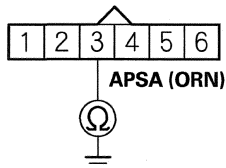
(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

10. Check for continuity between APP sensor 6P connector terminal No. 3 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

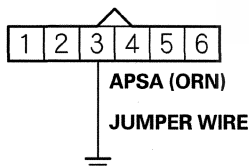
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (A18) and APP sensor A, then go to step 24.

NO—Go to step 11.

11. Connect APP sensor 6P connector terminal No. 3 to body ground with a jumper wire.

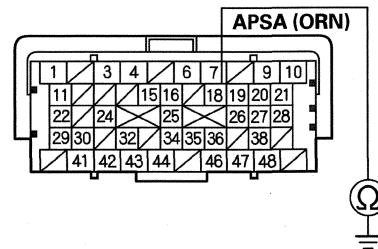
APP SENSOR 6P CONNECTOR



Wire side of female terminals

12. Check for continuity between ECM/PCM connector terminal A18 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

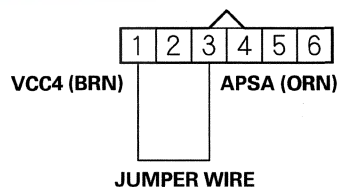
YES—Go to step 13.

NO—Repair an open in the wire between the ECM/PCM (A18) and APP sensor A, then go to step 24.

13. Reconnect ECM/PCM connector A (49P).

14. Connect APP sensor 6P connector terminals No. 1 and No. 3 with a jumper wire.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

15. Turn the ignition switch to ON (II).

16. Check APP SENSOR A in the DATA LIST with the HDS.

Is there about 0.2 V or less?

YES—Go to step 29.

NO—Go to step 22.

17. Turn the ignition switch to LOCK (0).

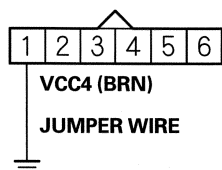
18. Jump the SCS line with the HDS.

19. Disconnect ECM/PCM connector A (49P).



20. Connect APP sensor 6P connector terminal No. 1 to body ground with a jumper wire.

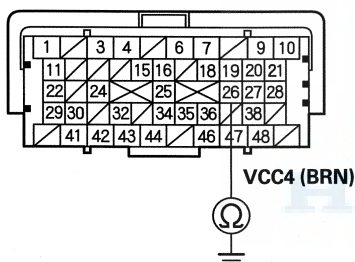
APP SENSOR 6P CONNECTOR



Wire side of female terminals

21. Check for continuity between ECM/PCM connector terminal A26 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 29.

NO—Repair an open in the wire between the ECM/PCM (A26) and APP sensor A, then go to step 24.

22. Turn the ignition switch to LOCK (0).
23. Replace the accelerator pedal module (see page 11-250).
24. Reconnect all connectors.
25. Turn the ignition switch to ON (II).
26. Reset the ECM/PCM with the HDS.
27. Do the ECM/PCM idle learn procedure (see page 11-268).
28. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2122 indicated?

YES—Check for poor connections or loose terminals at APP sensor A and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

29. Turn the ignition switch to LOCK (0).
30. Reconnect all connectors.
31. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
32. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2122 indicated?

YES—Check for poor connections or loose terminals at APP sensor A and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

DTC P2123: APP Sensor A (TP Sensor D) Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check APP SENSOR A in the DATA LIST with the HDS.

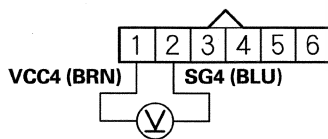
Is there about 4.9 V or more?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor A and the ECM/PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 1 and No. 2.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

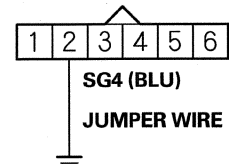
YES—Go to step 12.

NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

10. Connect APP sensor 6P connector terminal No. 2 to body ground with a jumper wire.

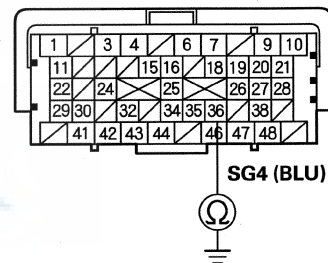
APP SENSOR 6P CONNECTOR



Wire side of female terminals

11. Check for continuity between ECM/PCM connector terminal A36 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 19.

NO—Repair an open in the wire between the ECM/PCM (A36) and APP sensor A, then go to step 14.



12. Turn the ignition switch to LOCK (0).
13. Replace the accelerator pedal module (see page 11-250).
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure (see page 11-268).
18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2123 indicated?

YES—Check for poor connections or loose terminals at APP sensor A and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

19. Reconnect all connectors.
20. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
21. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2123 indicated?

YES—Check for poor connections or loose terminals at APP sensor A and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2127: APP Sensor B (TP Sensor E) Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check APP SENSOR B in the DATA LIST with the HDS.

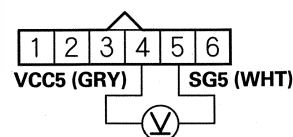
Is there about 0.2 V or less?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at APP sensor B and the ECM/PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 4 and No. 5.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Go to step 7.

NO—Go to step 17.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

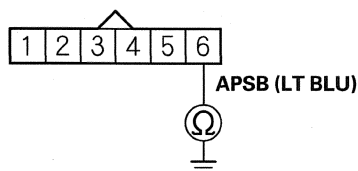
(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

10. Check for continuity between APP sensor 6P connector terminal No. 6 and body ground.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

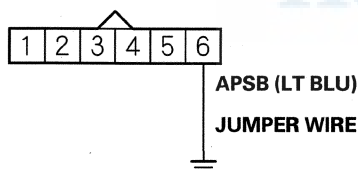
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (A19) and APP sensor B, then go to step 24.

NO—Go to step 11.

11. Connect APP sensor 6P connector terminal No. 6 to body ground with a jumper wire.

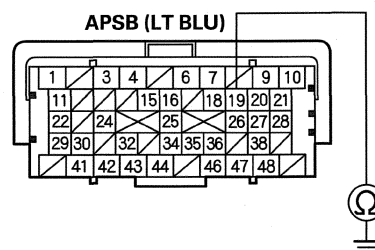
APP SENSOR 6P CONNECTOR



Wire side of female terminals

12. Check for continuity between ECM/PCM connector terminal A19 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

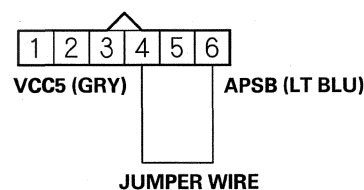
Is there continuity?

YES—Go to step 13.

NO—Repair an open in the wire between the ECM/PCM (A19) and APP sensor B, then go to step 24.

13. Reconnect ECM/PCM connector A (49P).
14. Connect APP sensor 6P connector terminals No. 4 and No. 6 with a jumper wire.

APP SENSOR 6P CONNECTOR



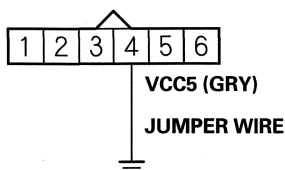
Wire side of female terminals

15. Turn the ignition switch to ON (II).
16. Check APP SENSOR B in the DATA LIST with the HDS.
Is there about 0.2 V or less?
YES—Go to step 29.
NO—Go to step 22.
17. Turn the ignition switch to LOCK (0).
18. Jump the SCS line with the HDS.
19. Disconnect ECM/PCM connector A (49P).



20. Connect APP sensor 6P connector terminal No. 4 to body ground with a jumper wire.

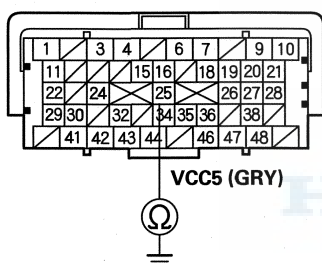
APP SENSOR 6P CONNECTOR



Wire side of female terminals

21. Check for continuity between ECM/PCM connector terminal A25 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 29.

NO—Repair an open in the wire between the ECM/PCM (A25) and APP sensor B, then go to step 24.

22. Turn the ignition switch to LOCK (0).

23. Replace the accelerator pedal module (see page 11-250).

24. Reconnect all connectors.

25. Turn the ignition switch to ON (II).

26. Reset the ECM/PCM with the HDS.

27. Do the ECM/PCM idle learn procedure (see page 11-268).

28. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2127 indicated?

YES—Check for poor connections or loose terminals at APP sensor B and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

29. Turn the ignition switch to LOCK (0).

30. Reconnect all connectors.

31. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

32. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2127 indicated?

YES—Check for poor connections or loose terminals at APP sensor B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

Electronic Throttle Control System

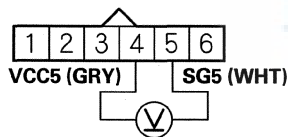
DTC Troubleshooting (cont'd)

DTC P2128: APP Sensor B (TP Sensor E) Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Check APP SENSOR B in the DATA LIST with the HDS.
Is there about 4.0 V or more?
YES—Go to step 3.
NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals APP sensor B and the ECM/PCM. ■
3. Turn the ignition switch to LOCK (0).
4. Disconnect the APP sensor 6P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between APP sensor 6P connector terminals No. 4 and No. 5.

APP SENSOR 6P CONNECTOR



Wire side of female terminals

Is there about 5 V?

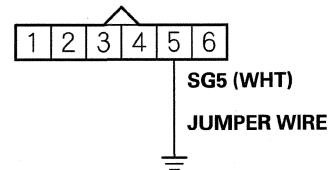
YES—Go to step 12.

NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

10. Connect APP sensor 6P connector terminal No. 5 to body ground with a jumper wire.

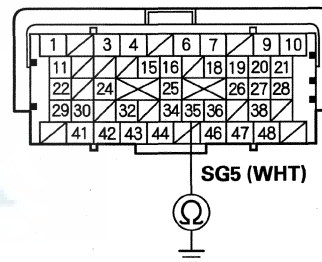
APP SENSOR 6P CONNECTOR



Wire side of female terminals

11. Check for continuity between ECM/PCM connector terminal A35 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 19.

NO—Repair an open in the wire between the ECM/PCM (A35) and APP sensor B, then go to step 14.



12. Turn the ignition switch to LOCK (0).
13. Replace the accelerator pedal module (see page 11-250).
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure (see page 11-268).
18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2128 indicated?

YES—Check for poor connections or loose terminals at APP sensor B and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

19. Reconnect all connectors.
20. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
21. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2128 indicated?

YES—Check for poor connections or loose terminals at APP sensor B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2135: TP Sensor A/B Incorrect Voltage Correlation

⚠ CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is in ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the ETCS TEST in the INSPECTION MENU with the HDS.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2135 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the intake air duct from the throttle body.
7. Turn the ignition switch to ON (II).
8. Clear the DTC with the HDS.
9. Visually check the throttle valve operation.

Does the valve temporarily move to its fully closed position?

YES—Go to step 16.

NO—Go to step 10.

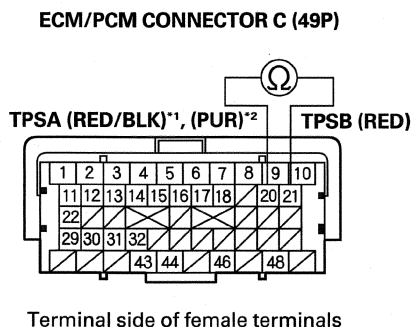
10. Turn the ignition switch to LOCK (0).
11. Jump the SCS line with the HDS.
12. Disconnect ECM/PCM connector C (49P).

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Electronic Throttle Control System

DTC Troubleshooting (cont'd)

13. Check for continuity between ECM/PCM connector terminals C20 and C21.

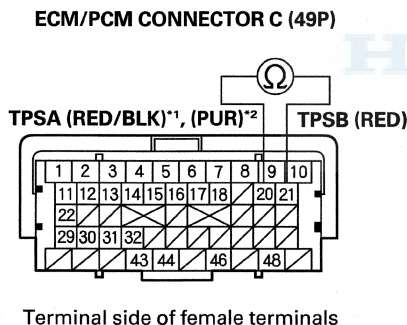


Is there continuity?

YES—Go to step 14.

NO—Go to step 23.

14. Disconnect the throttle body 6P connector.
15. Check for continuity between ECM/PCM connector terminals C20 and C21.



Is there continuity?

YES—Repair a short in the wires between the ECM/PCM connector terminals C20 (TPSA line) and C21 (TPSB line), then go to step 18.

NO—Go to step 16.

16. Turn the ignition switch to LOCK (0).
17. Replace the throttle body (see page 11-309).
18. Reconnect all connectors.
19. Turn the ignition switch to ON (II).
20. Reset the ECM/PCM with the HDS.
21. Do the ECM/PCM idle learn procedure (see page 11-268).
22. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2135 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

23. Reconnect all connectors.
24. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
25. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2135 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



DTC P2138: APP Sensor A/B (TP Sensor D/E) Incorrect Voltage Correlation

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with HDS.
3. Press the accelerator pedal to the floor.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2138 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the APP sensor and the ECM/PCM. ■

5. Check APP SENSOR A and APP SENSOR B in the DATA LIST with the HDS.

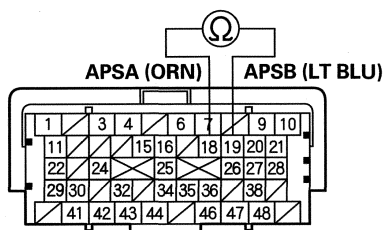
Are they the same voltage?

YES—Go to step 6.

NO—Go to step 12.

6. Turn the ignition switch to LOCK (0).
7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector A (49P).
9. Check for continuity between ECM/PCM connector terminals A18 and A19.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

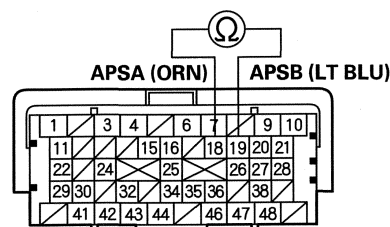
YES—Go to step 10.

NO—Go to step 22.

10. Disconnect the APP sensor 6P connector.

11. Check for continuity between ECM/PCM connector terminals A18 and A19.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wires between ECM/PCM connector terminals A18 (APSA line) and A19 (APSP line), then go to step 14.

NO—Go to step 13.

12. Turn the ignition switch to LOCK (0).
13. Replace the accelerator pedal module (see page 11-250).
14. Reconnect all connectors.
15. Turn the ignition switch to ON (II).
16. Reset the ECM/PCM with the HDS.
17. Do the ECM/PCM idle learn procedure (see page 11-268).
18. Turn the ignition switch to LOCK (0).
19. Turn the ignition switch to ON (II).
20. Press the accelerator pedal to the floor.
21. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2138 indicated?

YES—Check for poor connections or loose terminals at APP sensor A/B and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

Electronic Throttle Control System

DTC Troubleshooting (cont'd)

22. Reconnect all connectors.
23. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
24. Turn the ignition switch to LOCK (0).
25. Turn the ignition switch to ON (II).
26. Press the accelerator pedal to the floor.
27. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2138 indicated?

YES—Check for poor connections or loose terminals at APP sensor A/B and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 23. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2176: Throttle Actuator Control System Idle Position Not Learned

⚠ CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is in ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P2135 is stored at the same time as DTC P2176, troubleshoot DTC P2135 first, then recheck for DTC P2176.
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II), and wait 10 seconds.
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2176 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then clean the throttle body (see page 11-306). ■

6. Turn the ignition switch to LOCK (0).
7. Remove the air cleaner (see page 11-307).
8. Turn the ignition switch to ON (II).
9. Clear the DTC with the HDS.
10. Visually check the throttle valve operation while performing the ETCS TEST in the INSPECTION MENU with the HDS.

Does the throttle valve move to its fully closed position?

YES—Go to step 11.

NO—Go to step 12.



11. Check for sludge or carbon on the throttle valve.

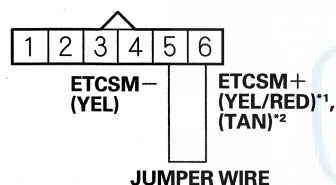
Is there sludge or carbon on the throttle valve?

YES—Clean the throttle body (see page 11-306), then go to step 21.

NO—Go to step 18.

12. Turn the ignition switch to LOCK (0).
13. Disconnect the throttle body 6P connector.
14. Jump the SCS line with the HDS.
15. Disconnect ECM/PCM connector C (49P).
16. Connect throttle body 6P connector terminals No. 5 and No. 6 with a jumper wire.

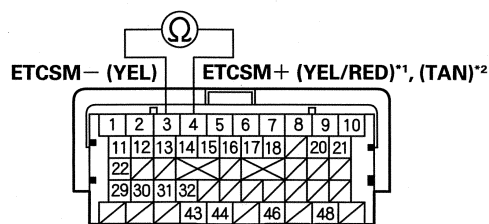
THROTTLE BODY 6P CONNECTOR



Wire side of female terminals

17. Check for continuity between ECM/PCM connector terminals C3 and C4.

ECM/PCM CONNECTOR C (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 27.

NO—Repair open in the wires between the throttle body and the ECM/PCM (C3, C4), then go to step 20.

18. Turn the ignition switch to LOCK (0).
19. Replace the throttle body (see page 11-309).
20. Reconnect all connectors.
21. Turn the ignition switch to ON (II).
22. Reset the ECM/PCM with the HDS.
23. Do the ECM/PCM idle learn procedure (see page 11-268).
24. Turn the ignition switch to LOCK (0).
25. Turn the ignition switch to ON (II), and wait 10 seconds.
26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2176 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then clean the throttle body (see page 11-306), and go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

27. Reconnect all connectors.
28. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
29. Turn the ignition switch to LOCK (0).
30. Turn the ignition switch to ON (II), and wait 10 seconds.
31. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2176 indicated?

YES—Check for poor connections or loose terminals at the throttle body and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

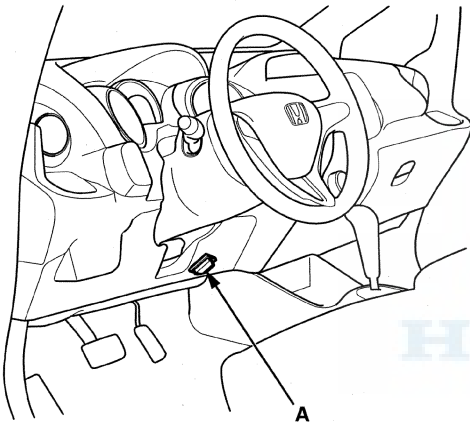
Electronic Throttle Control System

APP Sensor Signal Inspection

NOTE:

- This procedure checks the APP sensor in its fully closed position. In any other position, the APP sensor stores DTCs which are covered in other troubleshooting procedures.
- Check for Pending or Confirmed DTCs with the HDS before doing this procedure. If any DTCs stored, troubleshoot them first, then do this procedure.
- Press the accelerator pedal several times to check its operation. If it does not operate smoothly, check the pedal. If you find a problem, replace the accelerator pedal module (see page 11-250).

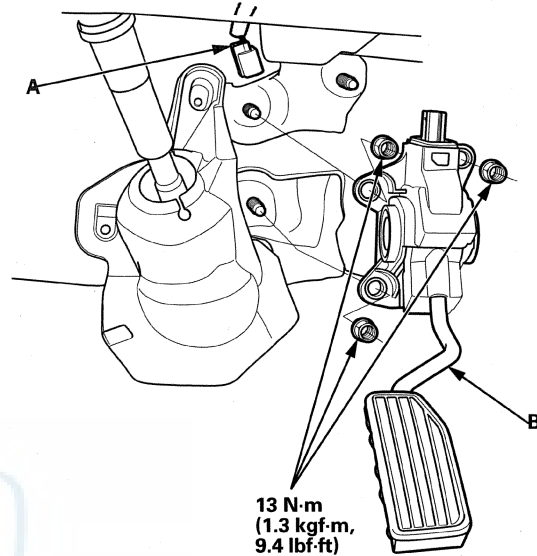
1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting (see page 11-193).
4. Make sure the accelerator pedal is not pressed, then check the APP SENSOR in the DATA LIST with the HDS:
 - If it is 0 %, the APP sensor is OK.
 - If it is not 0 %, replace the accelerator pedal module (see page 11-250), then go to step 5.
5. Make sure the accelerator pedal is not pressed, then check the APP SENSOR in the DATA LIST with the HDS:
 - If it is 0 %, the APP sensor is OK.
 - If it is not 0 %, update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then go to step 1.

Accelerator Pedal Module Removal/Installation

1. Remove the driver's dashboard lower cover (see page 20-97).
2. Disconnect the APP sensor connector (A).



3. Remove the accelerator pedal module (B).

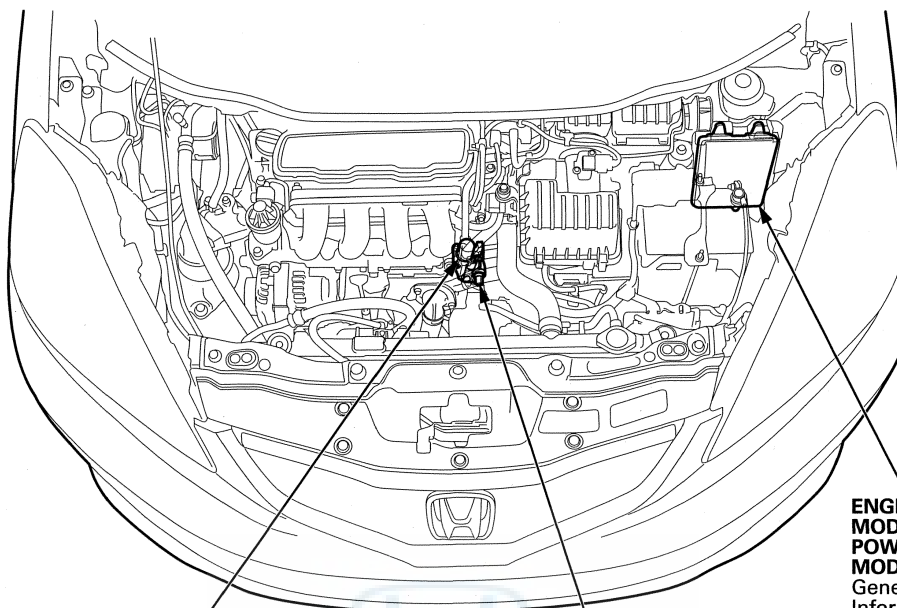
NOTE:

- The APP sensor is not available separately. Do not disassemble the accelerator pedal module.
- If the accelerator pedal module is dropped, replace it.

4. Install the parts in the reverse order of removal.



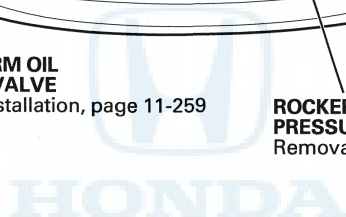
Component Location Index



**ROCKER ARM OIL
CONTROL VALVE**
Removal/Installation, page 11-259

**ROCKER ARM OIL
PRESSURE SWITCH**
Removal/Installation, page 11-260

**ENGINE CONTROL
MODULE (ECM)/
POWERTRAIN CONTROL
MODULE (PCM)**
General Troubleshooting
Information, page 11-3
Substituting, page 11-7
Update, page 11-213
Replacement, page 11-215



DTC Troubleshooting

DTC P2646: Rocker Arm Oil Pressure Switch Circuit Low Voltage

Special Tools Required

- AT Pressure Test Hose 07AAJ-PY4A100
- A/T Pressure Adapter 07MAJ-PY40120
- Pressure Gauge Adapter 07NAJ-P07010A
- Oil Pressure Hose 07ZAJ-S5AA200
- A/T Low Pressure Gauge w/Panel 07406-0070301

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Check the engine oil level.

Is the level OK?

YES—Go to step 2.

NO—Adjust the engine oil to the proper level, then go to step 20.

2. Turn the ignition switch to ON (II).

3. Clear the DTC with the HDS.

4. Do the VTEC TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil pressure switch, the rocker arm oil control solenoid, and the ECM/PCM. ■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).

6. Disconnect the rocker arm oil pressure switch 2P connector.

7. Turn the ignition switch to ON (II).

8. Check the VTEC PRES SW in the DATA LIST with the HDS.

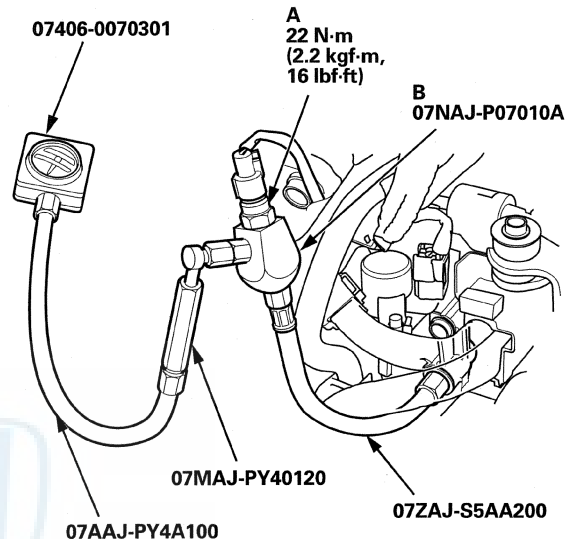
Is SWITCH ON indicated?

YES—Go to step 15.

NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).

10. Remove the rocker arm oil pressure switch (A), and attach the special tools as shown, then attach the rocker arm oil pressure switch to the oil pressure gauge adapter (B).



11. Reconnect the rocker arm oil pressure switch 2P connector.

12. Start the engine.

13. Do the VTEC TEST in the INSPECTION MENU with the HDS.

14. Check the oil pressure.

Does the oil pressure increase to at least 392 kPa (4.0 kgf/cm², 56.9 psi)?

YES—Replace the rocker arm oil pressure switch (see page 11-260), then go to step 19.

NO—Check the engine oil pressure (see page 8-9). If the pressure is OK, inspect the VTEC system. If it is OK, replace the rocker arm oil control valve (see page 11-259), then go to step 19.

15. Turn the ignition switch to LOCK (0).

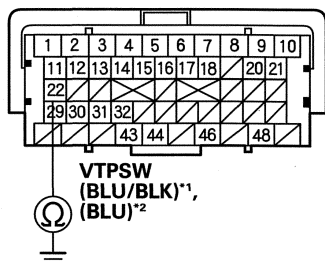
16. Jump the SCS line with the HDS.

17. Disconnect ECM/PCM connector C (49P).



18. Check for continuity between ECM/PCM connector terminal C22 and body ground.

ECM/PCM CONNECTOR C (49P)



Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (C22) and the rocker arm oil pressure switch, then go to step 19.

NO—Go to step 25.

19. Reconnect all connectors.
20. Turn the ignition switch to ON (II).
21. Reset the ECM/PCM with the HDS.
22. Do the ECM/PCM idle learn procedure (see page 11-268).
23. Do the VTEC TEST in the INSPECTION MENU with the HDS.
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2646 indicated?

YES—Check for poor connections or loose terminals at the rocker arm oil pressure switch, the rocker arm oil control solenoid, and the ECM/PCM, then go step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

25. Reconnect all connectors.

26. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

27. Do the VTEC TEST in the INSPECTION MENU with the HDS.

28. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2646 indicated?

YES—Check for poor connections or loose terminals at the rocker arm oil pressure switch, the rocker arm oil control solenoid, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 27. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

DTC Troubleshooting (cont'd)

DTC P2647: Rocker Arm Oil Pressure Switch Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Check the engine oil level.

Is the level OK?

YES—Go to step 2.

NO—Adjust the engine oil to the proper level, then go to step 19.

2. Turn the ignition switch to ON (II).

3. Clear the DTC with the HDS.

4. Do the VTEC TEST in the INSPECTION MENU with the HDS.

NOTE: If a DTC was stored during the VTEC TEST, check the DTCs MENU. If DTC P2647 is indicated, go to step 6. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting.

Is the result OK?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil pressure switch, the rocker arm oil control solenoid, and the ECM/PCM. ■

NO—Go to step 5.

5. Check the result of step 4.

- VTEC Switch Failure
- VTEC Switch Open
- VTEC Switch SIG Line Open
- VTEC Switch GND Line Open

Is the test result any of those above?

YES—Go to step 6.

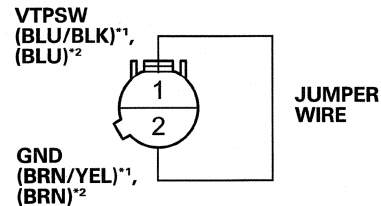
NO—Check for poor connections or loose terminals at the rocker arm oil pressure switch. If it is OK, replace the rocker arm oil control valve (see page 11-259), then, go to step 17.

6. Turn the ignition switch to LOCK (0).

7. Disconnect the rocker arm oil pressure switch 2P connector.

8. Connect rocker arm oil pressure switch 2P connector terminals No. 1 and No. 2 with a jumper wire.

ROCKER ARM OIL PRESSURE SWITCH 2P CONNECTOR



Wire side of female terminals

9. Turn the ignition switch to ON (II).

10. Check the rocker arm oil pressure switch in the DATA LIST with the HDS.

Does the HDS indicate ON?

YES—Replace the rocker arm oil pressure switch (see page 11-260), then go to step 17.

NO—Go to step 11.

11. Turn the ignition switch to LOCK (0).

12. Remove the jumper wire from the rocker arm oil pressure switch 2P connector.

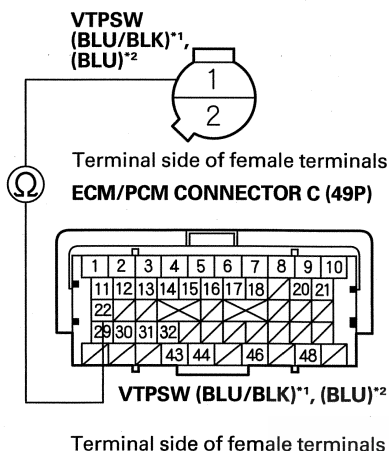
13. Jump the SCS line with the HDS.

14. Disconnect ECM/PCM connector C (49P).



15. Check for continuity between ECM/PCM connector terminal C22 and rocker arm oil pressure switch 2P connector terminal No. 1.

ROCKER ARM OIL PRESSURE SWITCH 2P CONNECTOR



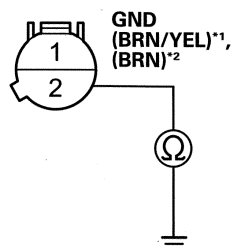
Is there continuity?

YES—Go to step 16.

NO—Repair an open in the wire between the ECM/PCM (C22) and the rocker arm oil pressure switch, then go to step 18.

16. Check for continuity between the rocker arm oil pressure switch 2P connector terminal No. 2 and body ground.

ROCKER ARM OIL PRESSURE SWITCH 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 23.

NO—Repair an open in the wire between the rocker arm oil pressure switch and G101 (see page 22-16), then go to step 18.

17. Turn the ignition switch to LOCK (0).

18. Reconnect all connectors.

19. Turn the ignition switch to ON (II).

20. Reset the ECM/PCM with the HDS.

21. Do the ECM/PCM idle learn procedure (see page 11-268).

22. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2647 indicated?

YES—Check for poor connections or loose terminals at the rocker arm oil pressure switch, the rocker arm oil control solenoid, and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

23. Reconnect all connectors.

24. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

25. Start the engine, and let it idle.

26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2647 indicated?

YES—Check for poor connections or loose terminals at the rocker arm oil pressure switch, the rocker arm oil control solenoid, and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 25. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

DTC Troubleshooting (cont'd)

DTC P2648: Rocker Arm Oil Control Solenoid Circuit Low Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the VTEC TEST in the INSPECTION MENU with the HDS.

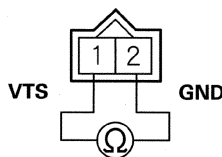
Is the result OK?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. ■

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).
5. Disconnect the rocker arm oil control solenoid 2P connector.
6. At the solenoid side, measure the resistance between rocker arm oil control solenoid 2P connector terminals No. 1 and No. 2.

ROCKER ARM OIL CONTROL SOLENOID 2P CONNECTOR



Terminal side of male terminals

Is there 14—30 Ω at room temperature (65—70°F, 18—21°C)?

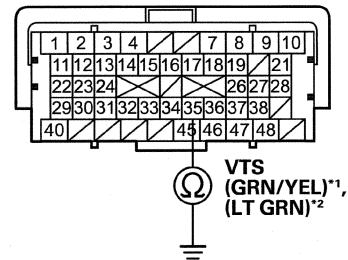
YES—Go to step 7.

NO—Go to step 10.

7. Jump the SCS line with the HDS.
8. Disconnect ECM/PCM connector B (49P).

9. Check for continuity between ECM/PCM connector terminal B35 and body ground.

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (B35) and the rocker arm oil control solenoid, then go to step 11.

NO—Go to step 18.

10. Replace the rocker arm oil control valve (see page 11-259).
11. Reconnect all connectors.
12. Turn the ignition switch to ON (II).
13. Reset the ECM/PCM with the HDS.
14. Do the ECM/PCM idle learn procedure (see page 11-268).
15. Do the VTEC TEST in the INSPECTION MENU with the HDS.
16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2648 indicated?

YES—Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to step 1.

NO—Go to step 17.



17. Monitor the OBD STATUS for DTC P2648 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 16, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, go to step 15.

18. Reconnect all connectors.

19. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

20. Do the VTEC TEST in the INSPECTION MENU with the HDS.

21. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2648 indicated?

YES—Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 20. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 22.

22. Monitor the OBD STATUS for DTC P2648 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 21, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 20. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, go to step 20.

DTC P2649: Rocker Arm Oil Control Solenoid Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Check for Pending or Confirmed DTCs with the HDS

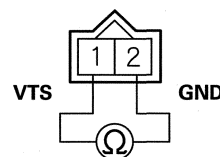
Is DTC P2649 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the rocker arm oil control solenoid 2P connector.
7. Measure the resistance between rocker arm oil control solenoid 2P connector terminals No. 1 and No. 2.

ROCKER ARM OIL CONTROL SOLENOID 2P CONNECTOR



Terminal side of male terminals

Is there 14—30 Ω at room temperature (65—70°F, 18—21°C)?

YES—Go to step 8.

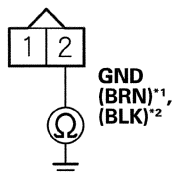
NO—Go to step 12.

(cont'd)

DTC Troubleshooting (cont'd)

8. Check for continuity between rocker arm oil control solenoid 2P connector terminal No. 2 and body ground.

ROCKER ARM OIL CONTROL SOLENOID 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 9.

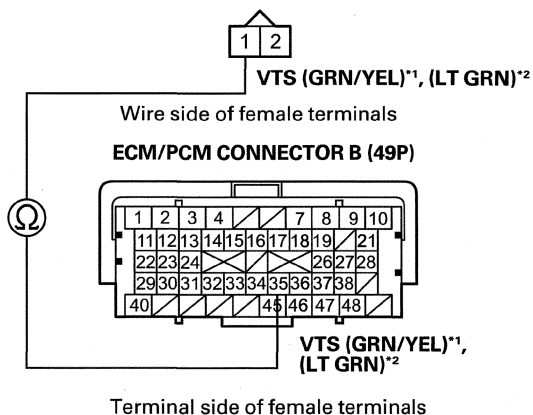
NO—Repair an open in the wire between the rocker arm oil control solenoid and G101 (see page 22-16), then go to step 13.

9. Jump the SCS line with the HDS.

10. Disconnect ECM/PCM connector B (49P).

11. Check for continuity between ECM/PCM connector terminal B35 and rocker arm oil control solenoid 2P connector terminal No. 1.

ROCKER ARM OIL CONTROL SOLENOID 2P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 19.

NO—Repair an open in the wire between the ECM/PCM (B35) and the rocker arm oil control solenoid, then go to step 13.

12. Replace the rocker arm oil control valve (see page 11-259).

13. Reconnect all connectors.

14. Turn the ignition switch to ON (II).

15. Reset the ECM/PCM with the HDS.

16. Do the ECM/PCM idle learn procedure (see page 11-268).

17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2649 indicated?

YES—Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to step 1.

NO—Go to step 18.

18. Monitor the OBD STATUS for DTC P2649 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 17, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

19. Reconnect all connectors.

20. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

21. Start the engine, and let it idle.

22. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2649 indicated?

YES—Check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 23.



23. Monitor the OBD STATUS for DTC P2649 in the DTCs MENU with the HDS.

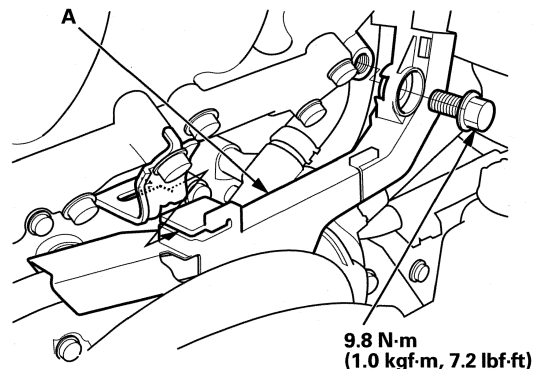
Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 22, go to the indicated DTC's troubleshooting. ■

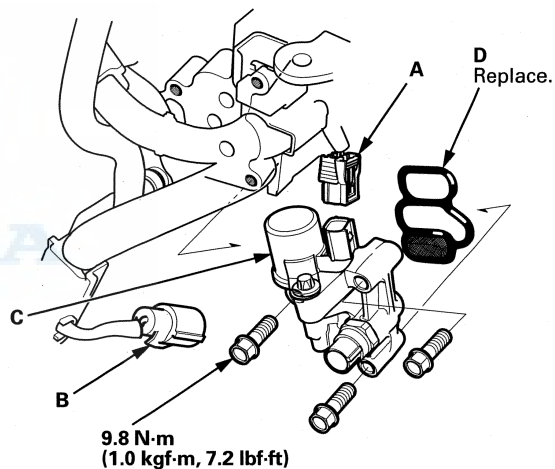
NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the rocker arm oil control solenoid and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

Rocker Arm Oil Control Valve Removal/Installation

1. Remove the harness holder (A).



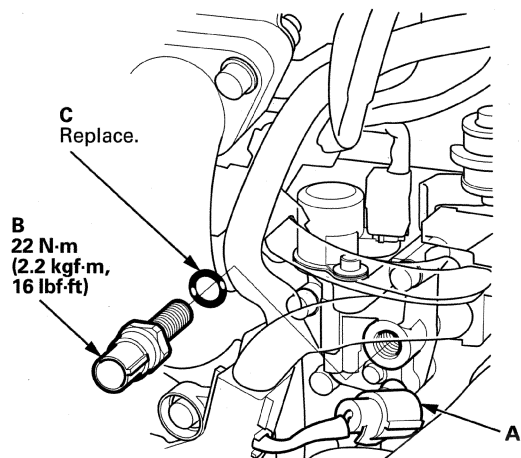
2. Disconnect the rocker arm oil control solenoid connector (A) and the rocker arm oil pressure switch connector (B).



3. Remove the rocker arm oil control valve assembly (C) and the rocker arm oil control valve filter (D).
4. Install the parts in the reverse order of removal with a new rocker arm oil control valve filter.

Rocker Arm Oil Pressure Switch Removal/Installation

1. Disconnect the rocker arm oil pressure switch connector (A).



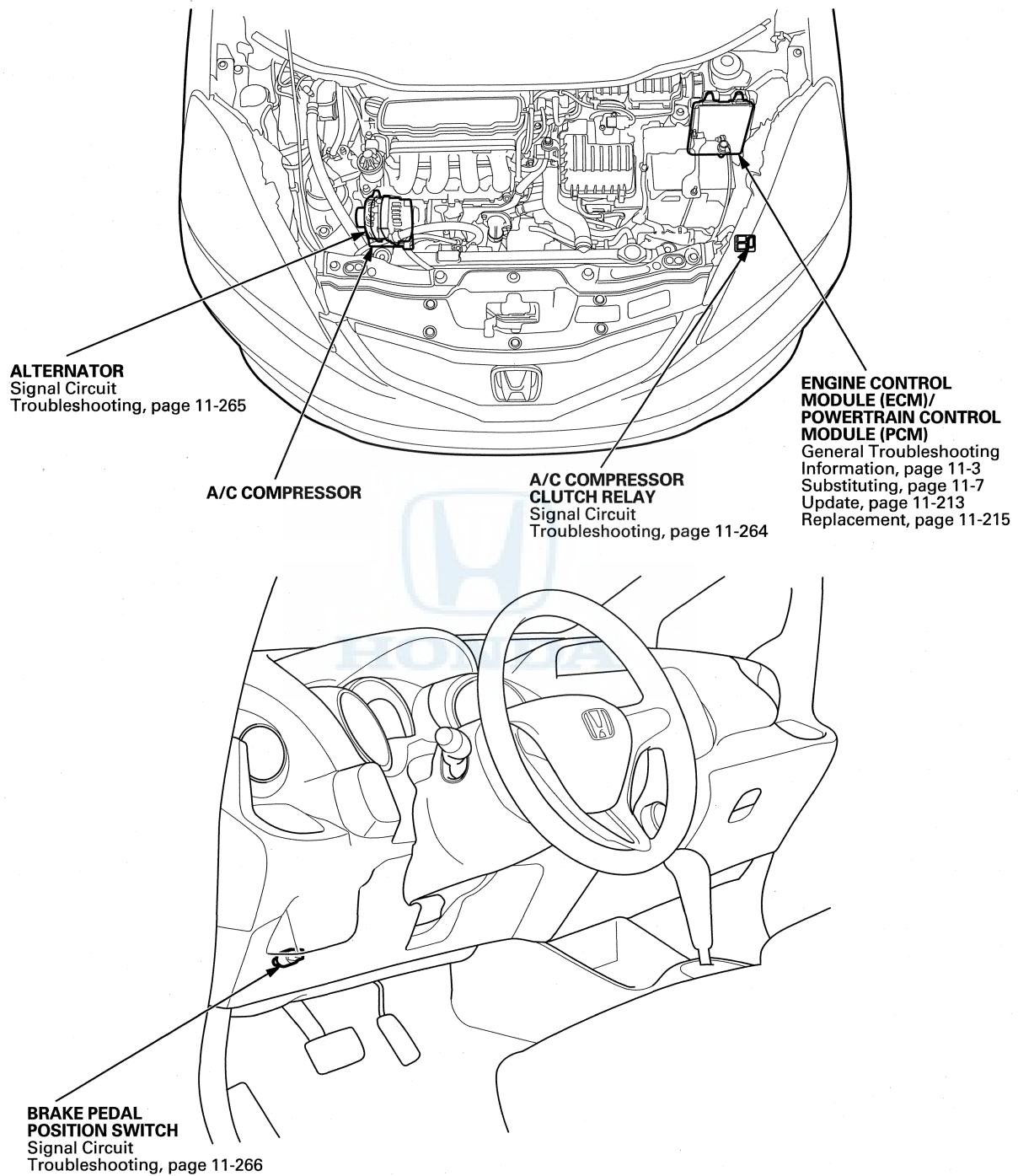
2. Remove the rocker arm oil pressure switch (B).
3. Install the parts in the reverse order of removal with a new O-ring (C).



Idle Control System



Component Location Index



Idle Control System

DTC Troubleshooting

DTC P0506: Idle Control System RPM Lower Than Expected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Check under these DATA LIST parameters with the HDS:
 - ECT SENSOR 1 above 156 °F (70 °C)
 - IAT SENSOR above 32 °F (0 °C)
 - VEHICLE SPEED is 0 mph (0 km/h)
 - ST FUEL TRIM between 0.69—1.47
 - FSS is CLOSED
5. Monitor the OBD STATUS for DTC P0506 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 6.

NO—If the HDS indicates PASSED, go to step 15. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 4 and recheck.
6. Remove the air cleaner (see page 11-307).
7. Check for dirt, carbon, or damage in the throttle bore.

Is there dirt, carbon, or damage in the throttle bore?

YES—If there is dirt or carbon, clean the throttle body (see page 11-306). Also check for damage to the air cleaner element (see page 11-308), then go to step 9. If there is damage in the throttle bore, go to step 8.

NO—Check the A/C system and the power steering system, then go to step 9.

8. Replace the throttle body (see page 11-309).
9. Reset the ECM/PCM with the HDS.
10. Do the ECM/PCM idle learn procedure (see page 11-268).
11. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
12. Check under these DATA LIST parameters with the HDS:
 - ECT SENSOR 1 above 156 °F (70 °C)
 - IAT SENSOR above 32 °F (0 °C)
 - VEHICLE SPEED is 0 mph (0 km/h)
 - ST FUEL TRIM between 0.69—1.47
 - FSS is CLOSED
13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0506 indicated?

YES—Check the A/C system and/or the power steering system, then go to step 1.

NO—Go to step 14.
14. Monitor the OBD STATUS for DTC P0506 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check the A/C system and/or the power steering system, then go to step 1. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 11 and recheck.
15. Remove the air cleaner (see page 11-307).
16. Check for dirt, carbon, or damage in the throttle bore.

Is there dirt, carbon, or damage in the throttle bore?

YES—If there is dirt or carbon, clean the throttle body (see page 11-306). Also check for damage to the air cleaner element (see page 11-308), then go to step 9. If there is damage in the throttle bore, go to step 8.

NO—Go to step 17.



17. Recheck with different load conditions (turn on the headlights, the blower motor, the rear window defogger, the A/C, and/or the power steering system, change the gear position, etc.).

18. Monitor the OBD STATUS for DTC P0506 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Intermittent failure, the system is OK at this time. ■

NO—If the HDS indicates FAILED, check the A/C system and/or the power steering system, then go to step 1 and recheck. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 17.

DTC P0507: Idle Control System RPM Higher Than Expected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle for at least 20 seconds.
4. Monitor the OBD STATUS for DTC P0507 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 5.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, recheck with different load conditions (electrical, A/C, gear position, etc.), then go to step 3.

5. Check for vacuum leaks at these parts:

- PCV valve
- PCV hose
- EVAP canister purge valve
- Throttle body
- Intake manifold
- Brake booster hose
- Brake booster

Are there any leaks?

YES—Repair or replace the leaking part(s), then go to step 6.

NO—Go to step 6.

(cont'd)

Idle Control System

DTC Troubleshooting (cont'd)

6. Turn the ignition switch to ON (II).
7. Reset the ECM/PCM with the HDS.
8. Do the ECM/PCM idle learn procedure (see page 11-268).
9. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle for at least 20 seconds.
10. Check for Pending or Confirmed DTCs with the HDS.
Is DTC P0507 indicated?
YES—Check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to step 1.
NO—Go to step 11.
11. Monitor the OBD STATUS for DTC P0507 in the DTCs MENU with the HDS.
Does the HDS indicate PASSED?
YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 10, go to the indicated DTC's troubleshooting. ■
NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the throttle body and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, keep idling until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, recheck with different load conditions (turn on the headlights, the blower motor, or the A/C; change the gear position, etc.), then go to step 9.

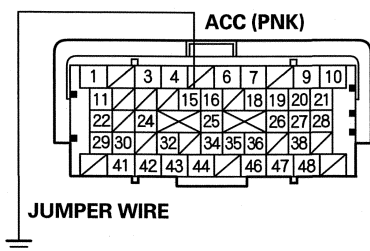
A/C Signal Circuit Troubleshooting

1. Start the engine, and let it idle.
2. Turn the blower switch on.
3. Turn the A/C switch on.
4. Check the A/C CLUTCH in the DATA LIST with the HDS.
Does it indicate ON?
YES—Go to step 5.
NO—Do the A/C system test (see page 21-51). ■
5. Check the A/C system.
Does the A/C system operate?
YES—The A/C signal circuit is OK. ■
NO—Go to step 6.
6. Turn the ignition switch to LOCK (0).
7. Turn the ignition switch to ON (II).
8. Activate the A/C CLUTCH in the INSPECTION MENU with the HDS.
Is there a clicking noise from the A/C compressor clutch?
YES—Do the A/C system test (see page 21-51). ■
NO—Go to step 9.
9. Turn the ignition switch to LOCK (0).
10. Jump the SCS line with the HDS.
11. Disconnect ECM/PCM connector A (49P).
12. Turn the ignition switch to ON (II).



13. Momentarily connect ECM/PCM connector terminal A15 to body ground with a jumper wire several times.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there a clicking noise from the A/C compressor clutch?

YES—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

NO—Check for poor connections or loose terminals at the A/C compressor clutch relay and the ECM/PCM. If the connections and the terminals are OK, check the A/C compressor clutch relay (see page 22-76). If needed, repair an open in the wire between the ECM/PCM (A15) and the A/C compressor clutch relay, or in other A/C parts. ■

Alternator FR Signal Circuit Troubleshooting

NOTE:

- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Start the engine, and let it idle.
2. Monitor the ALTERNATOR in the DATA LIST with the HDS.
3. Check if the indicated percentage varies when the headlight switch is turned on.

Does the percentage vary?

YES—The alternator signal circuit is OK. ■

NO—Go to step 4.

4. Turn the headlight switch off and the ignition switch to LOCK (0).
5. Jump the SCS line with the HDS.
6. Disconnect the alternator 4P connector.
7. Disconnect ECM/PCM connector B (49P).

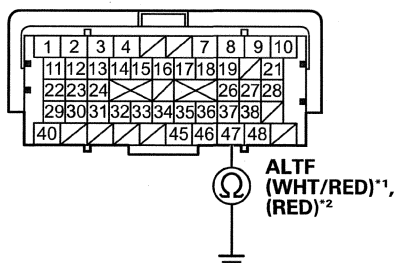
(cont'd)

Idle Control System

Alternator FR Signal Circuit Troubleshooting (cont'd)

8. Check for continuity between body ground and ECM/PCM connector terminal B47.

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (B47) and the alternator. ■

NO—

- Troubleshoot the alternator and regulator circuit (see page 4-27). ■
- Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

Brake Pedal Position Switch Signal Circuit Troubleshooting

1. Turn the ignition switch to ON (II).
2. Check the BRAKE SWITCH in the DATA LIST with the HDS.

Does it indicate OFF?

YES—Go to step 3.

NO—Inspect the brake pedal position switch (see page 19-6). ■

3. Press the brake pedal, and check the BRAKE SWITCH in the DATA LIST with the HDS.

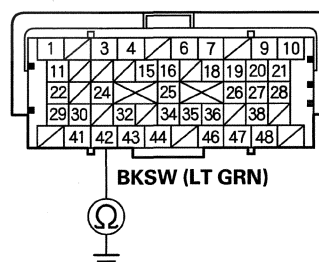
Does it change to ON?

YES—The brake pedal position switch signal circuit (BKSX line) is OK. ■

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).
5. Jump the SCS line with the HDS.
6. Disconnect the brake pedal position switch 4P connector.
7. Disconnect ECM/PCM connector A (49P).
8. Check for continuity between ECM/PCM connector terminal A42 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (A42) and the brake pedal position switch. Also, replace the No. 24 STOP/HORN (10 A) fuse. ■

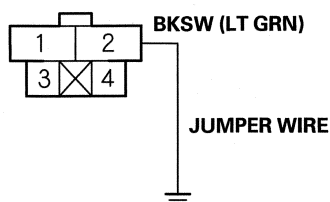
NO—Go to step 9.



Idle Speed Inspection

9. Connect brake pedal position switch 4P connector terminal No. 2 to body ground with a jumper wire.

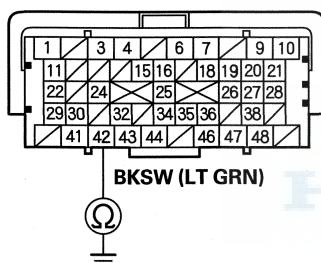
BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



Wire side of female terminals

10. Check for continuity between ECM/PCM connector terminal A42 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

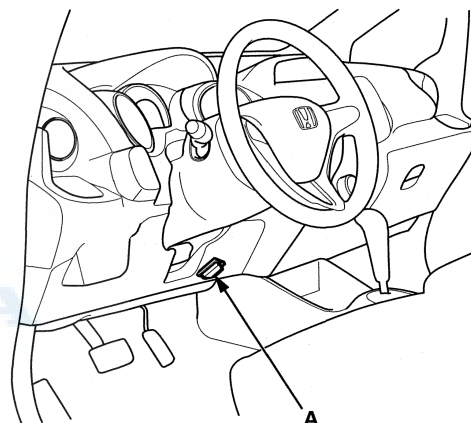
Is there continuity?

YES—Repair an open or short in the wire between the brake pedal position switch and the No. 24 STOP/HORN (10 A) fuse. Also, inspect the brake pedal position switch (see page 19-6). ■

NO—Repair open in the wire between the ECM/PCM (A42) and the brake pedal position switch. ■

NOTE:

- Before checking the idle speed, check these items:
 - The malfunction indicator lamp (MIL) has not been reported on, and there are no DTCs.
 - Ignition timing
 - Spark plugs
 - Air cleaner
 - PCV system
 - Apply the parking brake, and make sure the headlights are off.
1. Disconnect the evaporative emission (EVAP) canister purge valve connector.
 2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting (see page 11-193).

(cont'd)

Idle Control System

Idle Speed Inspection (cont'd)

4. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
5. Check the idle speed under no load conditions: headlights, blower fan, radiator fan, audio system, and air conditioner off.

Idle speed should be:

M/T	700 ± 50 rpm
A/T	700 ± 50 rpm (in P or N)

6. Let the engine idle for 1 minute with high electric load (A/C switch on, temperature set to max cool, blower fan on high, and headlights on high beam).

Idle speed should be:

M/T	790 ± 50 rpm
A/T	790 ± 50 rpm (in P or N)

NOTE: If the idle speed is not within specification, do the ECM/PCM idle learn procedure (see page 11-268). If the idle speed is still not within specification, go to symptom troubleshooting.

7. Reconnect the EVAP canister purge valve connector.

ECM/PCM Idle Learn Procedure

The idle learn procedure must be done so the ECM/PCM can learn the engine idle characteristics.

Do the idle learn procedure whenever you do any of these actions:

- Replace ECM/PCM.
- Reset ECM/PCM.
- Update ECM/PCM.
- Replace or clean the throttle body.
- Disassemble the engine or the transmission.

NOTE: Clearing DTCs with the HDS does not require that you to do the idle learn procedure.

Procedure

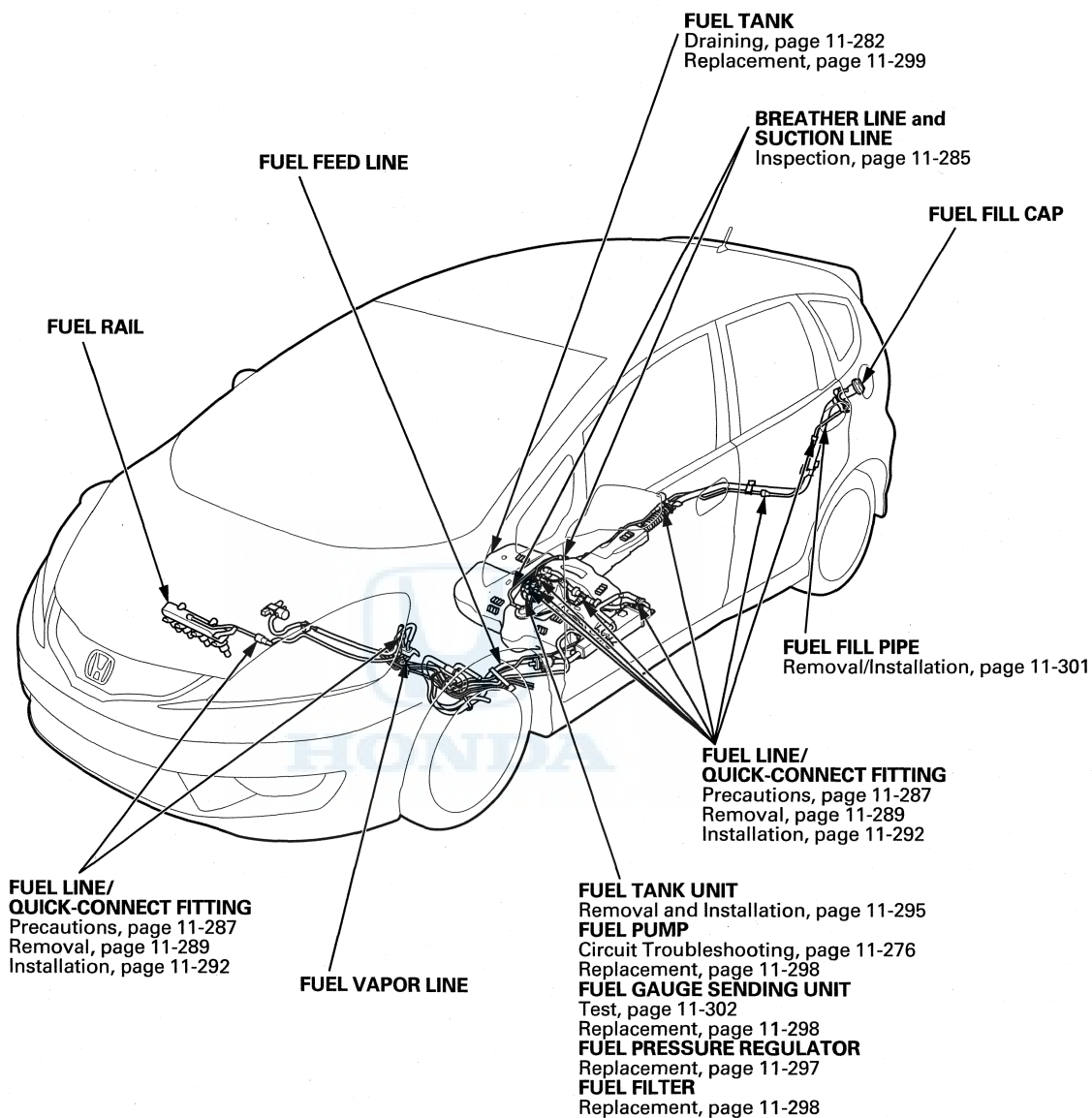
1. Make sure all electrical items (A/C, audio, lights, etc.) are off.
2. Reset the ECM/PCM with the HDS.
3. Turn the ignition switch to ON (II), and wait 2 seconds.
4. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, or until the engine coolant temperature reaches 194 °F (90 °C).
5. Let the engine idle for about 5 minutes with the throttle fully closed.

NOTE: If the radiator fan comes on, do not include its running time in the 5 minutes.

Fuel Supply System



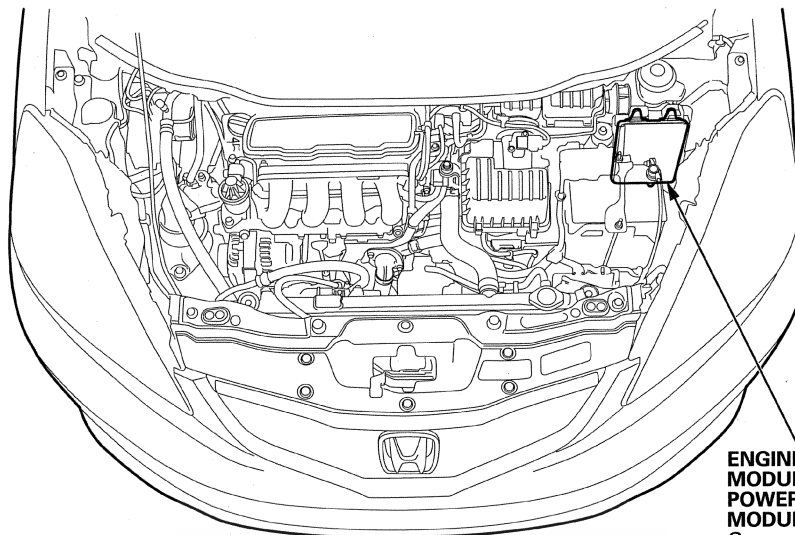
Component Location Index



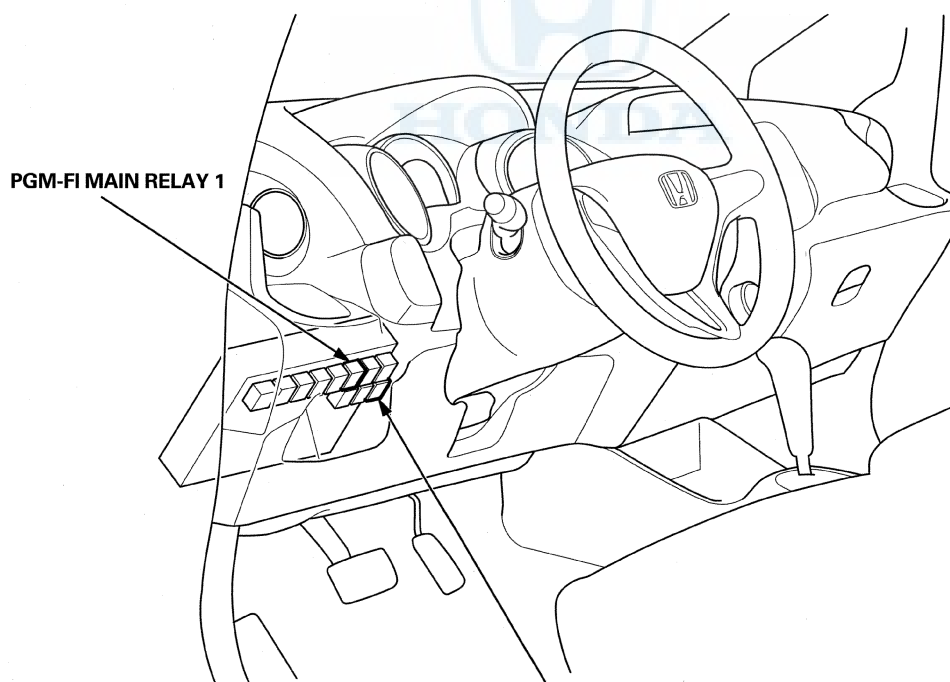
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Fuel Supply System

Component Location Index (cont'd)



**ENGINE CONTROL
MODULE (ECM)/
POWERTRAIN CONTROL
MODULE (PCM)**
General Troubleshooting
Information, page 11-3
Substituting, page 11-7
Update, page 11-213
Replacement, page 11-215



PGM-FI MAIN RELAY 1

PGM-FI MAIN RELAY 2



DTC Troubleshooting

DTC P0461: Fuel Level Sensor (Fuel Gauge Sending Unit) Range/Performance Problem

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Because it requires 124 miles (200 km) of driving without refueling to complete this diagnosis, DTC P0461 cannot be duplicated during this troubleshooting.

1. Test the fuel gauge sending unit (see page 11-302).

Is the fuel gauge sending unit OK?

YES—Check for poor connections or loose terminals at the fuel gauge sending unit and the gauge control module. ■

NO—Replace the fuel gauge sending unit (see page 11-298), then go to step 2.

2. Turn the ignition switch to ON (II).
3. Reset the ECM/PCM with the HDS.
4. Do the ECM/PCM idle learn procedure (see page 11-268).
5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0461 indicated?

YES—Check for poor connections or loose terminals at the fuel gauge sending unit and the gauge control module, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0462: Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS, and wait 5 seconds.
3. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0462 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit. ■

4. Turn the ignition switch to LOCK (0).
5. Remove the access panel from the floor (see page 11-295).
6. Disconnect the fuel tank unit 4P connector.
7. Turn the ignition switch to ON (II).
8. Clear the DTC with the HDS, and wait 5 seconds.
9. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0463 indicated?

YES—Replace the fuel gauge sending unit (see page 11-298), then go to step 22.

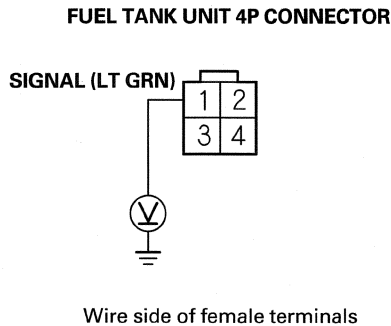
NO—Go to step 10.

(cont'd)

Fuel Supply System

DTC Troubleshooting (cont'd)

10. Measure the voltage between fuel tank unit 4P connector terminal No. 1 and body ground.

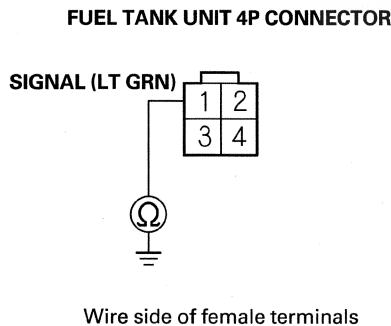


Is there battery voltage?

YES—Go to step 15.

NO—Go to step 11.

11. Turn the ignition switch to LOCK (0).
12. Remove the gauge control module (see page 22-294).
13. Disconnect the gauge control module 32P connector.
14. Check for continuity between fuel tank unit 4P connector terminal No. 1 and body ground.



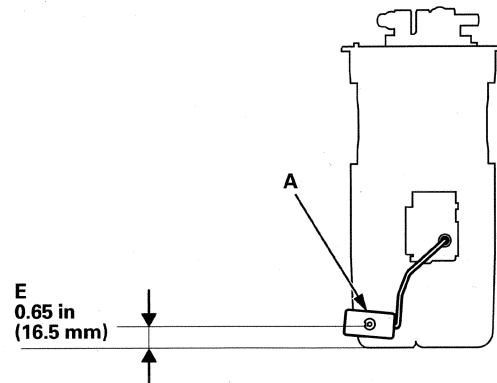
Is there continuity?

YES—Repair a short in the wire between the gauge control module (signal line) and the fuel gauge sending unit, then go to step 24.

NO—Replace the gauge control module (see page 22-294), then go to step 24.

15. Turn the ignition switch to LOCK (0).
16. Remove the fuel tank unit (see page 11-295).
17. Connect the fuel tank unit 4P connector.

18. Turn the ignition switch to ON (II).
19. Clear the DTC with the HDS.
20. Set the float (A) to the E position.



21. Check the fuel gauge.

Does the gauge move to the empty position?

YES—Go to step 29.

NO—Replace the gauge control module (see page 22-294), then go to step 22.

22. Turn the ignition switch to LOCK (0).
23. Reinstall all removed parts in the reverse order of removal.
24. Reconnect all connectors.
25. Turn the ignition switch to ON (II).
26. Reset the ECM/PCM with the HDS.
27. Do the ECM/PCM idle learn procedure (see page 11-268).
28. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0462 indicated?

YES—Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



29. Turn the ignition switch to LOCK (0).
30. Reinstall all removed parts in the reverse order of removal.
31. Reconnect all connectors.
32. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
33. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0462 indicated?

YES—Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P0463: Fuel Level Sensor (Fuel Gauge Sending Unit) Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS, and wait 5 seconds.
3. Check for Pending or Confirmed DTCs with the HDS.

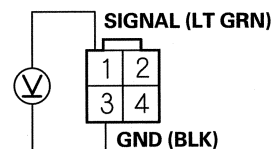
Is DTC P0463 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit. ■

4. Turn the ignition switch to LOCK (0).
5. Remove the access panel from the floor (see page 11-295).
6. Disconnect the fuel tank unit 4P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between fuel tank unit 4P connector terminals No. 1 and No. 3.

FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 16.

NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).

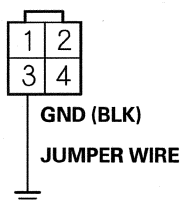
(cont'd)

Fuel Supply System

DTC Troubleshooting (cont'd)

10. Connect fuel tank unit 4P connector terminal No. 3 to body ground with a jumper wire.

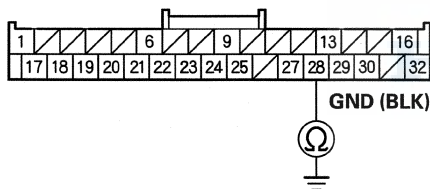
FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

11. Remove the gauge control module (see page 22-294).
12. Disconnect the gauge control module 32P connector.
13. Check for continuity between gauge control module 32P connector terminal No. 28 and body ground.

GAUGE CONTROL MODULE 32P CONNECTOR



Wire side of female terminals

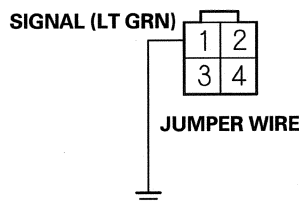
Is there continuity?

YES—Go to step 14.

NO—Repair an open in the wire between the gauge control module (GND line) and the fuel gauge sending unit, then go to step 27.

14. Connect fuel tank unit 4P connector terminal No. 1 to body ground with a jumper wire.

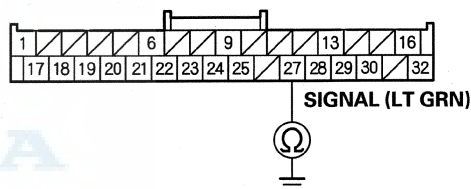
FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

15. Check for continuity between gauge control module 32P connector terminal No. 27 and body ground.

GAUGE CONTROL MODULE 32P CONNECTOR



Wire side of female terminals

Is there continuity?

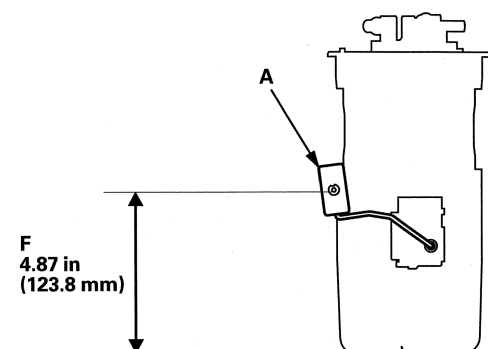
YES—Replace the gauge control module (see page 22-294), then go to step 27.

NO—Repair an open in the wire between the gauge control module (signal line) and the fuel gauge sending unit, then go to step 27.

16. Turn the ignition switch to LOCK (0).
17. Remove the fuel tank unit (see page 11-295).
18. Test the fuel gauge sending unit (see page 11-302).
Is the fuel gauge sending unit OK?
YES—Go to step 19.
NO—Replace the fuel gauge sending unit (see page 11-298), then go to step 27.
19. Connect the fuel tank unit 4P connector.
20. Reconnect the gauge control module 32P connector.



21. Turn the ignition switch to ON (II).
22. Clear the DTC with the HDS.
23. Set the float (A) to the F position.



24. Check the fuel gauge.
Does the gauge move to the full position?
YES—Go to step 32.
NO—Replace the gauge control module (see page 22-294), then go to step 25.
25. Turn the ignition switch to LOCK (0).
26. Reinstall all removed parts in the reverse order of removal.
27. Reconnect all connectors.
28. Turn the ignition switch to ON (II).
29. Reset the ECM/PCM with the HDS.
30. Do the ECM/PCM idle learn procedure (see page 11-268).
31. Check for Pending or Confirmed DTCs with the HDS.
Is DTC P0463 indicated?
YES—Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit, then go to step 1.
NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting.■

32. Turn the ignition switch to LOCK (0).
33. Reinstall all removed parts in the reverse order of removal.
34. Reconnect all connectors.
35. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
36. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0463 indicated?

YES—Check for poor connections or loose terminals at the gauge control module and the fuel gauge sending unit. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

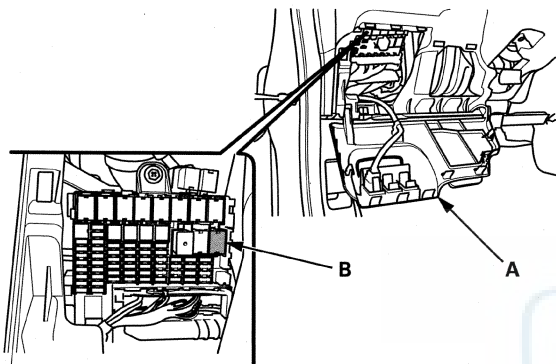
NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting.■

Fuel Supply System

Fuel Pump Circuit Troubleshooting

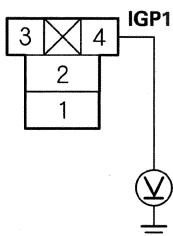
If you suspect a problem with the fuel pump, check that the fuel pump actually runs: when it is on, you will hear some noise if you listen to the fuel fill port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is turned on. If the fuel pump does not make noise, do this:

1. Turn the ignition switch to LOCK (0).
2. Open the fuse access panel (A), then remove PGM-FI main relay 2 (B) from the under-dash fuse/relay box.



3. Turn the ignition switch to ON (II).
4. Measure the voltage between PGM-FI main relay 2 4P connector terminal No. 4 and body ground.

PGM-FI MAIN RELAY 2 4P CONNECTOR



Terminal side of female terminals

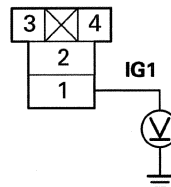
Is there battery voltage?

YES—Go to step 5.

NO—Test PGM-FI main relay 1 (see page 22-76). If the relay is OK, replace the under-dash fuse/relay box (see page 22-65). ■

5. Measure the voltage between PGM-FI main relay 2 4P connector terminal No. 1 and body ground.

PGM-FI MAIN RELAY 2 4P CONNECTOR



Terminal side of female terminals

Is there battery voltage?

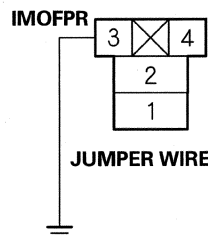
YES—Go to step 6

NO—Check these items:

- Check the No. 20 FUEL PUMP (15 A) fuse in the under-dash fuse/relay box. ■
- If the fuse is OK, replace the under-dash fuse/relay box (see page 22-65). ■

6. Turn the ignition switch to LOCK (0).
7. Connect PGM-FI main relay 2 4P connector terminal No. 3 to body ground with a jumper wire.

PGM-FI MAIN RELAY 2 4P CONNECTOR



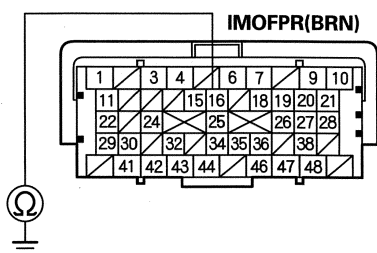
Terminal side of female terminals

8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).



10. Check for continuity between body ground and ECM/PCM connector terminal A16.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

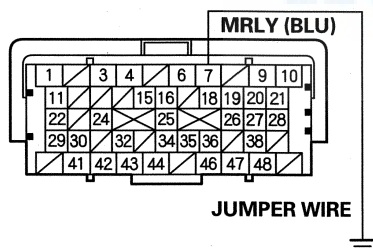
YES—Go to step 11.

NO—Repair open in the wire between PGM-FI main relay 2 and the ECM/PCM (A16). ■

11. Reinstall PGM-FI main relay 2.

12. Connect ECM/PCM connector terminal A7 to body ground with a jumper wire.

ECM/PCM CONNECTOR A (49P)

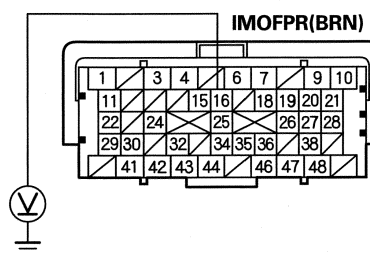


Terminal side of female terminals

13. Turn the ignition switch to ON (II).

14. Measure the voltage between ECM/PCM connector terminal A16 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 15.

NO—Check these items:

- Repair open in the wire between the under-dash fuse/relay box and the ECM/PCM (A7, A16). ■
- If the wires are OK, replace PGM-FI main relay 2 (see page 22-76). ■

15. Turn the ignition switch to LOCK (0).

16. Reconnect ECM/PCM connector A (49P).

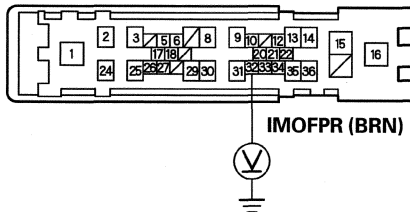
(cont'd)

Fuel Supply System

Fuel Pump Circuit Troubleshooting (cont'd)

17. Turn the ignition switch to ON (II), and measure the voltage between under-dash fuse/relay box connector B (36P) terminal No. 32 and body ground within 2 seconds.

UNDER-DASH FUSE/RELAY BOX CONNECTOR B (36P)



Wire side of female terminals

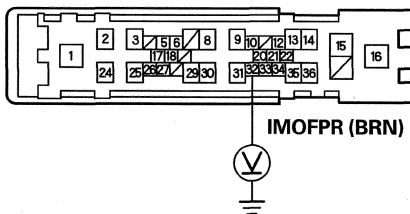
Is there battery voltage?

YES—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then recheck. If the symptom/indication goes away with a known-good ECM/PCM, replace the original ECM/PCM (see page 11-215). ■

NO—Turn the ignition switch to LOCK (0), then go to step 18.

18. Turn the ignition switch to ON (II), and measure the voltage between under-dash fuse/relay box connector B (36P) terminal No. 32 and body ground after 2 seconds.

UNDER-DASH FUSE/RELAY BOX CONNECTOR B (36P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 19.

NO—Replace the under-dash fuse/relay box (see page 22-65). ■

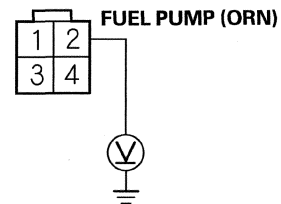
19. Turn the ignition switch to LOCK (0).

20. Remove the center console (see page 20-93).

21. Remove the parking brake lever, then remove the access panel from the floor (see page 11-295).

22. Turn the ignition switch to ON (II), and measure the voltage between fuel tank unit 4P connector terminal No. 2 and body ground within 2 seconds.

FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 27.

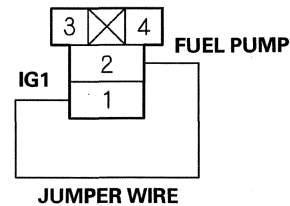
NO—Go to step 23.

23. Turn the ignition switch to LOCK (0).

24. Remove PGM-FI main relay 2.

25. Connect PGM-FI main relay 2 4P connector terminals No. 1 and No. 2 with a jumper wire.

PGM-FI MAIN RELAY 2 4P CONNECTOR



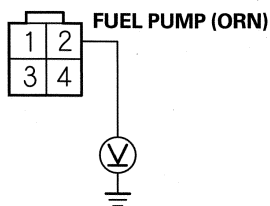
Terminal side of female terminals



Fuel Pressure Relieving

26. Turn the ignition switch to ON (II), and measure the voltage between fuel tank unit 4P connector terminal No. 2 and body ground.

FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

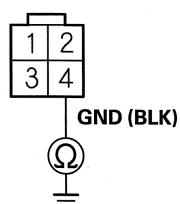
Is there battery voltage?

YES—Replace PGM-FI main relay 2. ■

NO—Repair open in the wire between PGM-FI main relay 2 and the fuel tank unit 4P connector. ■

27. Turn the ignition switch to LOCK (0).
28. Check for continuity between fuel tank unit 4P connector terminal No. 4 and body ground.

FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

Is there continuity?

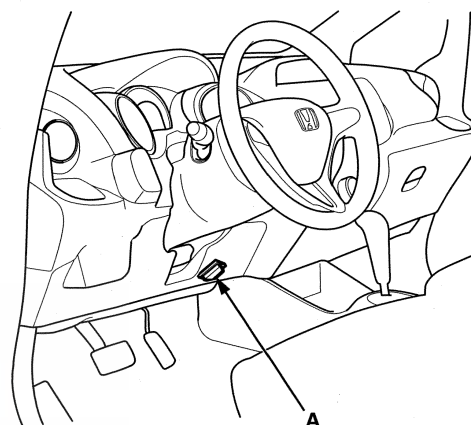
YES—Replace the fuel pump (see page 11-298). ■

NO—Repair open in the wire between the fuel tank unit 4P connector and G502 (see page 22-30). ■

Before disconnecting fuel lines or hoses, relieve pressure from the system by disabling the fuel pump and disconnecting the fuel line/quick connect fitting in the engine compartment.

With the HDS

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting (see page 11-193).
4. Turn the ignition switch to LOCK (0).
5. Remove the fuel fill cap to relieve the pressure in the fuel tank.
6. Turn the ignition switch to ON (II).
7. From the INSPECTION MENU of the HDS, select Fuel Pump OFF, then start the engine, and let it idle until it stalls.

NOTE:

- Do not allow the engine to idle above 1,000 rpm or the ECM/PCM will continue to operate the fuel pump.
- A Confirmed or Pending DTC may be set during this procedure. Check for DTCs, and clear them as needed (see page 11-4).

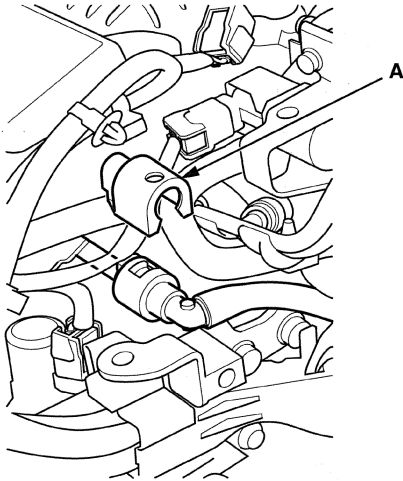
8. Turn the ignition switch to LOCK (0).
9. Do the battery terminal disconnection procedure (see page 22-69).

(cont'd)

Fuel Supply System

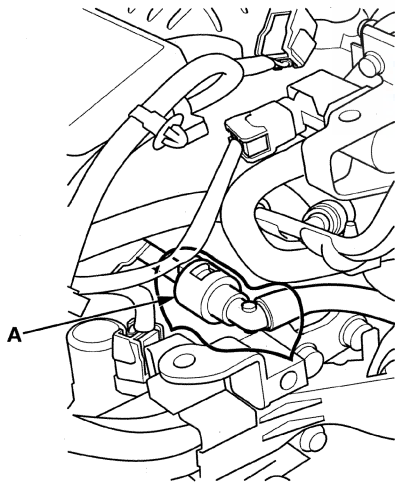
Fuel Pressure Relieving (cont'd)

10. Remove the quick-connect fitting cover (A).



11. Check the fuel quick-connect fitting for dirt, and clean it if needed.

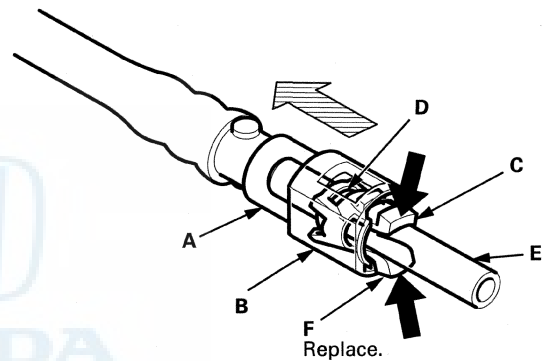
12. Place a rag or shop towel over the quick-connect fitting (A).



13. Disconnect the quick-connect fitting (A): Hold the connector (B) with one hand, and squeeze the retainer tabs (C) with the other hand to release them from the locking tabs (D). Pull the connector off.

NOTE:

- Be careful not to damage the line (E) or other parts.
- Do not use tools.
- If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
- Do not remove the retainer from the line; once removed, the retainer (F) must be replaced with a new one.



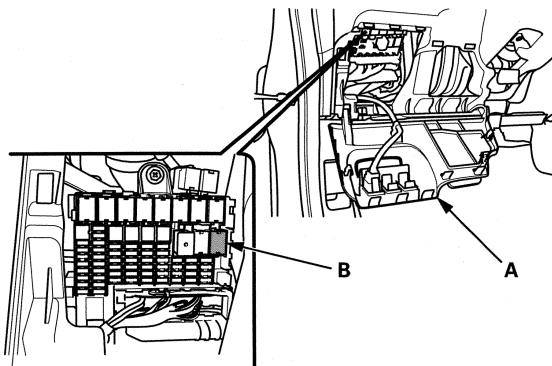
14. After disconnecting the quick-connect fitting, check it for dirt or damage (see step 4 on page 11-291).

15. Do the battery terminal reconnection procedure (see page 22-69).



Without the HDS

1. Open the fuse access panel (A).



2. Remove PGM-FI main relay 2 (B) from the under-dash fuse/relay box.

3. Start the engine, and let it idle until it stalls.

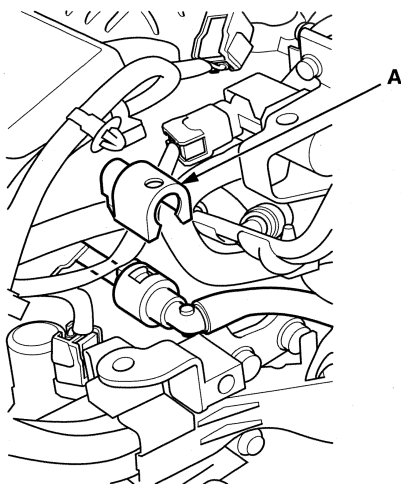
NOTE: If any DTCs are stored, clear and ignore them.

4. Turn the ignition switch to LOCK (0).

5. Remove the fuel fill cap to relieve the pressure in the fuel tank.

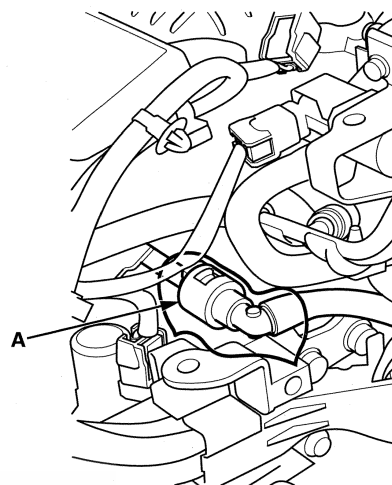
6. Do the battery terminal disconnection procedure (see page 22-69).

7. Remove the quick-connect fitting cover (A).



8. Check the fuel quick-connect fitting for dirt, and clean it if needed.

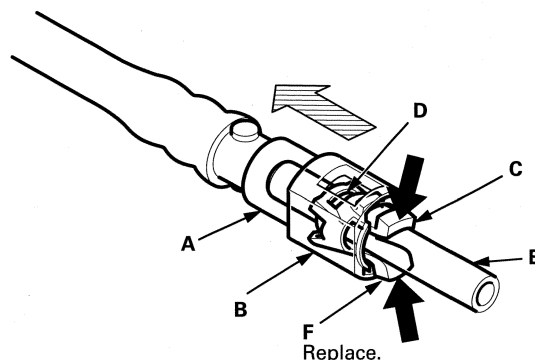
9. Place a rag or shop towel over the quick-connect fitting (A).



10. Disconnect the quick-connect fitting (A): Hold the connector (B) with one hand, and squeeze the retainer tabs (C) with the other hand to release them from the locking tabs (D). Pull the connector off.

NOTE:

- Be careful not to damage the line (E) or other parts.
- Do not use tools.
- If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
- Do not remove the retainer from the line; once removed, the retainer (F) must be replaced with a new one.



11. After disconnecting the quick-connect fitting, check it for dirt or damage (see step 4 on page 11-291).

12. Do the battery terminal reconnection procedure (see page 22-69).

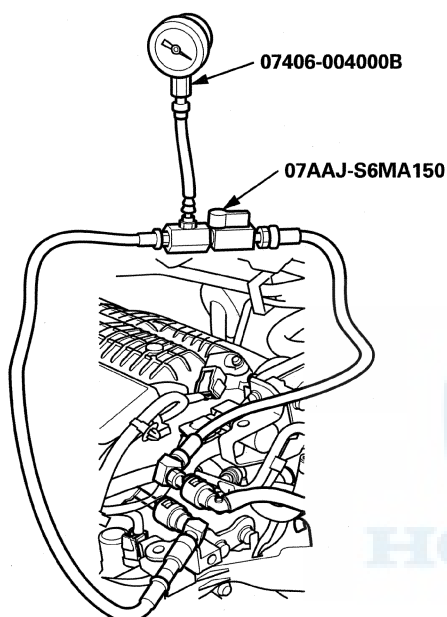
Fuel Supply System

Fuel Pressure Test

Special Tools Required

- Fuel Pressure Gauge 07406-004000B
- Fuel Pressure Gauge Attachment Set 07AAJ-S6MA150

1. Relieve the fuel pressure (see page 11-279).
2. Disconnect the quick-connect fitting. Attach the fuel pressure gauge set and the fuel gauge.



3. Start the engine, and let it idle:
 - If the engine starts, go to step 5.
 - If the engine does not start, go to step 4.
4. Check to see if the fuel pump is running: Listen to the fuel filler port with the fuel fill cap removed. The fuel pump should run for 2 seconds when the ignition switch is first turned to ON (II):
 - If the pump runs, go to step 5.
 - If the pump does not run, do the fuel pump circuit troubleshooting (see page 11-276).
5. Read the fuel pressure gauge. The pressure should be 320—370 kPa (3.3—3.8 kgf/cm², 47—54 psi):
 - If the pressure is OK, the test is complete.
 - If the pressure is out of specification, replace the fuel pressure regulator (see page 11-297) and the fuel filter (see page 11-298), then recheck the fuel pressure.

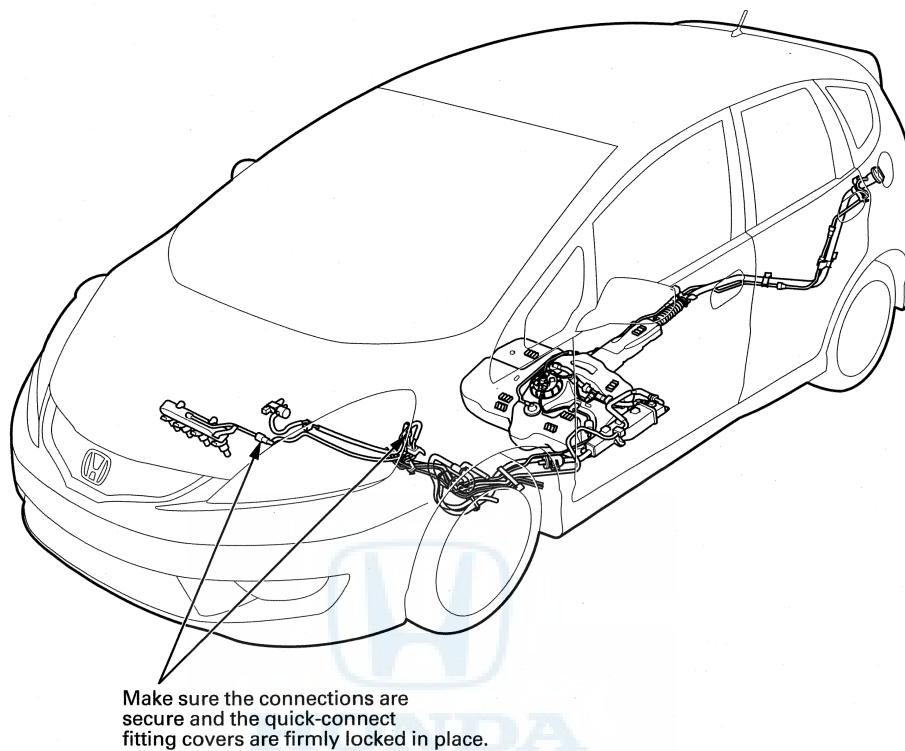
Fuel Tank Draining

1. Remove the fuel tank unit (see page 11-295).
2. Using a hand pump, a hose, and a container suitable for fuel, draw the fuel from the fuel tank.
3. Reinstall the fuel tank unit (see page 11-296).



Fuel Line Inspection

Check the fuel system lines and hoses for damage, leaks, and deterioration. Replace any damaged parts.



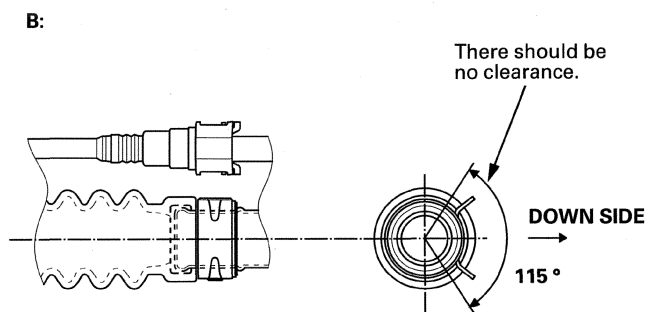
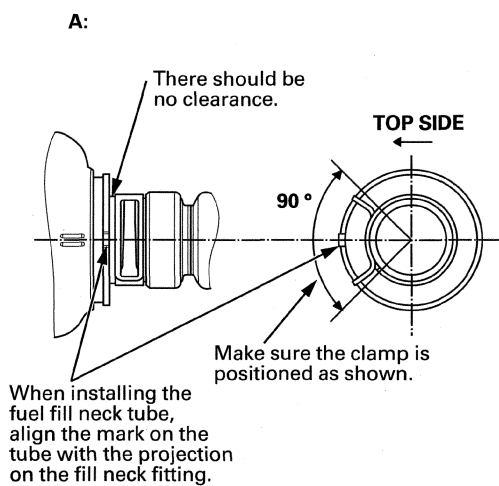
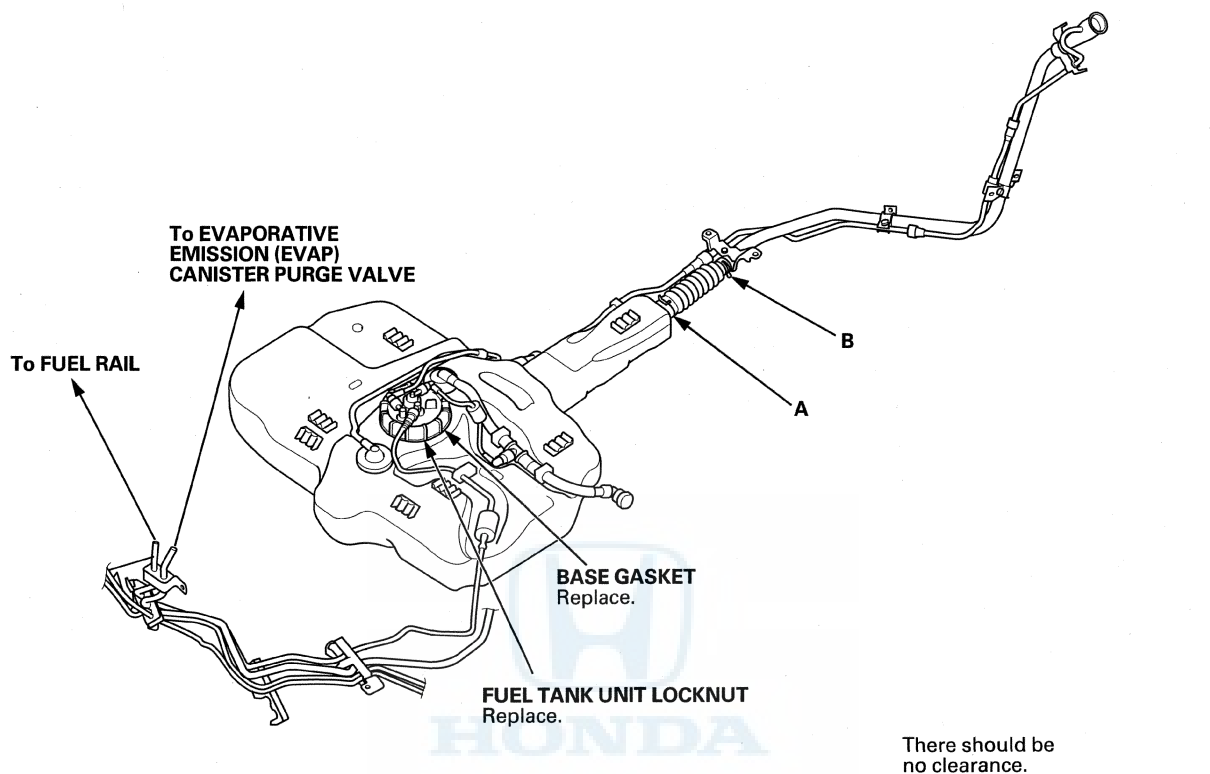
Make sure the connections are secure and the quick-connect fitting covers are firmly locked in place.

(cont'd)

Fuel Supply System

Fuel Line Inspection (cont'd)

Check all clamps, and make sure they are properly positioned and tightened.





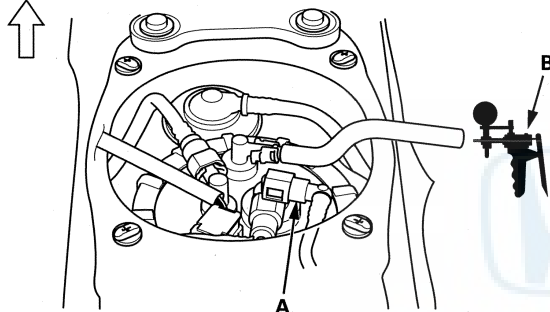
Breather Line and Suction Line Inspection

Special Tools Required

- Fuel Pressure Gauge Attachment Set 07AAJ-S6MA150
- Vacuum Pump/Gauge, 0–30 In.Hg, Snap-on YA4000A or equivalent, commercially available
- Vacuum/Pressure Gauge, 0–4 In.Hg, 07JAZ-001000B

1. Remove the center console (see page 20-93).
2. Remove the parking brake lever, then remove the access panel from the floor (see page 11-295).
3. Disconnect the suction line (A) from the fuel tank unit, and connect a vacuum pump/gauge, 0–30 in Hg (B), to the hose as shown.

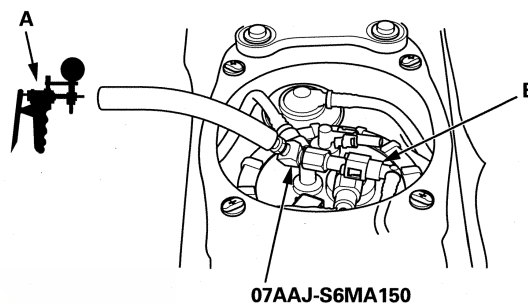
FRONT OF
VEHICLE
↑



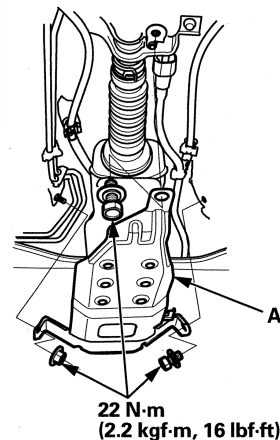
4. Start the engine, and check the vacuum:
 - If there is vacuum, go to step 5.
 - If there is no vacuum, replace the fuel filter (see page 11-298).
5. Turn the ignition switch to LOCK (0).

6. Attach the fuel pressure gauge attachment. Then connect the vacuum pump/gauge (A) to the suction line (B), and apply vacuum to the line:

- If the line holds vacuum, check for a blockage in the suction line. If there is a blockage, replace the suction line.
- If the line does not hold vacuum, go to step 7.



7. Raise the vehicle on a lift (see page 1-14).
8. Remove the fuel tank mount bracket (A).

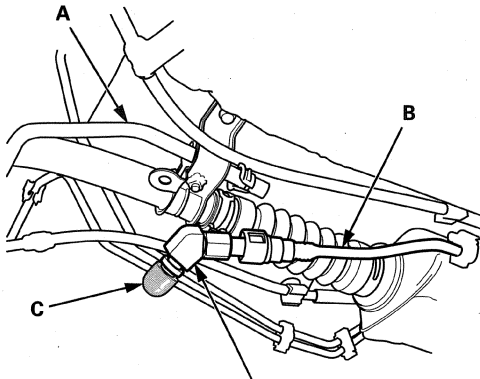


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Fuel Supply System

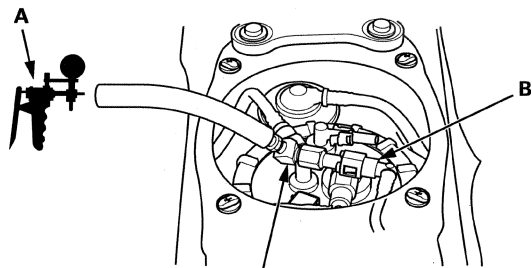
Breather Line and Suction Line Inspection (cont'd)

9. Disconnect the breather line (A). Attach the fuel pressure gauge attachment, then plug the suction line (B) with a rubber cap (C).



07AAJ-S6MA150

10. Attach the fuel pressure gauge attachment. Then connect the vacuum pump/gauge (A) to the suction line (B), and apply vacuum to the line:
- If the line holds vacuum, check for a blockage in the suction line and the fuel tank vapor recirculation tube. If there is a blockage, replace the fuel tank (see page 11-299). If the fuel tank vapor recirculation tube is OK, replace the suction line.
 - If the line does not hold vacuum, go to step 11.

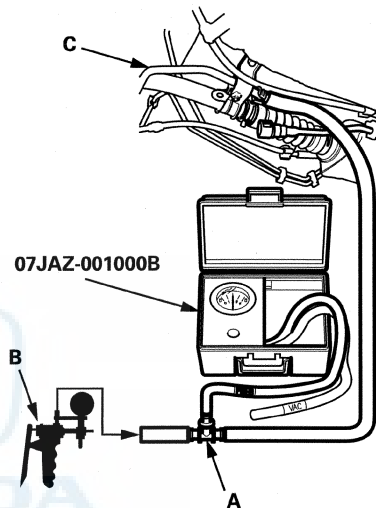


07AAJ-S6MA150

11. Raise the vehicle on a lift (see page 1-14).

12. Connect a T-fitting (A), a vacuum gauge, and the vacuum pump/gauge (B) to the filler side of the breather line (C) as shown. Then apply pressure to the line:

- If the pressure holds, check for a blockage between the suction line and the filler neck on the breather pipe, then replace the part that is causing the blockage.
- If the pressure does not hold, go to step 13.

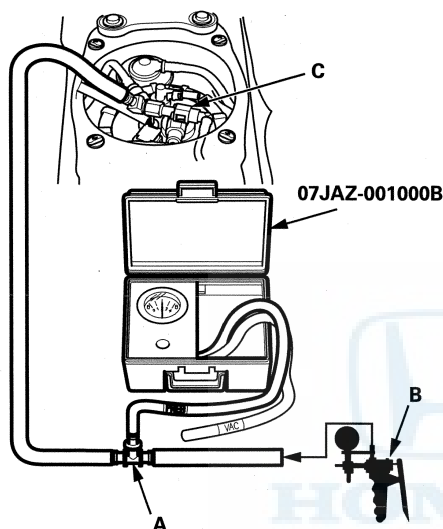


13. Remove the rubber cap from the suction line, and reconnect the breather pipe to the suction line.



14. Attach the fuel pressure gauge attachment. Then connect the T-fitting (A), the vacuum gauge, and the vacuum pump/gauge (B) to the suction line (C) as shown. then apply pressure to the line:

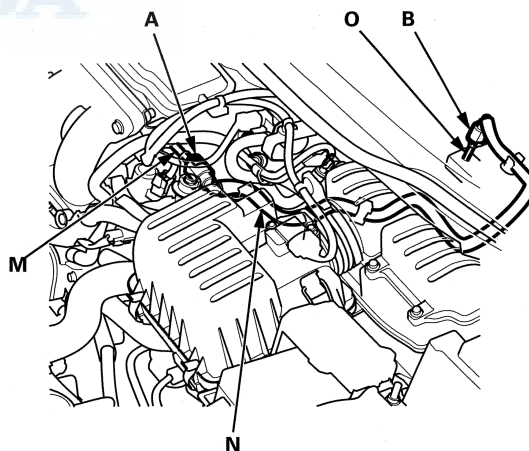
- If the pressure holds, the breather line and the suction line are OK.
- If the pressure does not hold, check for a vacuum leak in the suction line, and replace the suction line if needed.



Fuel Line/Quick-Connect Fitting Precautions

The fuel line/quick-connect fittings (A, B, C, D, E, F, G, H, I, J, K and L) connect the fuel rail (M) to fuel feed hose (N), the fuel feed hose to the fuel line (O), the fuel feed line (P) to the fuel tank unit (Q), the fuel tank unit to the fuel vent tube (R), the fuel tank unit to the suction line (S), the fuel vent tube to the fuel tank vapor control valve hose (T), the suction tube to the fuel tank vapor recirculation tube (U), the suction tube to the breather pipe (V), the breather pipe to the non-return valve tube (W), and the fuel purge pipe (X) to the EVAP canister (Y). When removing or installing the fuel feed hose, the fuel tank unit, the fuel tank, or the suction tube, or when disconnecting/connecting the quick-connect fittings, pay attention to the following:

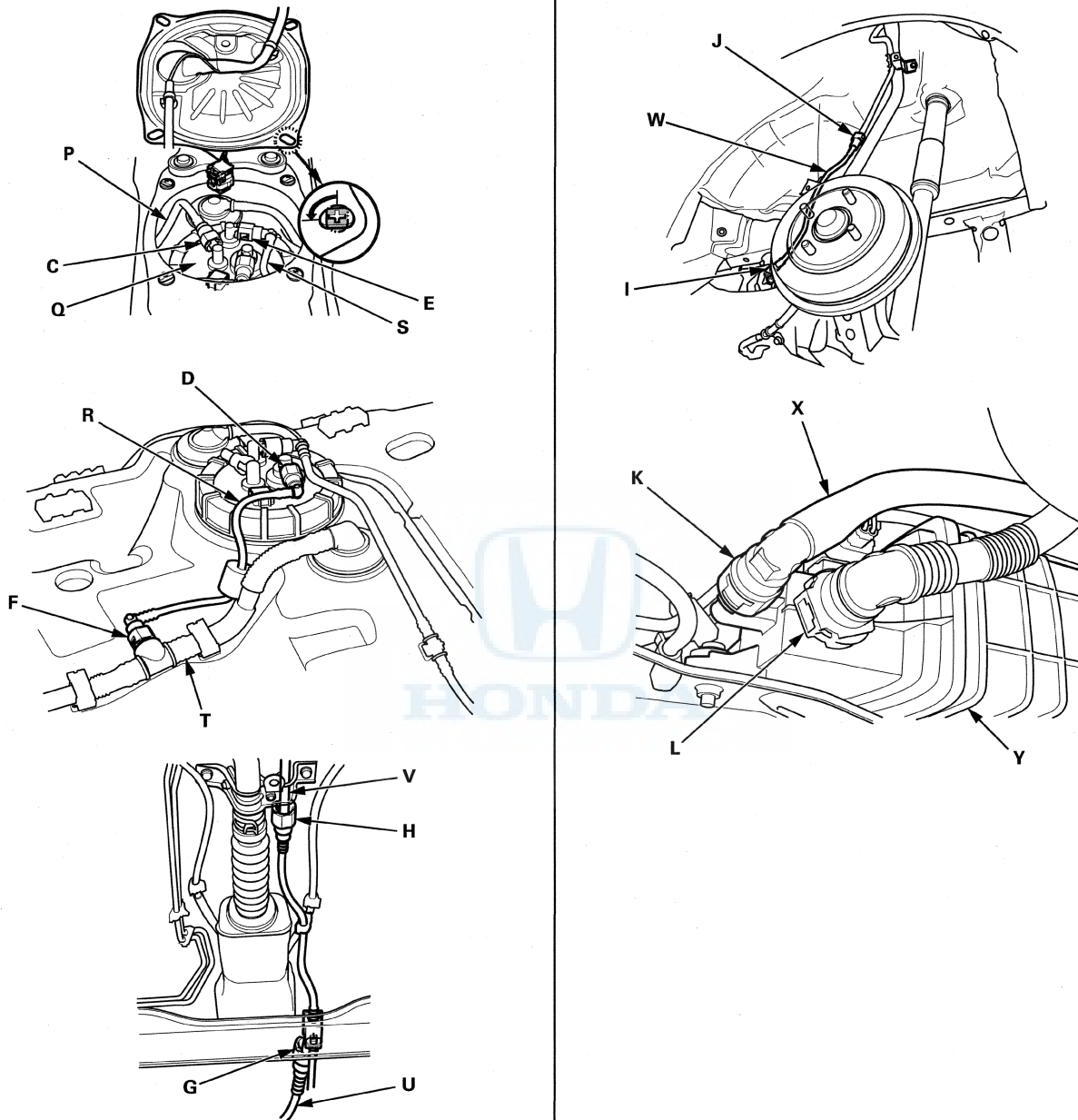
- The fuel feed hose, the fuel line and the quick-connect fittings are not heat-resistant; be careful not to damage them during welding or other heat-generating procedures.
- The fuel feed hose, the fuel line and the quick-connect fittings are not acid-proof; do not touch them with a shop towel which was used for wiping battery electrolyte. Replace them if they came into contact with electrolyte or something similar.
- When connecting or disconnecting the fuel feed hose, the fuel line and the quick-connect fittings, be careful not to bend or twist them excessively. Replace them if they are damaged.



(cont'd)

Fuel Supply System

Fuel Line/Quick-Connect Fitting Precautions (cont'd)





Fuel Line/Quick-Connect Fitting Removal

A disconnected quick-connect fitting can be reconnected, but the retainer on the mating line cannot be reused once it has been removed from the line.

Replace the retainer when:

- replacing the fuel rail.
- replacing the fuel feed line.
- replacing the fuel pump.
- replacing the fuel filter.
- replacing the fuel gauge sending unit.
- replacing the EVAP purge line.
- replacing the EVAP canister.
- replacing the fuel fill pipe.
- replacing the fuel tank.
- replacing the suction tube.
- it has been removed from the line.
- it is damaged.

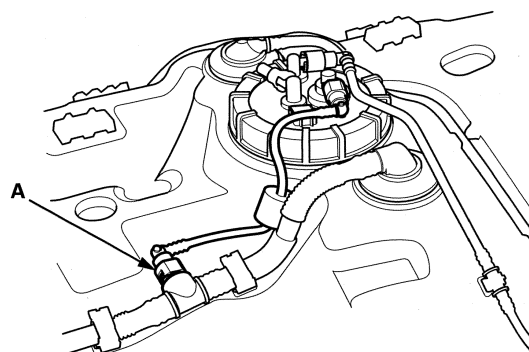
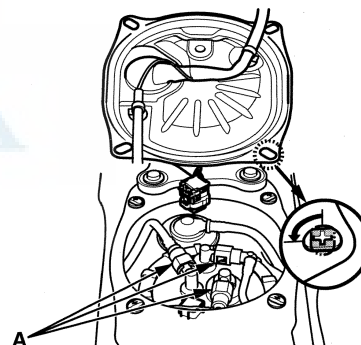
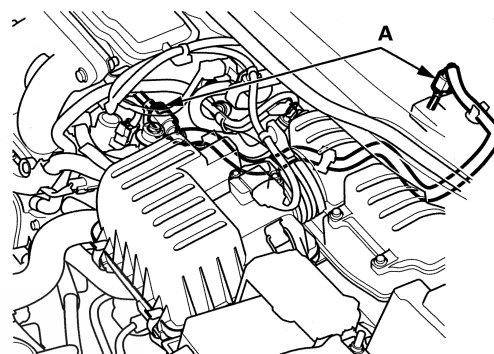
NOTE:

- When you replace a retainer, use the same size and manufacturer as the original retainer.
- The fuel line/quick-connect fittings retainer (L) can be reused once.

Location	Manufacturer	Retainer Color	Line Diameter
A	Tokai DTR	Blue green	0.3 in (8.0 mm)
B	Tokai DTR	Green	0.25 in (6.3 mm)
C	Sanoh	White	0.4 in (9.5 mm)
D	Tokai	Blue green	0.3 in (8.0 mm)
E	Tokai	Blue green	0.3 in (8.0 mm)
F	Tokai	Blue green	0.3 in (8.0 mm)
G	Tokai DTR	Natural	0.5 in (12 mm)
H	Tokai DTR	Natural	0.5 in (12 mm)
I	Tokai DTR	Natural	0.5 in (12 mm)
J	Tokai DTR	Natural	0.5 in (12 mm)
K	Sanoh	White	0.5 in (12 mm)
L	Tokai DTR	Green	0.7 in (19 mm)

NOTE: Before you work on the fuel lines and fittings, read the Fuel Line/Quick-Connect Fitting Precautions (see page 11-287).

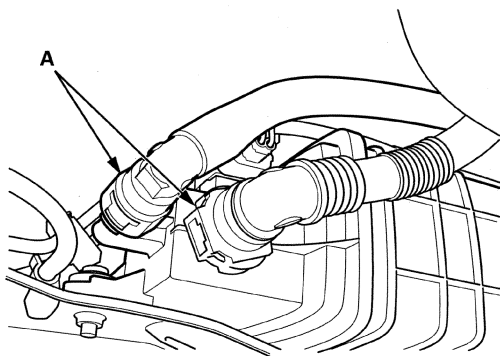
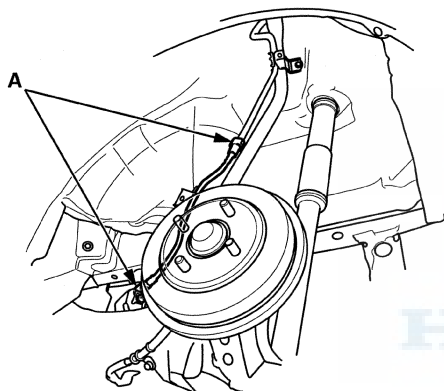
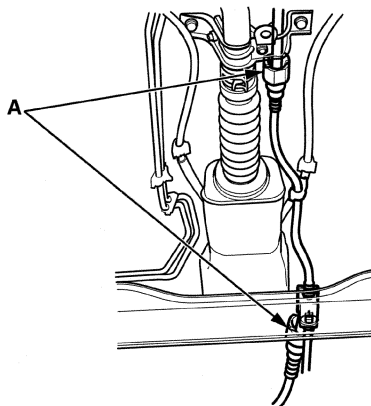
1. Relieve the fuel pressure (see page 11-279), but leave the battery disconnect.
2. Check the fuel quick-connect fittings (A) for dirt, and clean them if needed.



(cont'd)

Fuel Supply System

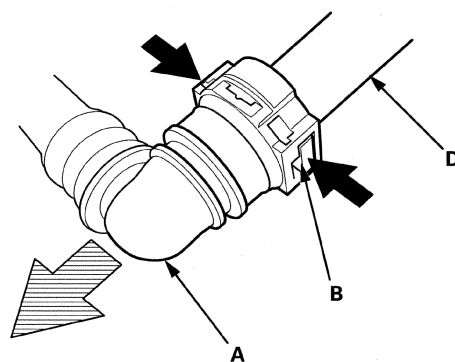
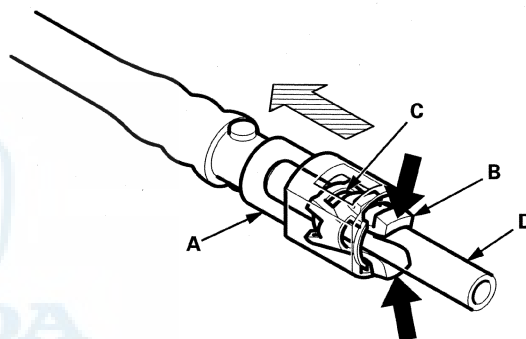
Fuel Line/Quick-Connect Fitting Removal (cont'd)



3. Place a rag or shop towel over the quick-connect fitting. Hold the connector (A) with one hand, and squeeze the retainer tabs (B) with the other hand to release them from the locking tabs (C). Pull the connector off:

NOTE:

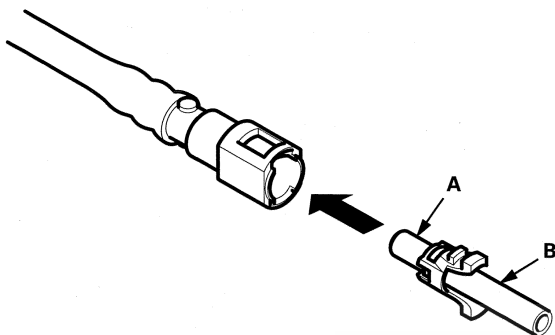
- Be careful not to damage the line (D) or other parts. Do not use tools.
- If the connector does not move, keep the retainer tabs pressed down, and alternately pull and push the connector until it comes off easily.
- Do not remove the retainer from the line; once removed, the retainer must be replaced with a new one.





4. Check the contact area (A) of the line (B) for dirt or damage:

- If it is dirty, clean the connector, and dry it with compressed air.
- If it is rusty or damaged, replace the fuel pump, the fuel filter, or fuel feed line.

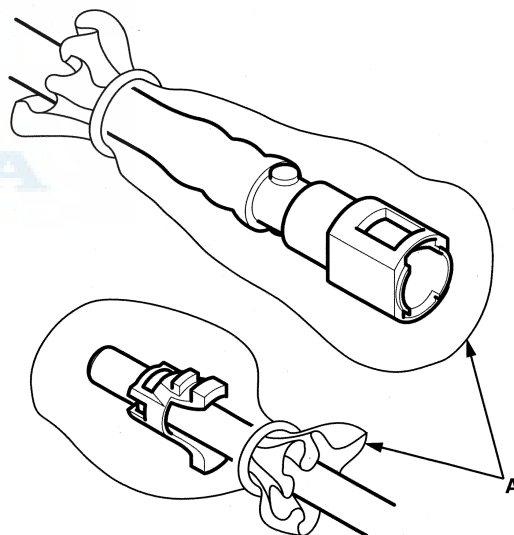


5. To prevent damage and keep foreign matter out, cover the disconnected connector and line ends with plastic bags (A).

NOTE: The retainer cannot be reused once it has been removed from the line.

Replace the retainer when:

- replacing the fuel rail.
- replacing the fuel feed line.
- replacing the fuel pump.
- replacing the fuel filter.
- replacing the fuel gauge sending unit.
- replacing the EVAP purge line.
- replacing the EVAP canister.
- replacing the fuel fill pipe.
- replacing the fuel tank.
- replacing the suction tube.
- it has been removed from the line.
- it is damaged.

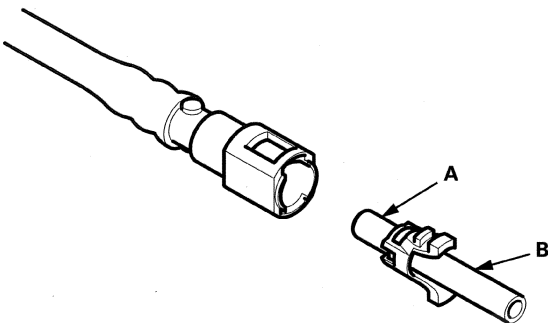


Fuel Supply System

Fuel Line/Quick-Connect Fitting Installation

NOTE: Before you work on the fuel lines and fittings, read the Fuel Line/Quick-Connect Fitting Precautions (see page 11-287).

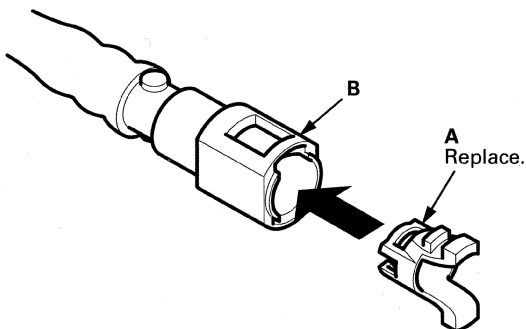
1. Check the contact area (A) of the line (B) for dirt or damage, and clean it if needed.



2. Insert a new retainer (A) into the connector (B) if the retainer is damaged, or after:

- replacing the fuel rail.
- replacing the fuel feed line.
- replacing the fuel pump.
- replacing the fuel filter.
- replacing the fuel gauge sending unit.
- replacing the EVAP purge line.
- replacing the EVAP canister.
- replacing the fuel fill pipe.
- replacing the fuel tank.
- replacing the suction tube.
- it has been removed from the line.
- it is damaged.

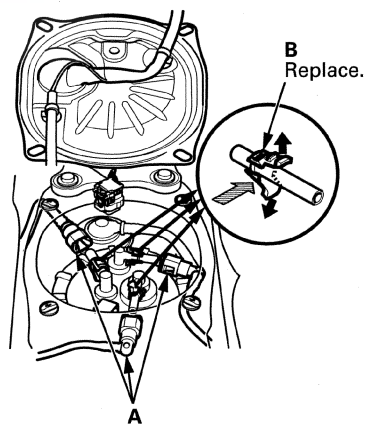
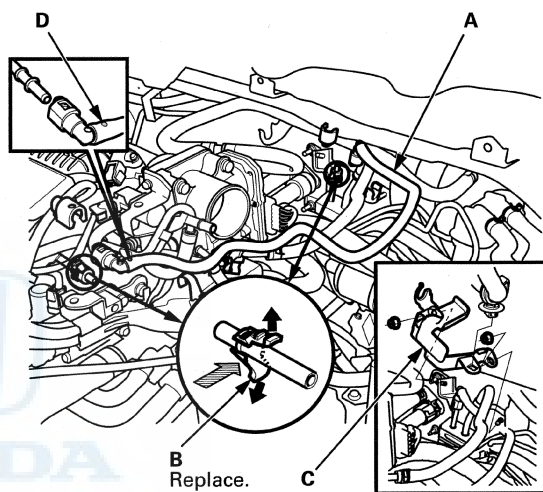
NOTE: Use the same manufacturer retainer and the same size when replacing the retainer (see page 11-287).

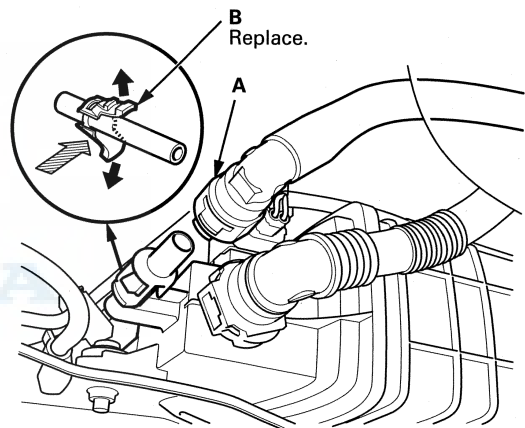
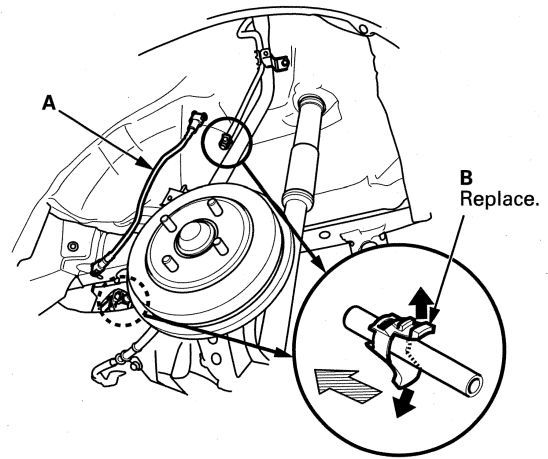
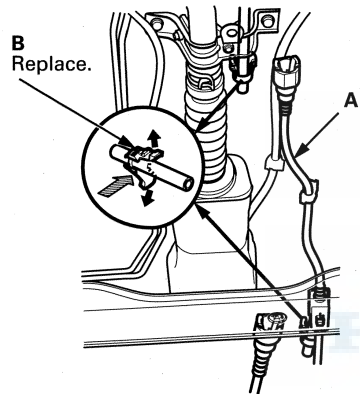
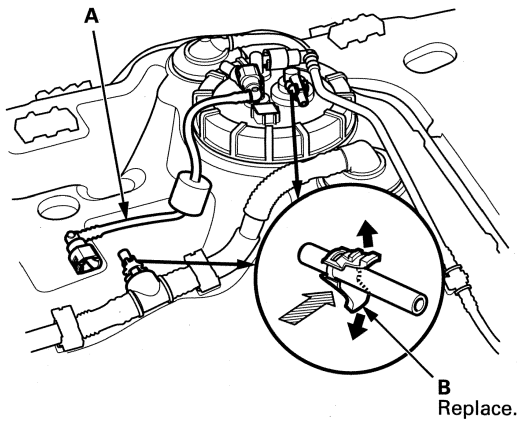


3. Before connecting a new fuel tube/quick-connect fitting assembly (A), remove the old retainer (B) from the mating line.

NOTE:

- When replacing the fuel tube/quick-connect fitting assembly in the engine compartment, remove the air cleaner (see page 11-307), and the cover (C).
- When installing the fuel tube/quick-connect fitting assembly at the engine compartment, align the mark (D) on the fuel tube.





(cont'd)

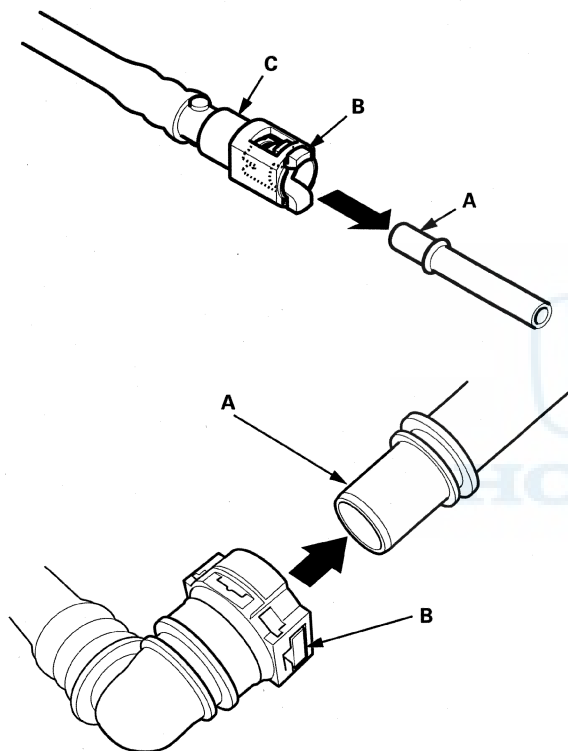
Fuel Supply System

Fuel Line/Quick-Connect Fitting Installation (cont'd)

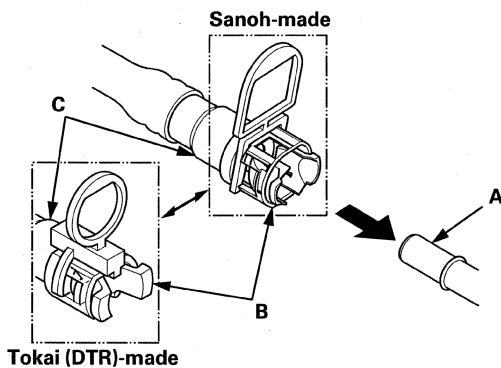
4. Align the quick-connect fittings with the line (A), and align the retainer locking tabs (B) with the connector grooves (C). Then press the quick-connect fittings onto the line until both retainer tabs lock with a clicking sound.

NOTE: If it is hard to connect, put a small amount of new engine oil on the line end.

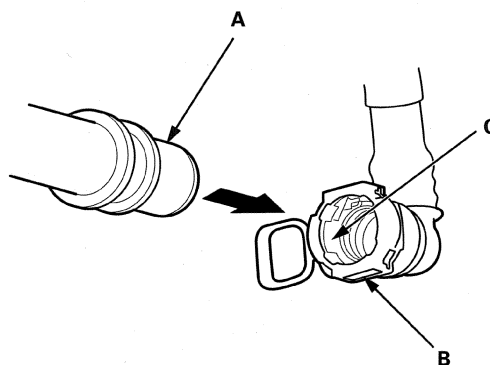
Connection with new retainer



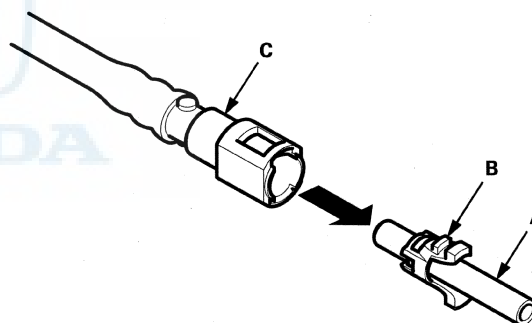
Connection to new fuel line



Connection to new fuel line: Fuel tank vapor control valve hose



Reconnection to existing retainer





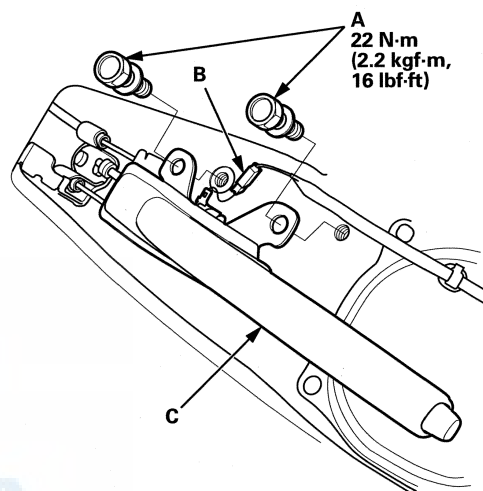
Fuel Tank Unit Removal and Installation

Special Tools Required

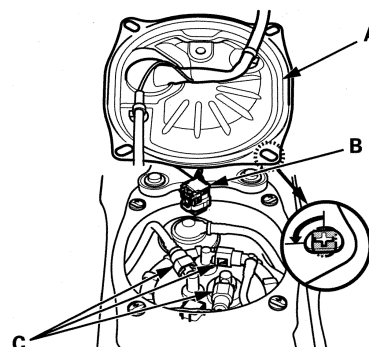
Fuel Sender Wrench 07AAA-S0XA100

Removal

1. Relieve the fuel pressure (see page 11-279).
2. Remove the center console (see page 20-93).
3. Remove the bolts (A) and the wire harness (B), then remove the parking brake lever (C).



4. Remove the access panel (A) from the floor.

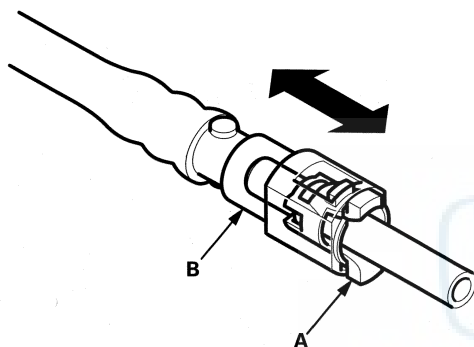


5. Disconnect the fuel tank unit 4P connector (B).
6. Disconnect the quick-connect fittings (C) from the fuel tank unit.

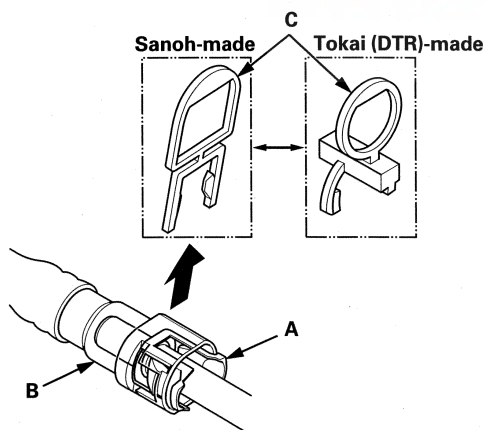
5. When you are reconnecting the connector with the old retainer, make sure the connection is secure and the tabs (A) are firmly locked into place; check visually and also by pulling the connector (B). When you replacing the fuel line with a new one, make sure you remove the ring pull (C) upwards after you confirm the connection is secure.

NOTE: Before you remove the ring pull, make sure the fuel line connection is secure. If the connection is not secure, the ring pull could break when you try to remove it.

Reconnection to existing retainer



Connection to new fuel line



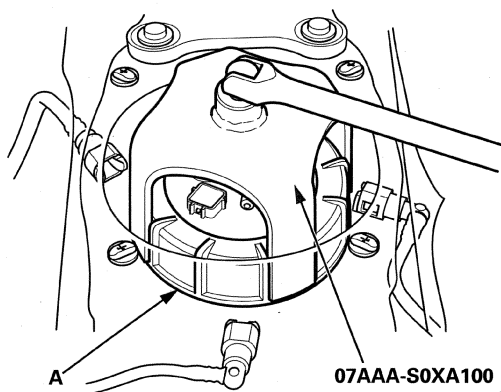
6. Reconnect the negative cable to the battery, and turn the ignition switch to ON (II). The fuel pump will run for about 2 seconds, and the fuel pressure will rise. Repeat this two or three times, then make sure there are no fuel leaks.

(cont'd)

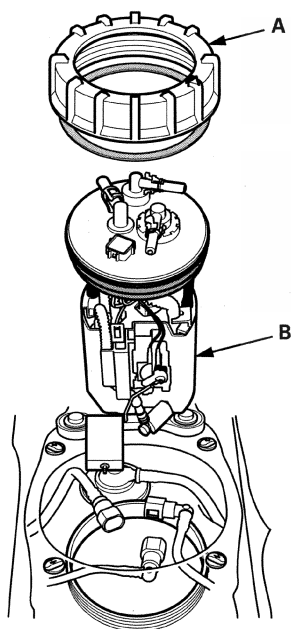
Fuel Supply System

Fuel Tank Unit Removal and Installation (cont'd)

7. Using the special tool, loosen the locknut (A).



8. Remove the locknut (A) and the fuel tank unit (B).

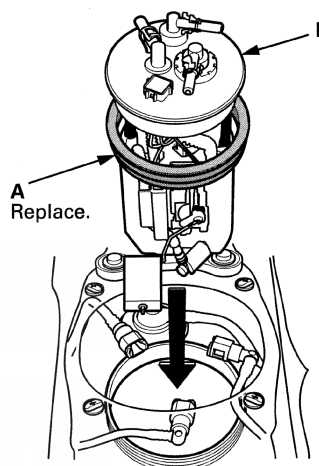


Installation

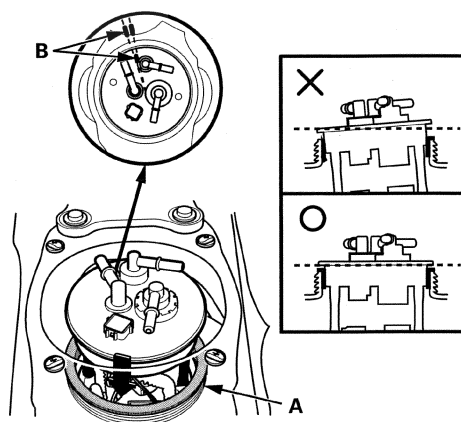
1. Temporarily attach a new base gasket (A) to the fuel tank unit (B), then insert the fuel tank unit partially into the fuel tank.

NOTE:

- Be careful not to damage the new base gasket.
- Be careful not to bend the fuel gauge sending unit.
- Do not coat the base gasket with oil.



2. Transfer the base gasket (A) from the fuel tank unit to the fuel tank.



3. Align the marks (B) on the fuel tank and fuel tank unit, then insert the fuel tank unit into the fuel tank until the fuel tank unit rests on top of the base gasket.

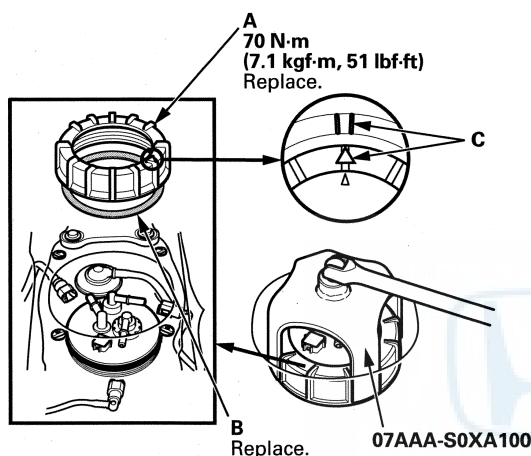
NOTE: To avoid a fuel leak, check the base gasket, visually or by hand, to make sure it is not pinched.



4. Using the special tool, tighten a new locknut (A) with a new locknut plate (B) to the specified torque.

NOTE:

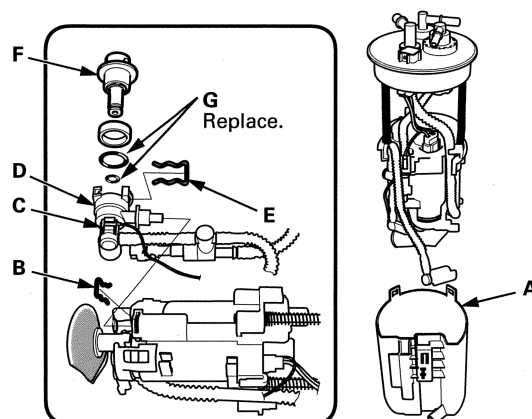
- Before tightening, align the marks (C) on the fuel tank and the locknut.
- After tightening, make sure the marks are still aligned.
- After installation, check the base gasket, visually or by hand, to make sure it is not pinched.



5. Connect the fuel tank unit 4P connector, then connect the quick-connect fitting, the suction hose, and the fuel vapor hose.
6. Reconnect the negative cable to the battery, and turn the ignition switch to ON (II). The fuel pump will run for about 2 seconds, and fuel pressure will rise. Repeat this two or three times, then make sure there are no fuel leaks.
7. Reinstall the access panel, the parking brake lever, and the center console.

Fuel Pressure Regulator Replacement

1. Remove the fuel tank unit (see page 11-295).
2. Remove the reservoir (A).



3. Remove the clip (B) and the ground wire (C), then remove the bracket (D).
4. Remove the clip (E), then remove the fuel pressure regulator (F).
5. Install the parts in the reverse order of removal with new O-rings (G) and a new bracket. When installing the fuel tank unit, align the marks on the unit and the fuel tank (see page 11-296).

NOTE:

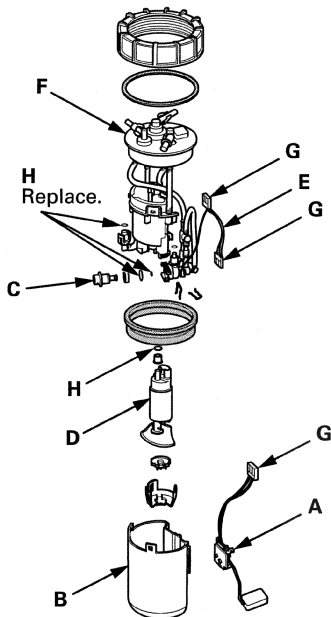
- Coat the O-rings with clean engine oil; do not use any other oils or fluids.
- Do not pinch the O-rings during installation.
- Use all the new parts supplied in the pressure regulator replacement kit.

Fuel Supply System

Fuel Filter Replacement

The fuel filter should be replaced whenever the fuel pressure drops below the specified value (see page 11-282), after making sure that the fuel pump and the fuel pressure regulator are OK.

1. Remove the fuel tank unit (see page 11-295).
2. Remove the fuel gauge sending unit (A), and the reservoir (B).



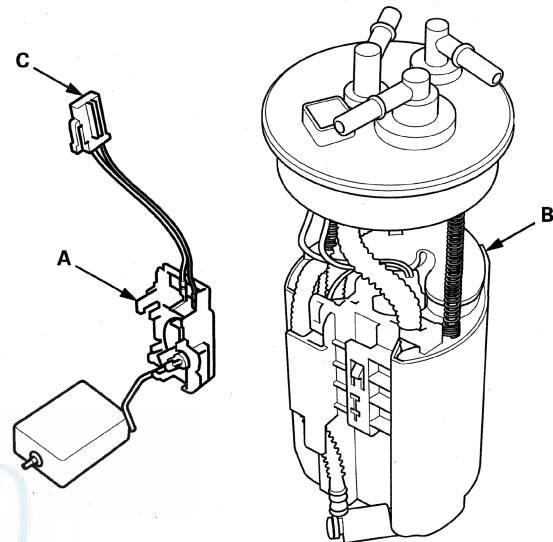
3. Remove the fuel pressure regulator (C), the fuel pump (D), and the wire harness (E) from the fuel filter set (F).
4. Check these items before installing the fuel tank unit:
 - When connecting the wire harness, make sure the connection is secure and the connectors (G) are firmly locked into place.
 - When installing the fuel gauge sending unit, make sure the connection is secure and the connector is firmly locked into place. Be careful not to bend or twist it excessively.
5. Install the parts in the reverse order of removal with new O-rings (H). When installing the fuel tank unit, align the marks on the unit and the fuel tank (see page 11-296).

NOTE:

- Coat the O-rings with clean engine oil; do not use any other oil or fluid.
- Do not pinch the O-rings during installation.
- Use all the new parts supplied in the fuel filter replacement kit.

Fuel Pump/Fuel Gauge Sending Unit Replacement

1. Remove the fuel tank unit (see page 11-295).
2. Remove the fuel level sensor (fuel sending unit) (A) from the fuel tank unit (B).

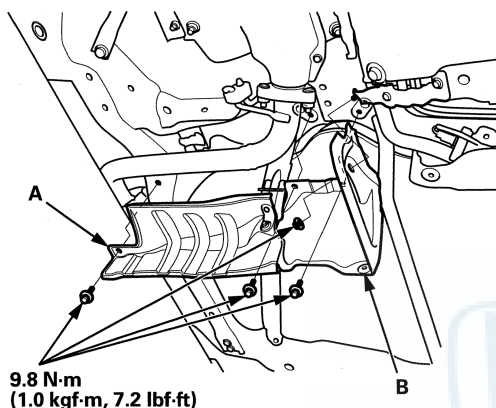


3. Check these items before installing the fuel tank unit:
 - When connecting the wire harness, make sure the connection is secure and the connector (C) is firmly locked into place.
 - When installing the fuel gauge sending unit, make sure the connection is secure. Be careful not to bend or twist it excessively.
4. Install the parts in the reverse order of removal. When installing the fuel tank unit, align the marks on the unit and the fuel tank (see page 11-296).

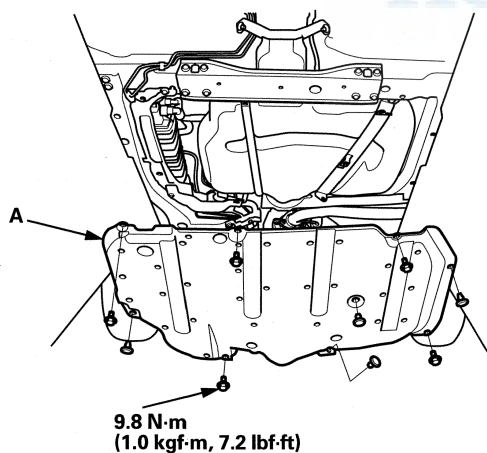


Fuel Tank Replacement

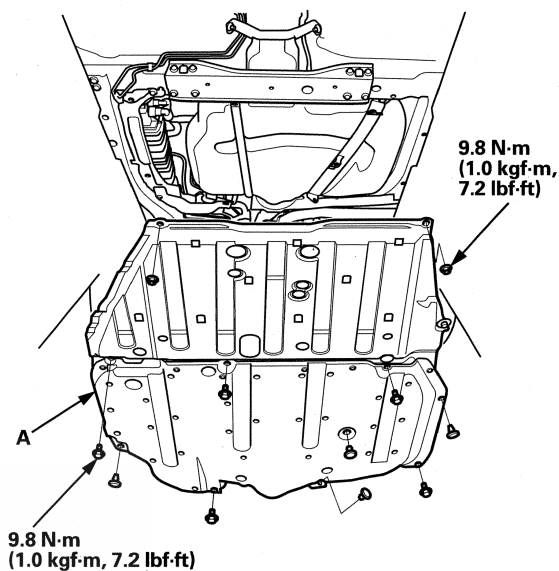
1. Drain the fuel tank until it is less than half full (see page 11-282).
2. Reinstall the fuel tank unit without connecting the fuel tank unit 4P connector and the quick-connect fitting (feed line) (see page 11-295).
3. Raise the vehicle on a lift (see page 1-14).
4. Remove the fuel tank guard (A), and the fuel tank protector (B).



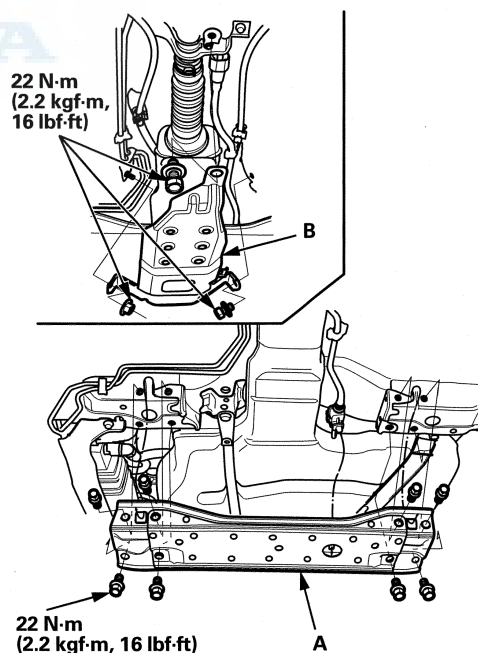
5. Except LX (A/T model): Remove the fuel tank cover (A).



6. LX (A/T model): Remove the floor under cover assembly (A).



7. Remove the front floor cross beam (A), and the tank mount bracket (B).

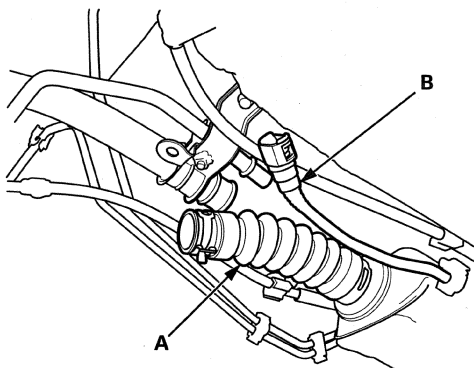


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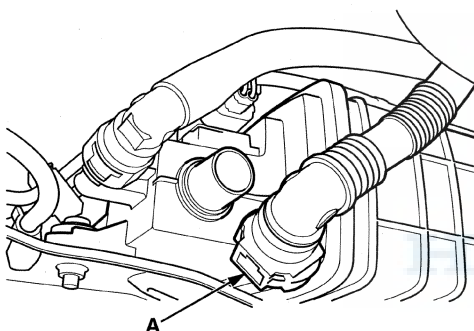
Fuel Supply System

Fuel Tank Replacement (cont'd)

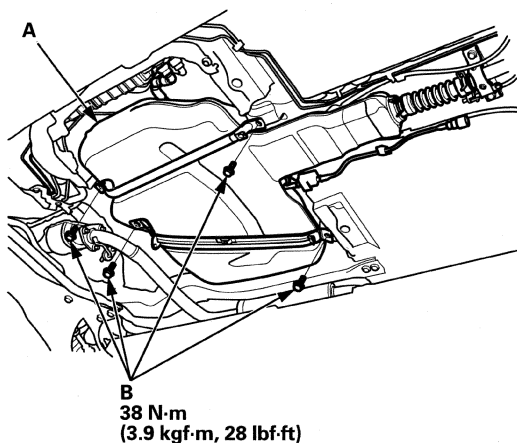
8. Disconnect the fuel fill hose (A), and the quick-connect fitting (fuel suction tube) (B).



9. Disconnect the fuel tank vapor control valve hose (A).



10. Place a jack or other support under the fuel tank (A), then remove the strap bolts (B).



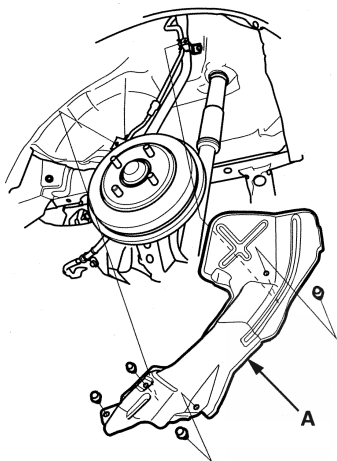
11. Remove the fuel tank.
12. Install the parts in the reverse order of removal.

NOTE: When you replacing the fuel tank with a new one, make sure you remove the ring pull upwards after you confirm the connection is secure (see page 11-292).

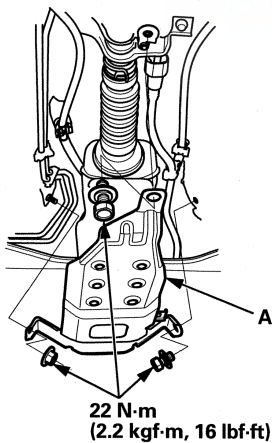


Fuel Fill Pipe Removal/Installation

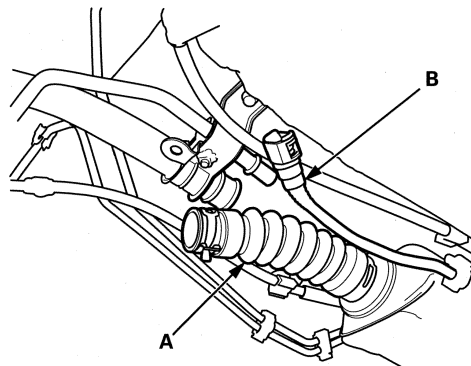
1. Relieve the fuel pressure (see page 11-279).
2. Drain the fuel tank (see page 11-282).
3. Remove the fuel fill cap.
4. Remove the left rear wheel.
5. Remove the fuel fill pipe cover (A).



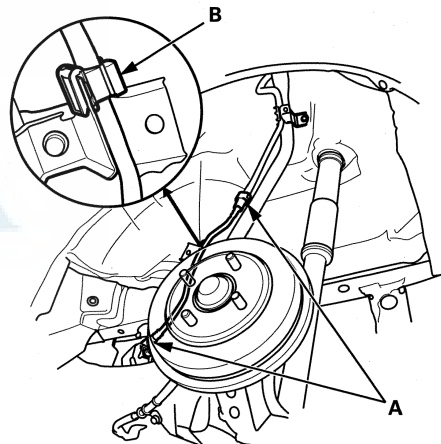
6. Raise the vehicle on a lift (see page 1-14).
7. Remove the tank mount bracket (A).



8. Disconnect the fuel fill hose (A), and the quick-connect fitting (fuel suction tube) (B).



9. Remove the quick-connect fittings (A) (see page 11-289). Remove the clamp (B), then remove the non-return valve tube from the fuel fill pipe.

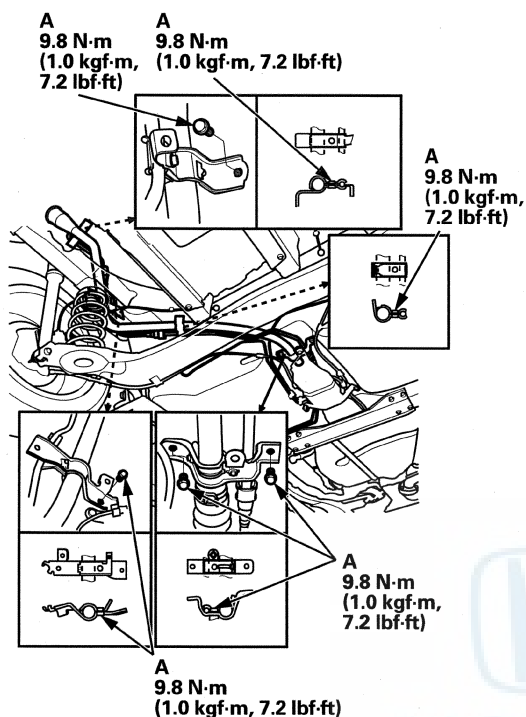


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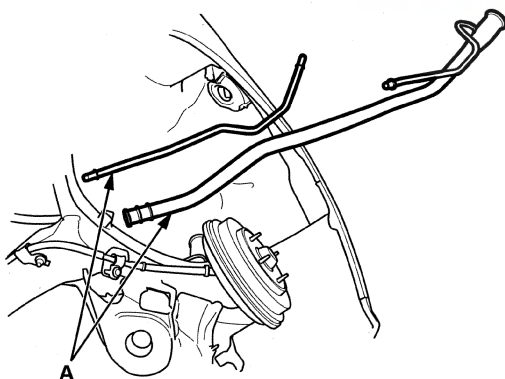
Fuel Supply System

Fuel Fill Pipe Removal/Installation (cont'd)

10. Remove the bolts (A).



11. Remove the fuel fill pipes (A).



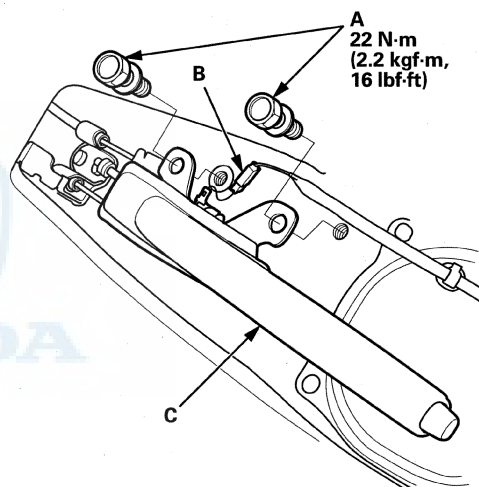
12. Install the parts in the reverse order of removal.

NOTE: Before connecting the fuel fill pipe and the quick-connect fitting, check for dirt, and clean it if needed, taking care not to damage the fuel fill pipe and other parts.

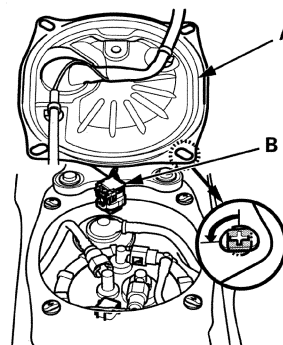
Fuel Gauge Sending Unit Test

NOTE: For the fuel gauge system circuit diagram, refer to the Gauges Circuit Diagram (see page 22-278).

1. Check the No. 22 METER (7.5 A) fuse in the under-dash fuse/relay box before testing.
2. Check for body electrical system DTCs:
 - If no DTCs are found, go to step 3.
 - If DTC B1175 or B1176 is indicated, go to the indicated DTC's troubleshooting.
3. Turn the ignition switch to LOCK (0).
4. Remove the center console (see page 20-93).
5. Remove the bolts (A) and the wire (B), then remove the parking brake lever (C).



6. Remove the access panel (A) from the floor.



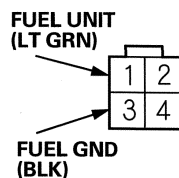
7. Disconnect the fuel tank unit 4P connector (B).



8. Measure the voltage between fuel tank unit 4P connector terminals No. 1 and No. 3 with the ignition switch turned to ON (II). There should be battery voltage:

- If the voltage is OK, go to step 9.
- If the voltage is not as specified, check for:
 - a short in the LT GRN wire to ground.
 - an open in the LT GRN or the BLK wire.

FUEL TANK UNIT 4P CONNECTOR



Wire side of female terminals

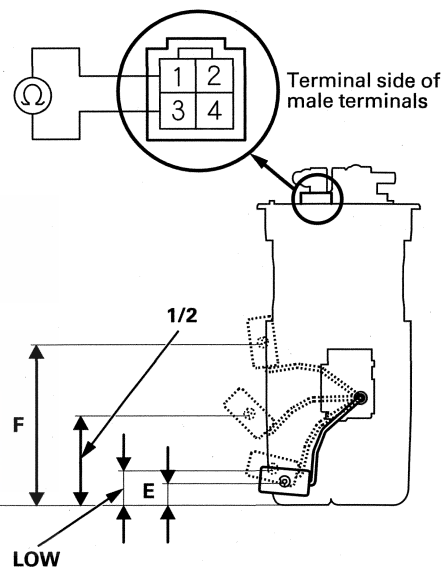
9. Turn the ignition switch to LOCK (0).

10. Remove the fuel tank unit from the fuel tank (see page 11-295).

11. Measure the resistance between fuel tank unit 4P connector terminals No. 1 and No. 3 with the float at E (EMPTY), LOW (LOW FUEL INDICATOR), 1/2 (HALF FULL), and F (FULL) positions.

If you do not get the following readings, replace the fuel gauge sending unit (see page 11-298).

Float Position	F 4.87 in (123.8 mm)	1/2 2.61 in (66.4 mm)	LOW 1.02 in (25.9 mm)	E 0.65 in (16.5 mm)
Resistance (Ω)	19 to 21	194 to 204	520.3 to 671.5	770 to 790



(cont'd)

Fuel Supply System

Fuel Gauge Sending Unit Test (cont'd)

12. Reconnect the fuel tank unit 4P connector.
13. Remove the No. 1 BACK UP (10 A) fuse from the under-dash fuse/relay box for at least 10 seconds, then reinstall it.
14. Turn the ignition switch to ON (II).
15. Check that the pointer of the fuel gauge indicates F with the float at F:
 - If the pointer of the fuel gauge does not indicate F, replace the gauge control module (see page 22-294).
 - If the gauge is OK, the test is complete.

NOTE:

- The pointer of the fuel gauge returns to the bottom of the gauge dial when the ignition switch is to LOCK (0), regardless of the fuel level.
- Remove the No. 1 BACK UP (10 A) fuse from the under-dash fuse/relay box for at least 10 seconds after completing the test, otherwise it may take up to 20 minutes for the fuel gauge to indicate the correct fuel level.

Low Fuel Indicator Test

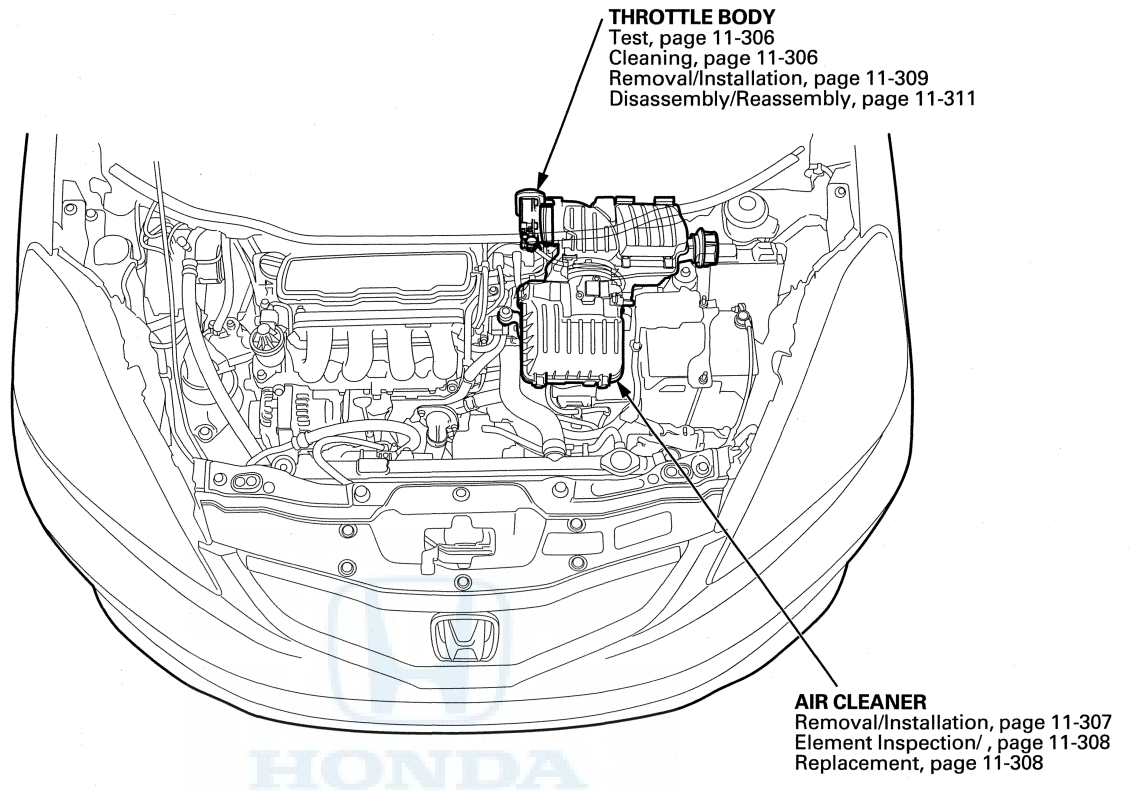
1. Do the gauge self-diagnostic test (see page 22-274):
 - If the low fuel indicator flashes, go to step 2.
 - If the low fuel indicator does not flash, replace the gauge control module (see page 22-294).
2. Check for body electrical system DTCs:
 - If any DTCs are indicated, do the indicated DTC's troubleshooting.
 - If no DTCs are indicated, go to step 3.
3. Do the fuel gauge sending unit test (see page 11-302).



Intake Air System



Component Location Index

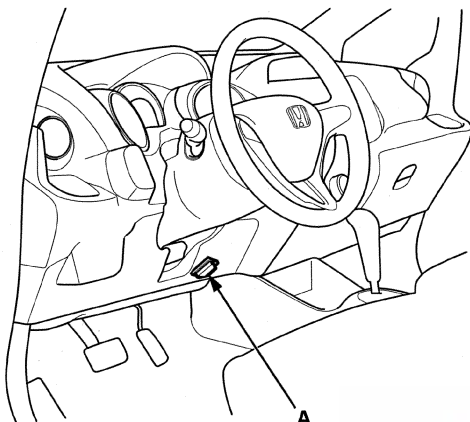


Intake Air System

Throttle Body Test

NOTE: If the malfunction indicator lamp (MIL) has been reported on, check for diagnostic trouble codes (DTCs).

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the ECM/PCM. If it doesn't, go to the DLC circuit troubleshooting (see page 11-193).
4. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
5. Check the REL TP SENSOR in the DATA LIST with the HDS. The reading should be below 2.46 deg. If it is not, clean the throttle body (see page 11-306).

Throttle Body Cleaning

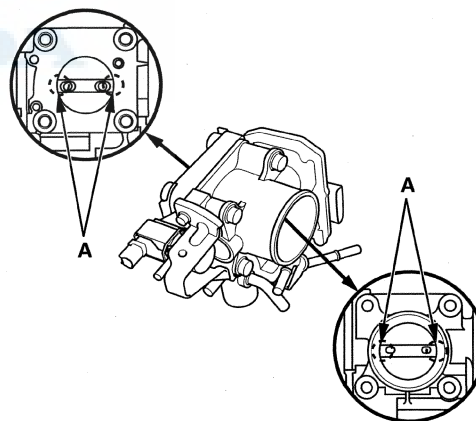
⚠ CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is in ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

1. Make sure the ignition switch is turned to LOCK (0).
2. Check for damage to the air cleaner. If the air cleaner is damaged, replace it (see page 11-307).
3. Remove the throttle body (see page 11-309).
4. Clean off the carbon from the throttle valve and inside the throttle body with a paper towel soaked in throttle plate cleaner.

NOTE:

- Always remove the throttle body to clean it.
- Be careful not to pinch your fingers.
- To avoid removing the molybdenum coating, do not clean the bearing area of the throttle shaft (A).
- Do not spray throttle plate cleaner directly on the throttle body.
- Use Honda genuine throttle plate cleaner.

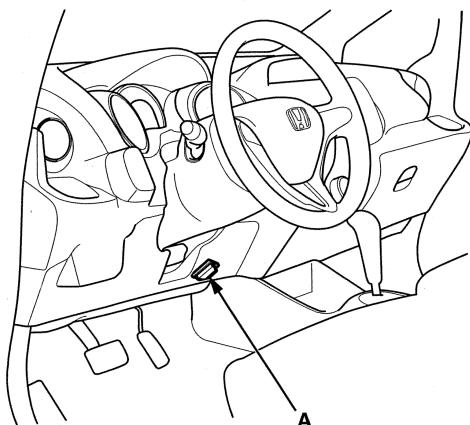


5. Reinstall the throttle body (see page 11-309).



Air Cleaner Removal/Installation

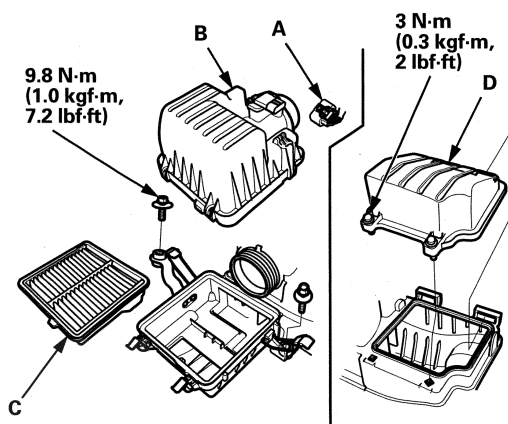
6. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



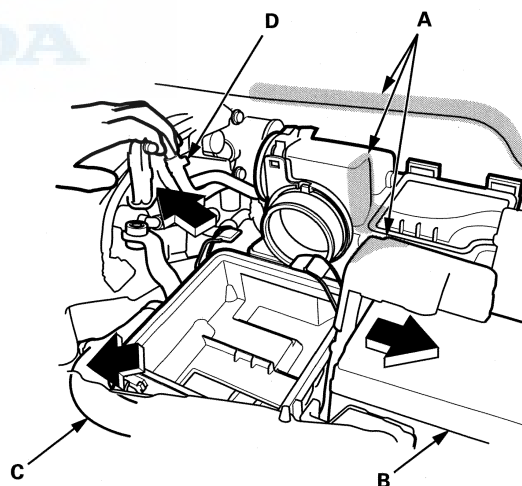
7. Turn the ignition switch to ON (II).
8. Reset the ECM/PCM with the HDS.
9. Select the ETCS TEST in the INSPECTION MENU with the HDS.
10. Select the TP POSITION CHECK, then clear the throttle position (TP) learned value.
11. Turn the ignition switch to LOCK (0).
12. Turn the ignition switch to ON (II), and wait 2 seconds without pressing the accelerator pedal.
13. Do the ECM/PCM idle learn procedure (see page 11-268).

1. Disconnect the MAF sensor/IAT sensor connector(A), then remove the air cleaner cover (B) and the air cleaner element (C).

NOTE: Be careful not to damage the MAF sensor/IAT sensor on the air cleaner cover.



2. Remove the air cleaner chamber (D).
3. Apply protective tape to the air cleaner, the cowl cover, and the battery terminal fuse box (A) as shown.



4. Remove the battery hold down, and reposition the battery (B). Reposition the radiator upper hose (C), and the breather pipe (D) as shown.

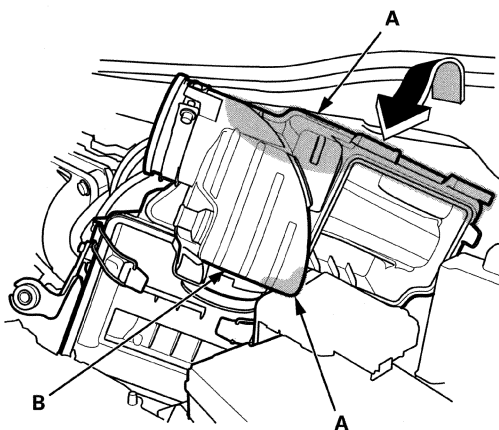
NOTE: Do not disconnect the battery terminals.

(cont'd)

Intake Air System

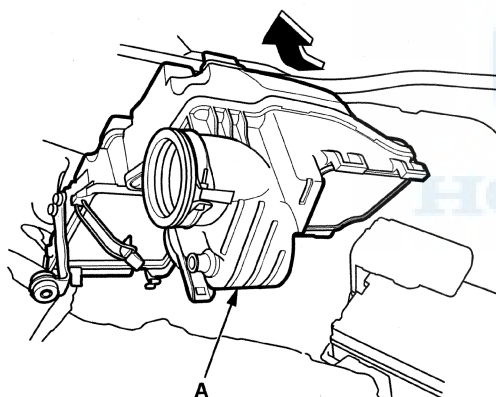
Air Cleaner Removal/Installation (cont'd)

5. Apply protective tape to the air cleaner (A) as shown.



6. Turn the air cleaner (B) case as shown.

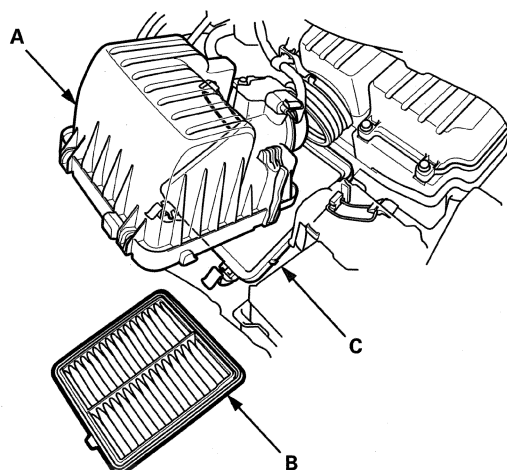
7. Remove the air cleaner case (A) as shown.



8. Install the parts in the reverse order of removal.

Air Cleaner Element Inspection/Replacement

1. Open the air cleaner housing cover (A).



2. Remove the air cleaner element (B) from the air cleaner housing (C).

3. Check the air cleaner element for damage, dirt, or clogging. If it is damaged or clogged, replace it.

NOTE: Do not use compressed air to clean the air cleaner element.

4. Clean and remove any debris from inside the air cleaner housing.

5. Install the parts in the reverse order of removal:

- If you did not replace the air cleaner element, this procedure is complete.
- If the maintenance minder required air cleaner element replacement, reset the maintenance minder (see page 3-6).
- If the idle speed fluctuates, do the idle speed inspection (see page 11-267).



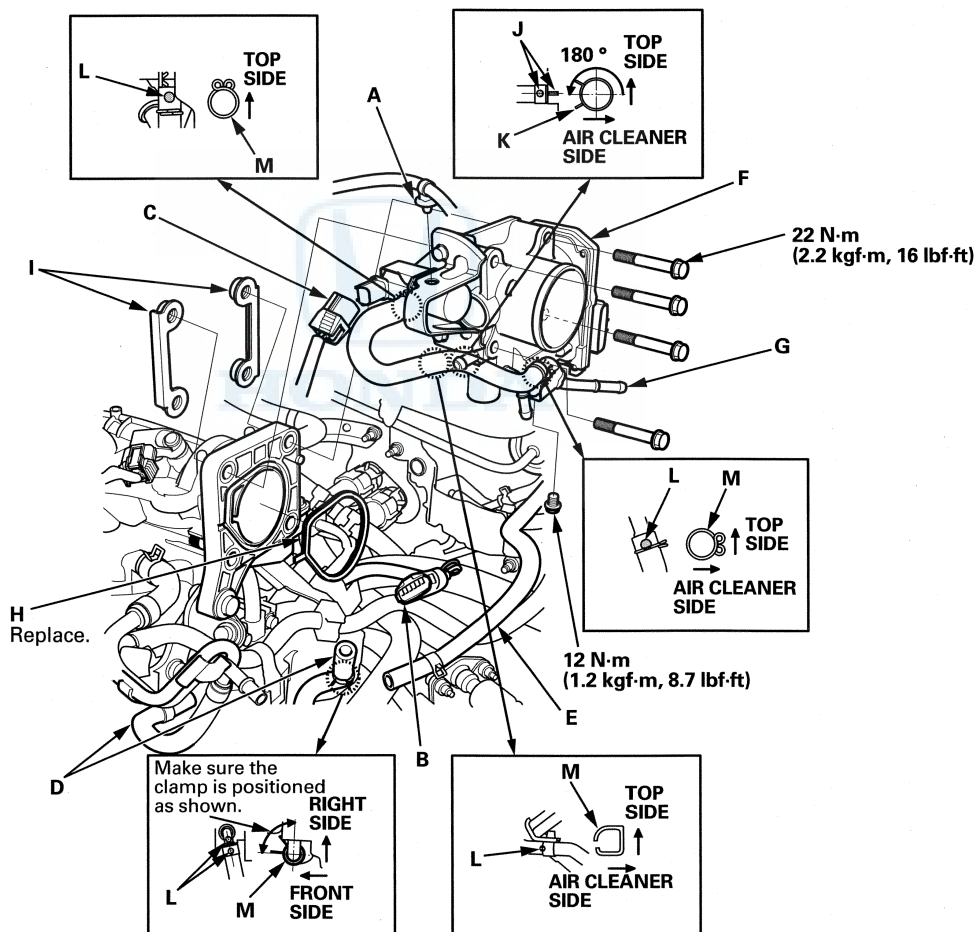
Throttle Body Removal/Installation

⚠ CAUTION

Do not insert your fingers into the installed throttle body when you turn the ignition switch to ON (II) or while the ignition switch is in ON (II). If you do, you will seriously injure your fingers if the throttle valve is activated.

NOTE: If you are replacing or cleaning the throttle body, start at step 1. If you are removing the throttle body temporarily, begin at step 4.

1. Connect the HDS to the DLC while the engine is stopped.
2. Select the INSPECTION MENU on the HDS.
3. Do the TP POSITION CHECK in the ETCS TEST.
4. Turn the ignition switch to LOCK (0).
5. Remove the air cleaner (see page 11-307).
6. Remove the harness clamp (A).



7. Disconnect the throttle body connector (B), and the EVAP canister purge valve connector (C).
8. Disconnect and plug the water bypass hoses (D) and the purge hose (E).
9. Remove the throttle body (F).
10. Remove the purge pipe (G), the water bypass hoses, and the purge hose from the throttle body.

(cont'd)

Intake Air System

Throttle Body Removal/Installation (cont'd)

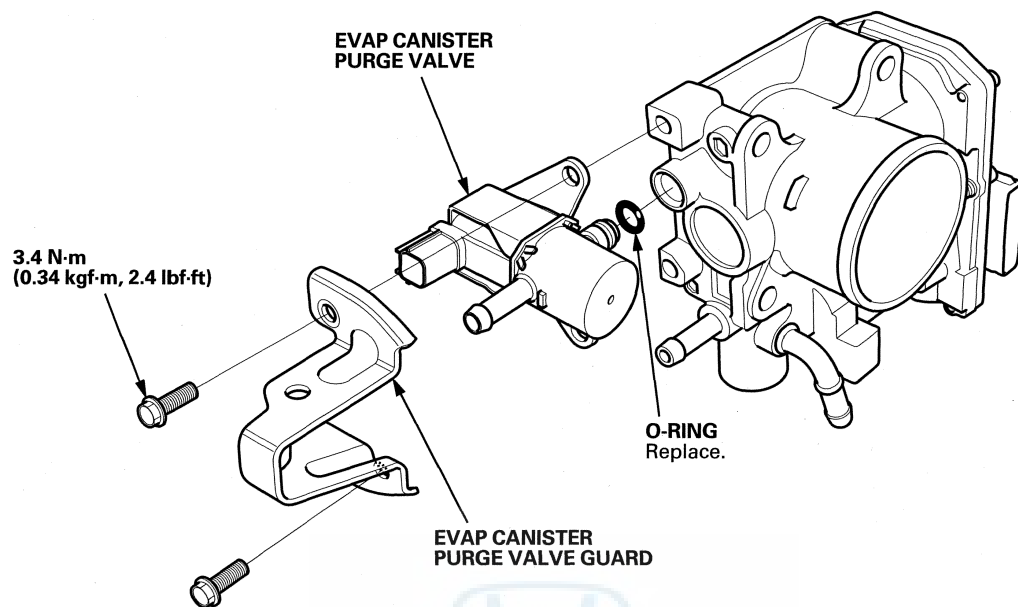
11. Install the parts in the reverse order of removal with a new gasket (H), then refill the radiator with engine coolant (see page 10-8).

NOTE:

- If you replace or clean the throttle body, go to step 12.
 - If you did not replace or clean the throttle body, this procedure is complete.
 - Be careful not to drop or damage the plates (I).
 - Align the marks (J) on the hose and throttle body, then insert the hose. Make sure the clamp (K) is positioned as shown.
 - Align the mark (L) on the hose as shown, then insert the hose. Make sure the clamp (M) is positioned as shown.
12. Turn the ignition switch to ON (II).
 13. Reset the ECM/PCM with the HDS.
 14. Select the ETCS TEST in the INSPECTION MENU with the HDS.
 15. Select the TP POSITION CHECK, then clear the throttle position (TP) learned value.
 16. Turn the ignition switch to LOCK (0).
 17. Turn the ignition switch to ON (II), and wait 2 seconds without pressing the accelerator pedal.
 18. Do the ECM/PCM idle learn procedure (see page 11-268).

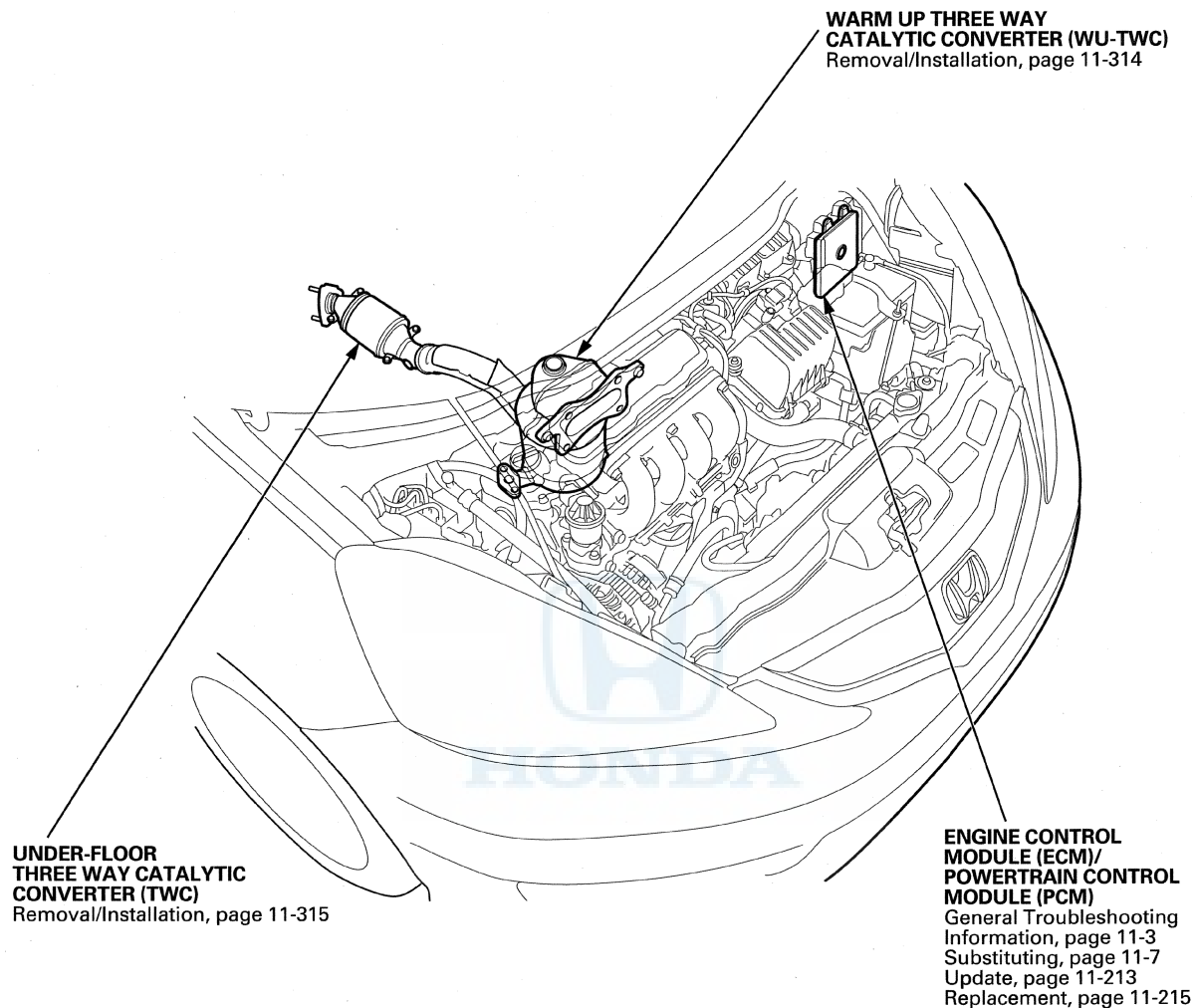


Throttle Body Disassembly/Reassembly



Catalytic Converter System

Component Location Index





DTC Troubleshooting

DTC P0420: Catalyst System Efficiency Below Threshold

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If some of the DTCs listed below are stored at the same time as DTC P0420, troubleshoot them first, then recheck for DTC P0420.

P0137, P0138: Secondary HO2S (Sensor 2)

P0141: Secondary HO2S (Sensor 2) heater

P0300: Random misfire

P0301–P0304: No. 1, No. 2, No. 3, or No. 4 cylinder misfire detected

- Poor quality fuel may cause this DTC.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Test-drive under these conditions:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - A/T in D, M/T in 4th or 5th
 - Vehicle speed between 45–75 mph (72–120 km/h) for 5 minutes or more with cruise control set
 - Vehicle speed between 55–75 mph (88–120 km/h) for 10 seconds, then decelerate (with throttle fully closed). Repeat this at least three times.
 - Maintain the vehicle speed at 55 mph (88 km/h) for 5 minutes or more with cruise control set

5. Monitor the OBD STATUS for DTC P0420 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 6.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 4 and recheck.

6. Turn the ignition switch to LOCK (0).
7. Replace the WU-TWC (see page 11-314).
8. Turn the ignition switch to ON (II).
9. Reset the ECM/PCM with the HDS.
10. Do the ECM/PCM idle learn procedure (see page 11-268).
11. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
12. Test-drive for about 10 minutes, varying the vehicle speed.
13. Check the CATA MONITOR CONDITION in the DATA LIST with the HDS.

Does the HDS indicate OK?

YES—Go to step 14.

NO—Go to step 11 and recheck.

14. Test-drive under these conditions until a result comes on:
 - Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
 - Vehicle speed at 55 mph (88 km/h) for 5 minutes or more with cruise control set

15. Monitor the OBD STATUS for DTC P0420 in the DTCs MENU with the HDS.

Does the HDS indicate OUT OF CONDITION or NOT COMPLETED?

YES—Go to step 12 and recheck.

NO—Go to step 16.

16. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0420 indicated?

YES—Check the fuel quality, then go to step 1.

NO—Go to step 17.

17. Monitor the OBD STATUS for DTC P0420 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 16, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check the fuel quality, then go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on.

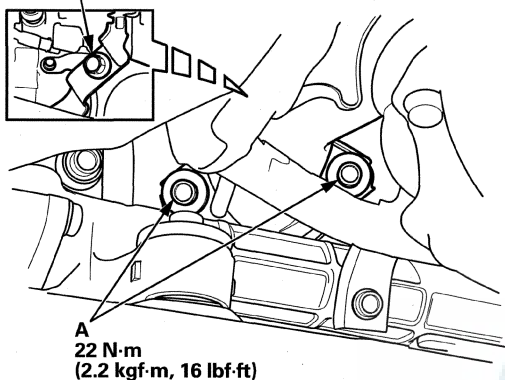
Catalytic Converter System

Warm Up TWC Removal/Installation

NOTE: If the warm up TWC is damaged internally, inspect the under-floor TWC for debris.

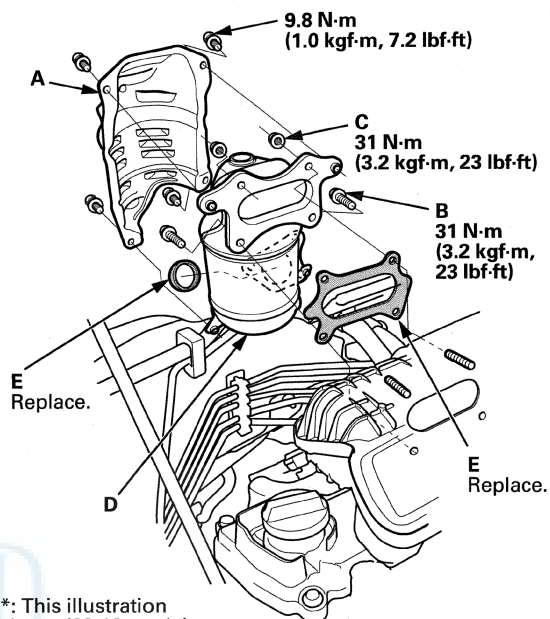
1. Raise the vehicle on a lift (see page 1-14).
2. Remove the bolts (A).

A
44 N·m
(4.5 kgf·m, 33 lbf·ft)



3. Lower the vehicle.
4. Remove the A/F sensor (Sensor 1) (see page 11-208).
5. Remove the EGR pipe (see page 11-328).

6. Remove the cover (A).



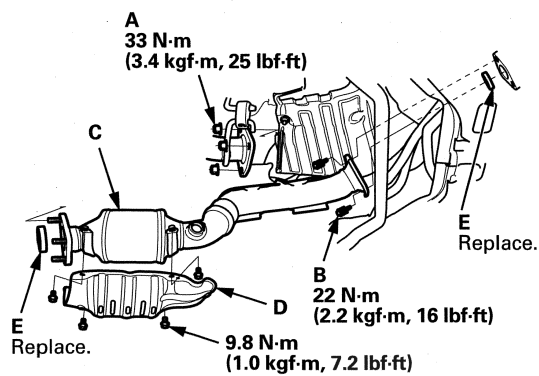
*: This illustration shows '09-10 models.

7. Remove the bolts (B) and the nuts (C).
8. Remove the WU-TWC (D).
9. Install the parts in the reverse order of removal with new gaskets (E).



Under-Floor TWC Removal/Installation

1. Raise the vehicle on a lift (see page 1-14).
2. Remove the secondary HO2S (Sensor 2) (see page 11-208).
3. Remove the nuts (A) and the bolts (B).

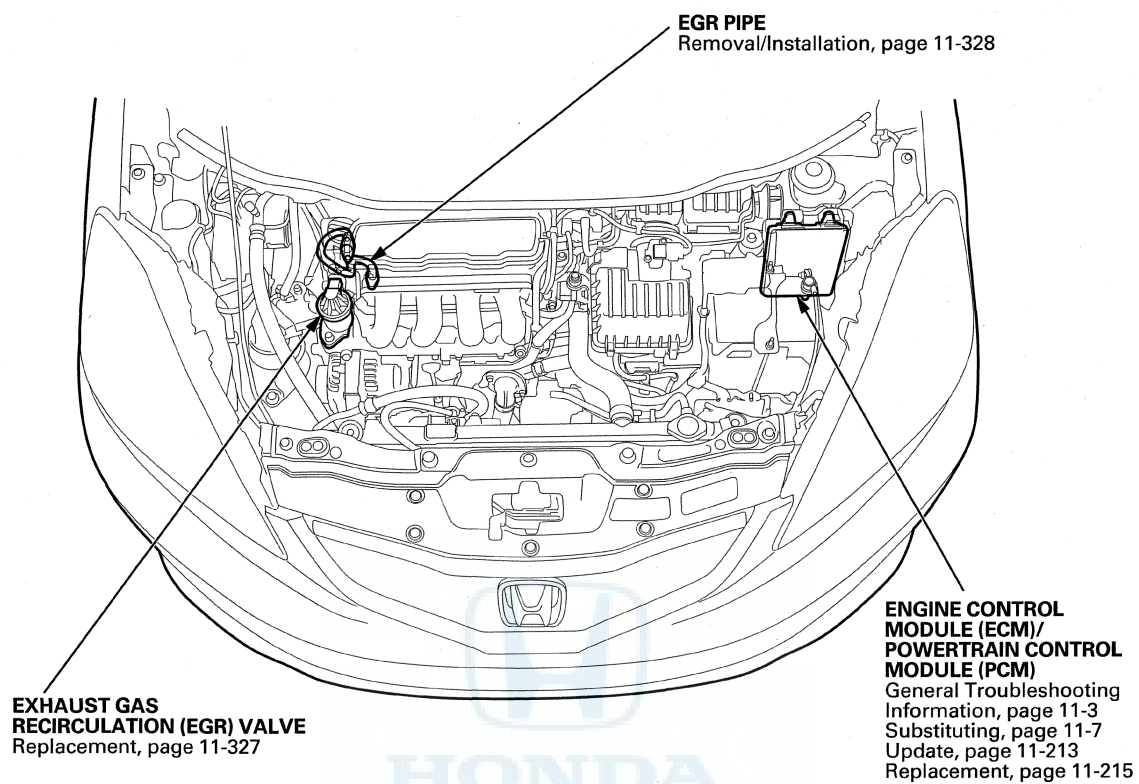


4. Remove the under-floor TWC (C).
5. Remove the cover (D).
6. Install the parts in the reverse order of removal with new gaskets (E).



EGR System

Component Location Index





DTC Troubleshooting

DTC P0400: EGR System Leak Detected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Check for a loose or damaged EGR pipe.

Is the EGR pipe OK?

YES—Go to step 2.

NO—Reconnect or replace the EGR pipe, then go to step 7.

2. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

3. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- A/T in D, M/T in 4th
- Vehicle speed at 25 mph (40 km/h) for 5 minutes or more
- Maintain the vehicle speed at 25 mph (40 km/h) and the engine speed between 1,500—4,000 rpm for 9 seconds or more with cruise control set

4. Monitor the OBD STATUS for DTC P0400 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 5.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for an exhaust gas leak between the EGR pipe and the EGR valve. If the HDS indicates NOT COMPLETED, go to step 3 and recheck.

5. Turn the ignition switch to LOCK (0).

6. Replace the EGR valve (see page 11-327).

7. Turn the ignition switch to ON (II).

8. Reset the ECM/PCM with the HDS.

9. Do the ECM/PCM idle learn procedure (see page 11-268).

10. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- A/T in D, M/T in 4th
- Vehicle speed at 25 mph (40 km/h) for 5 minutes or more
- Maintain the vehicle speed at 25 mph (40 km/h) and the engine speed between 1,500—4,000 rpm for 9 seconds or more with cruise control set

11. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0400 indicated?

YES—Check for a leak between the EGR pipe and the EGR valve, then go to step 1.

NO—Go to step 12.

12. Monitor the OBD STATUS for DTC P0400 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 11, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for a leak between the EGR pipe and EGR valve, then go to step 1. If the HDS indicates NOT COMPLETED, go to step 10.

(cont'd)

EGR System

DTC Troubleshooting (cont'd)

DTC P0401: EGR Insufficient Flow

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Do the EGR TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Go to step 5.

NO—Go to step 7.

5. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- A/T in D, M/T in 4th
- Drive at a steady speed between 55—75 mph (88—120 km/h) for at least 10 seconds
- During the drive, decelerate (with the throttle fully closed) for 5 seconds

6. Monitor the OBD STATUS for DTC P0401 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Clean the intake manifold EGR port (see page 11-327) and the EGR pipe with throttle plate cleaner (see page 11-328). Also, clean the passage inside the EGR valve with throttle plate cleaner, then go to step 9.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EGR valve and the ECM/PCM. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 5 and recheck.

7. Turn the ignition switch to LOCK (0).

8. Replace the EGR valve (see page 11-327).

9. Turn the ignition switch to ON (II).

10. Reset the ECM/PCM with the HDS.

11. Do the ECM/PCM idle learn procedure (see page 11-268).

12. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- A/T in D, M/T in 4th
- Drive at a steady speed between 55—75 mph (88—120 km/h) for at least 10 seconds
- During the drive, decelerate (with the throttle fully closed) for 5 seconds

13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0401 indicated?

YES—Check for poor connections or loose terminals at the EGR valve and the ECM/PCM. If the connections and terminals are OK, go to step 15.

NO—Go to step 14.

14. Monitor the OBD STATUS for DTC P0401 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 13, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the EGR valve and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 12.



15. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

16. Test-drive under these conditions:

- Engine coolant temperature (ECT SENSOR 1) above 158 °F (70 °C)
- A/T in D, M/T in 4th
- Drive at a steady speed between 55–75 mph (88–120 km/h) for at least 10 seconds
- During the drive, decelerate (with the throttle fully closed) for 5 seconds

17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0401 indicated?

YES—Check for poor connections or loose terminals at the EGR valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 16. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 18.

18. Monitor the OBD STATUS for DTC P0401 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 17, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the EGR valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 16. If the ECM/PCM was substituted, go to step 1. If the HDS indicates EXECUTING, keep driving until a result comes on. If the HDS indicates OUT OF CONDITION or NOT COMPLETED, go to step 16.

DTC P0404: EGR Control Circuit Range/Performance Problem

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

4. Do the EGR TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Intermittent failure, the system is OK at this time. Clean any carbon build-up on the EGR valve with throttle plate cleaner. ■

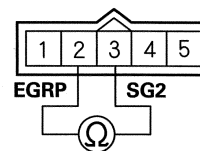
NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).

6. Disconnect the EGR valve 5P connector.

7. At the EGR valve side, measure the resistance between EGR valve 5P connector terminals No. 2 and No. 3.

EGR VALVE 5P CONNECTOR



Terminal side of male terminals

Is there 100 kΩ or more?

YES—Go to step 24.

NO—Go to step 8.

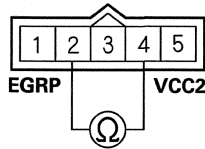
(cont'd)

EGR System

DTC Troubleshooting (cont'd)

8. At the EGR valve side, measure the resistance between EGR valve 5P connector terminals No. 2 and No. 4.

EGR VALVE 5P CONNECTOR



Terminal side of male terminals

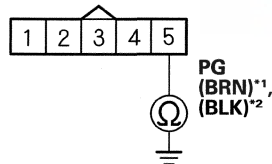
Is there 100 kΩ or more?

YES—Go to step 24.

NO—Go to step 9.

9. Check for continuity between EGR valve 5P connector terminal No. 5 and body ground.

EGR VALVE 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

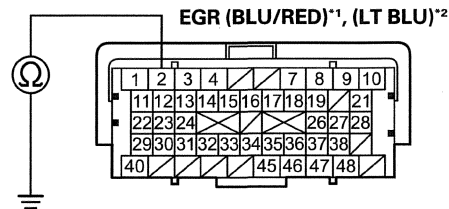
NO—Repair an open in the wire between the EGR valve and G101, then go to step 25.

10. Jump the SCS line with the HDS.

11. Disconnect ECM/PCM connector B (49P).

12. Check for continuity between ECM/PCM connector terminal B2 and body ground.

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

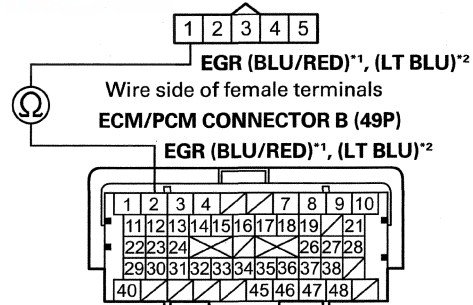
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (B2) and the EGR valve, then go to step 25.

NO—Go to step 13.

13. Check for continuity between ECM/PCM connector terminal B2 and EGR valve 5P connector terminal No. 1.

EGR VALVE 5P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 14.

NO—Repair an open in the wire between the ECM/PCM (B2) and the EGR valve, then go to step 25.



14. Remove the EGR valve (see page 11-327).

15. Clean any carbon build-up on the EGR valve with throttle plate cleaner.

16. Install the EGR valve (see page 11-327).

17. Reconnect all connectors.

18. Turn the ignition switch to ON (II).

19. Reset the ECM/PCM with the HDS.

20. Do the ECM/PCM idle learn procedure (see page 11-268).

21. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

22. Do the EGR TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Go to step 31.

NO—Go to step 23.

23. Turn the ignition switch to LOCK (0).

24. Replace the EGR valve (see page 11-327).

25. Reconnect all connectors.

26. Turn the ignition switch to ON (II).

27. Reset the ECM/PCM with the HDS.

28. Do the ECM/PCM idle learn procedure (see page 11-268).

29. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

30. Do the EGR TEST in the INSPECTION MENU with the HDS.

31. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0404 indicated?

YES—Check for poor connections or loose terminals at the EGR valve and the ECM/PCM, then go to step 1. If the connections and terminals are OK, go to step 32.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

32. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

33. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

34. Do the EGR TEST in the INSPECTION MENU with the HDS.

35. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0404 indicated?

YES—Check for poor connections or loose terminals at the EGR valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 33. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

(cont'd)

EGR System

DTC Troubleshooting (cont'd)

DTC P0406: EGR Valve Position Sensor Circuit High Voltage

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Check the EGR VLS in the DATA LIST with the HDS.

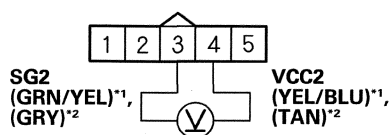
Is 4.88 V or more indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EGR valve and the ECM/PCM.

3. Turn the ignition switch to LOCK (0).
4. Disconnect the EGR valve 5P connector.
5. Turn the ignition switch to ON (II).
6. Measure the voltage between EGR valve 5P connector terminals No. 3 and No. 4.

EGR VALVE 5P CONNECTOR



Wire side of female terminals

Is there about 5 V?

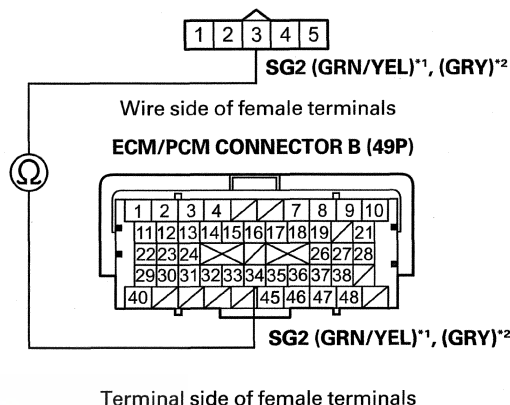
YES—Go to step 11.

NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector B (49P).

10. Check for continuity between ECM/PCM connector terminal B34 and EGR valve 5P connector terminal No. 3.

EGR VALVE 5P CONNECTOR



Is there continuity?

YES—Go to step 18.

NO—Repair an open in the wire between the ECM/PCM (B34) and the EGR valve, then go to step 13.

11. Turn the ignition switch to LOCK (0).
12. Replace the EGR valve (see page 11-327).
13. Reconnect all connectors.
14. Turn the ignition switch to ON (II).
15. Reset the ECM/PCM with the HDS.
16. Do the ECM/PCM idle learn procedure (see page 11-268).
17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0406 indicated?

YES—Check for poor connections or loose terminals at the EGR valve and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting.



18. Reconnect all connectors.

19. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0406 indicated?

YES—Check for poor connections or loose terminals at the EGR valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then recheck. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

DTC P2413: EGR System Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.

4. Do the EGR TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EGR valve and the ECM/PCM. ■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).

6. Turn the ignition switch to ON (II).

7. Check the EGR VLS in the DATA LIST with the HDS.

Is about 0 V indicated?

YES—Go to step 8.

NO—Go to step 21.

8. Turn the ignition switch to LOCK (0).

9. Disconnect the EGR valve 5P connector.

10. Turn the ignition switch to ON (II).

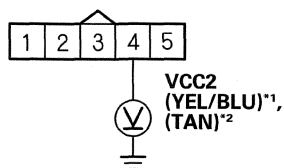
(cont'd)

EGR System

DTC Troubleshooting (cont'd)

11. Measure the voltage between EGR valve 5P connector terminal No. 4 and body ground.

EGR VALVE 5P CONNECTOR



Wire side of female terminals

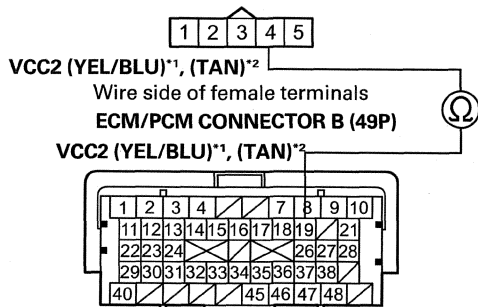
Is there about 5 V?

YES—Go to step 16.

NO—Go to step 12.

12. Turn the ignition switch to LOCK (0).
13. Jump the SCS line with the HDS.
14. Disconnect ECM/PCM connector B (49P).
15. Check for continuity between ECM/PCM connector terminal B19 and EGR valve 5P connector terminal No. 4.

EGR VALVE 5P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 52.

NO—Repair an open in the wire between the ECM/PCM (B19) and the EGR valve, then go to step 44.

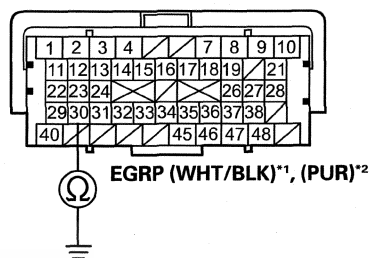
16. Turn the ignition switch to LOCK (0).

17. Jump the SCS line with the HDS.

18. Disconnect ECM/PCM connector B (49P).

19. Check for continuity between ECM/PCM connector terminal B30 and body ground.

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

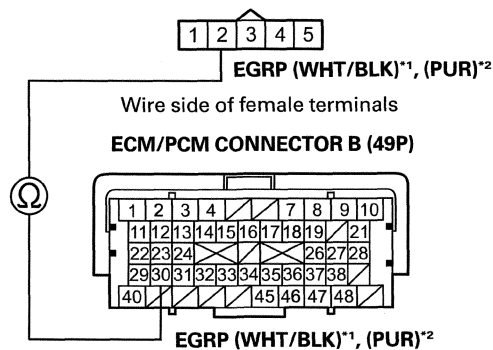
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (B30) and the EGR valve, then go to step 44.

NO—Go to step 20.

20. Check for continuity between ECM/PCM connector terminal B30 and EGR valve 5P connector terminal No. 2.

EGR VALVE 5P CONNECTOR



Terminal side of female terminals

Is there continuity?

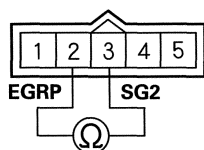
YES—Go to step 23.

NO—Repair an open in the wire between the ECM/PCM (B30) and the EGR valve, then go to step 44.



21. If not already done, turn the ignition switch to LOCK (0).
22. If not already done, disconnect the EGR valve 5P connector.
23. At the EGR valve side, measure the resistance between EGR valve 5P connector terminals No. 2 and No. 3.

EGR VALVE 5P CONNECTOR



Terminal side of male terminals

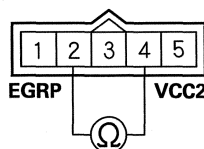
Is there 100 kΩ or more?

YES—Go to step 43.

NO—Go to step 24.

24. At the EGR valve side, measure the resistance between EGR valve 5P connector terminals No. 2 and No. 4.

EGR VALVE 5P CONNECTOR



Terminal side of male terminals

Is there 100 kΩ or more?

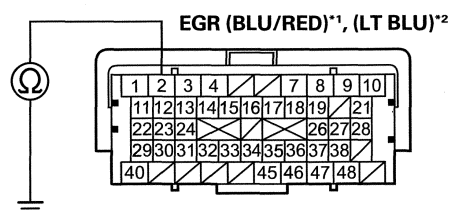
YES—Go to step 43.

NO—Go to step 27.

25. If not already done, jump the SCS line with the HDS.
26. If not already done, disconnect ECM/PCM connector B (49P).

27. Check for continuity between ECM/PCM connector terminal B2 and body ground.

ECM/PCM CONNECTOR B (49P)



Terminal side of female terminals

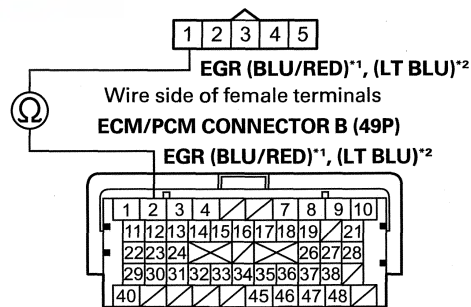
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (B2) and the EGR valve, then go to step 44.

NO—Go to step 28.

28. Check for continuity between ECM/PCM connector terminal B2 and EGR valve 5P connector terminal No. 1.

EGR VALVE 5P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Go to step 29.

NO—Repair an open in the wire between the ECM/PCM (B2) and the EGR valve, then go to step 44.

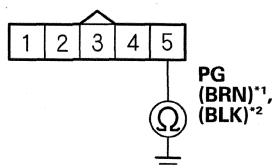
(cont'd)

EGR System

DTC Troubleshooting (cont'd)

29. Check for continuity between EGR valve 5P connector terminal No. 5 and body ground.

EGR VALVE 5P CONNECTOR



Wire side of female terminals

Is there continuity?

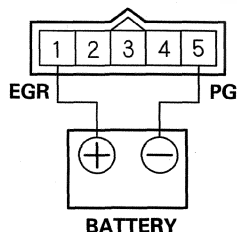
YES—Go to step 30.

NO—Repair an open in the wire between the EGR valve and G101, then go to step 44.

30. Reconnect ECM/PCM connector B (49P).

31. At the EGR valve side, connect the battery positive terminal to EGR valve 5P connector terminal No. 1 with a jumper wire.

EGR VALVE 5P CONNECTOR



Terminal side of male terminals

32. Start the engine, and let it idle. Then connect the battery negative terminal to EGR valve 5P connector terminal No. 5 with a jumper wire.

Does the engine stall?

YES—Go to step 50.

NO—Go to step 33.

33. Turn the ignition switch to LOCK (0).

34. Remove the EGR valve (see page 11-327).

35. Clean the intake manifold EGR port (see page 11-327) and the EGR pipe with throttle plate cleaner (see page 11-328). Also, clean the passage inside the EGR valve with throttle plate cleaner.

36. Install the EGR valve (see page 11-327).

37. Reconnect all connectors.

38. Turn the ignition switch to ON (II).

39. Reset the ECM/PCM with the HDS.

40. Do the ECM/PCM idle learn procedure (see page 11-268).

41. Do the EGR TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Go to step 49.

NO—Go to step 42.

42. Turn the ignition switch to LOCK (0).

43. Replace the EGR valve (see page 11-327).

44. Reconnect all connectors.

45. Turn the ignition switch to ON (II).

46. Reset the ECM/PCM with the HDS.

47. Do the ECM/PCM idle learn procedure (see page 11-268).

48. Do the EGR TEST in the INSPECTION MENU with the HDS.

49. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2413 indicated?

YES—Check for poor connections or loose terminals at the EGR valve and the ECM/PCM, then go to step 1.

NO—Troubleshooting is complete. If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■



EGR Valve Replacement

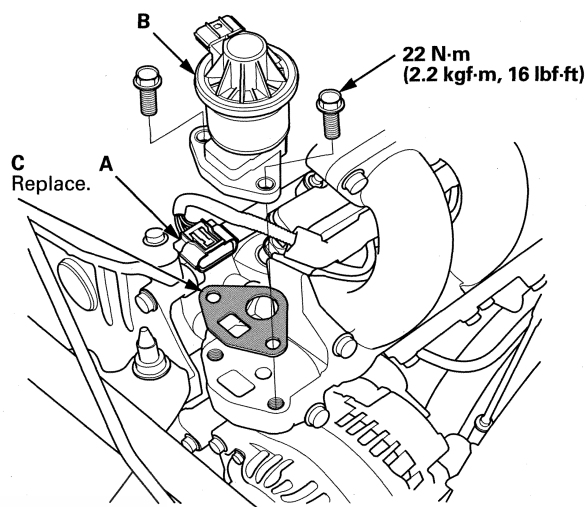
50. Turn the ignition switch to LOCK (0).
51. Reconnect all connectors.
52. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
53. Do the EGR TEST in the INSPECTION MENU with the HDS.
54. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P2413 indicated?

YES—Check for poor connections or loose terminals at the EGR valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 53. If the ECM/PCM was substituted, go to step 1.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs are indicated, go to the indicated DTC's troubleshooting. ■

1. Disconnect the EGR valve connector (A).



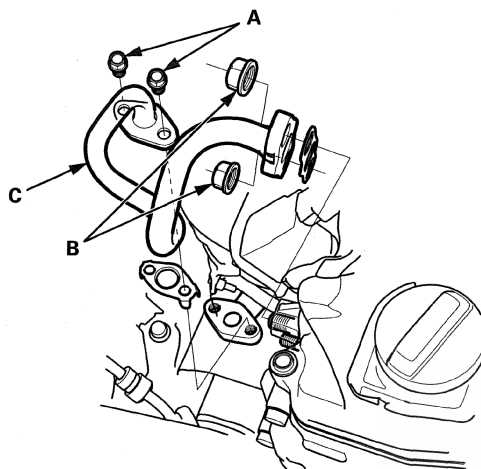
2. Remove the EGR valve (B).
3. Install the parts in the reverse order of removal with a new gasket (C).

EGR System

EGR Pipe Removal and Installation

Removal

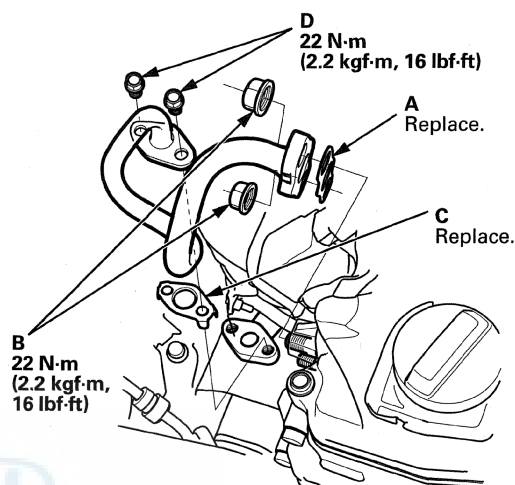
1. Remove the cowl cover (see page 20-168) and the under-cowl panel (see page 20-185).
2. Remove the bolts (A) and the nuts (B).



3. Remove the EGR pipe (C).

Installation

1. Install the EGR pipe on the cylinder head side with a new gasket (A), and hand-tighten the nuts (B).

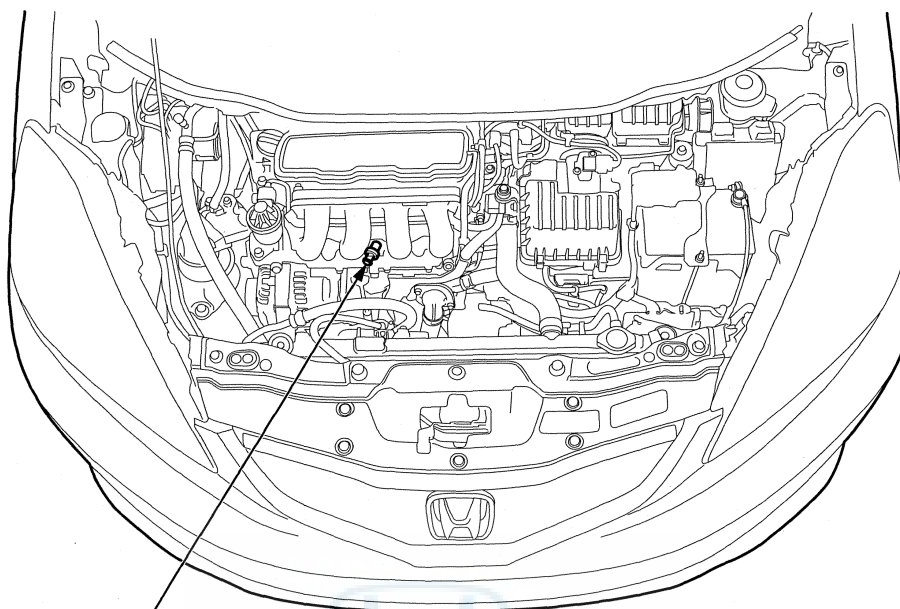


2. Install the EGR pipe on the WU-TWC side with a new gasket (C), and tighten the bolts (D).
3. Tighten the nuts on the cylinder head side.
4. Install the cowl cover (see page 20-168) and the under-cowl panel (see page 20-185).

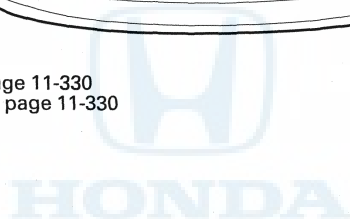
PCV System



Component Location Index



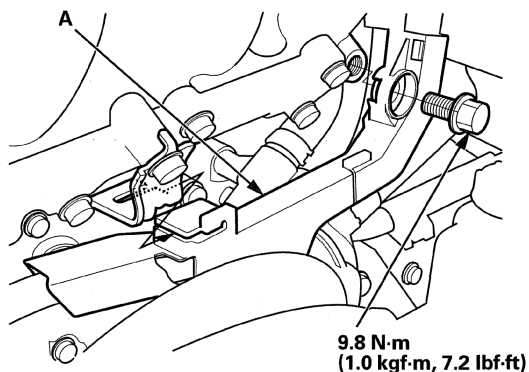
PCV VALVE
Inspection, page 11-330
Replacement, page 11-330



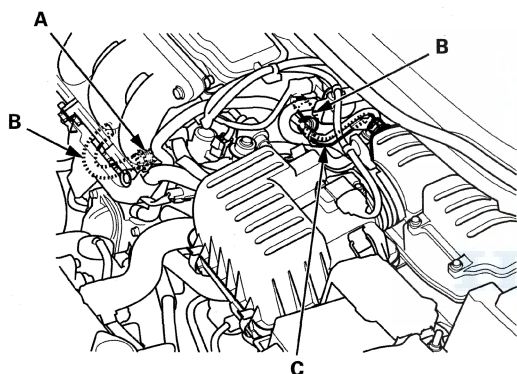
PCV System

PCV Valve Inspection

1. Remove the harness holder (A).

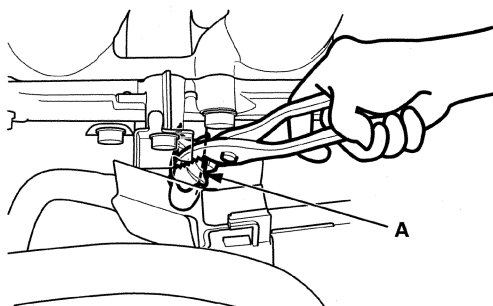


2. Check the PCV valve (A), the hoses (B), the pipe (C), and the connections for leaks or restrictions.



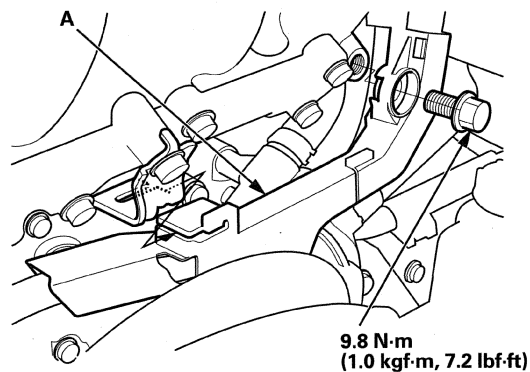
3. At idle, make sure there is a clicking sound from the PCV valve when the hose between the PCV valve and the intake manifold is lightly pinched (A) with your fingers or pliers.

If there is no clicking sound, check the PCV valve washer for cracks or damage. If the washer is OK, replace the PCV valve and recheck.

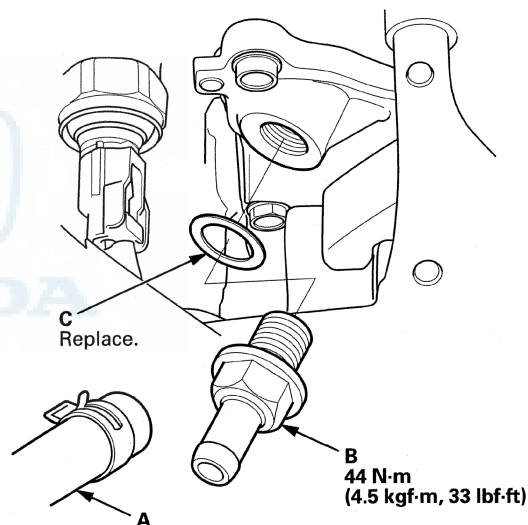


PCV Valve Replacement

1. Remove the harness holder (A).



2. Disconnect the hose (A).



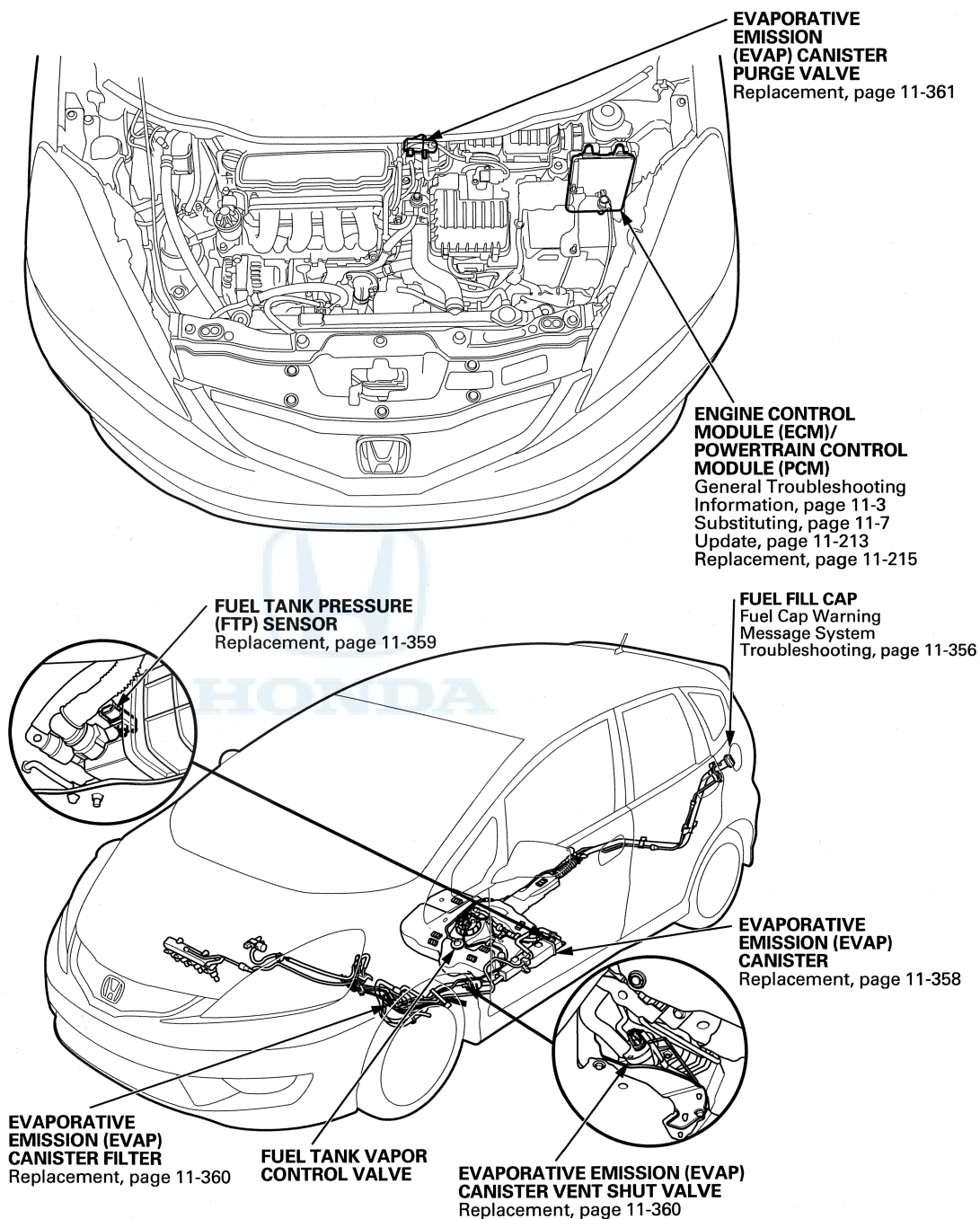
3. Remove the PCV valve (B).

4. Install the parts in the reverse order of removal with a new 14 mm washer (C).

EVAP System



Component Location Index



EVAP System

DTC Troubleshooting

DTC P0443: EVAP Canister Purge Valve Circuit Malfunction

Special Tools Required

Vacuum Pump/Gauge, 0–30 In.Hg, Snap-on YA4000A or equivalent, commercially available

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Information marked with an asterisk (*1) applies to '09-10 models and '11-12 models (M/T).
- Information marked with an asterisk (*2) applies to '11-12 models (A/T).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
4. Check for Pending or Confirmed DTCs with the HDS.

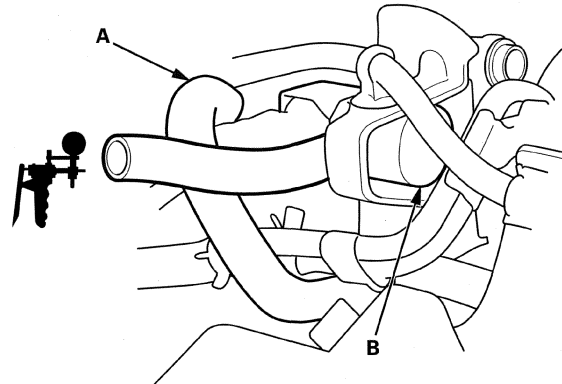
Is DTC P0443 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM. ■

5. Turn the ignition switch to LOCK (0), and allow the engine to cool below 140 °F (60 °C).

6. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B), and connect a vacuum pump/gauge, 0–30 in.Hg, to the hose.



7. Start the engine, and let it idle.

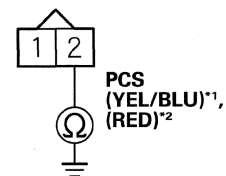
Is there vacuum?

YES—Go to step 8.

NO—Go to step 14.

8. Turn the ignition switch to LOCK (0).
9. Disconnect the EVAP canister purge valve 2P connector.
10. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 11.

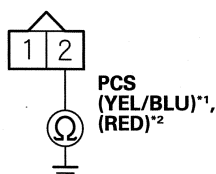
NO—Go to step 23.

11. Jump the SCS line with the HDS.
12. Disconnect ECM/PCM connector B (49P).



13. Check for continuity between EVAP canister purge valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

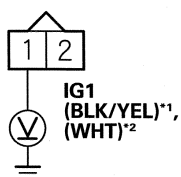
Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (B3) and the EVAP canister purge valve, then go to step 24.

NO—Go to step 30.

14. Turn the ignition switch to LOCK (0).
15. Disconnect the EVAP canister purge valve 2P connector.
16. Turn the ignition switch to ON (II).
17. Measure the voltage between EVAP canister purge valve 2P connector terminal No. 1 and body ground.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 18.

NO—Repair an open in the wire between the EVAP canister purge valve and the No. 12 ACG (ALTERNATOR) (10 A) fuse in the driver's under-dash fuse/relay box, then go to step 24.

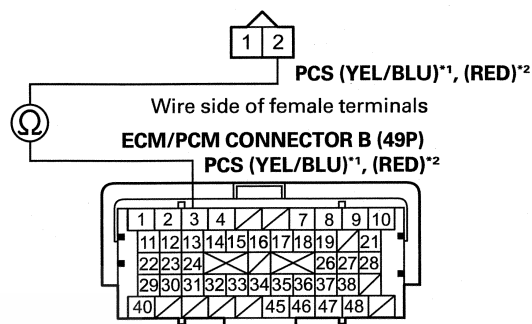
18. Turn the ignition switch to LOCK (0).

19. Jump the SCS line with the HDS.

20. Disconnect ECM/PCM connector B (49P).

21. Check for continuity between ECM/PCM connector terminal B3 and EVAP canister purge valve 2P connector terminal No. 2.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Terminal side of female terminals

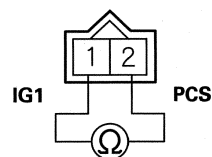
Is there continuity?

YES—Go to step 22.

NO—Repair an open in the wire between the ECM/PCM (B3) and the EVAP canister purge valve, then go to step 24.

22. At the valve side, measure the resistance between EVAP canister purge valve 2P connector terminals No. 1 and No. 2.

EVAP CANISTER PURGE VALVE 2P CONNECTOR



Terminal side of male terminals

Is there about 23—26 Ω at room temperature (18—21°C, 65—70°F)?

YES—Go to step 30.

NO—Go to step 23.

(cont'd)

EVAP System

DTC Troubleshooting (cont'd)

23. Replace the EVAP canister purge valve (see page 11-361).

24. Reconnect all connectors.

25. Turn the ignition switch to ON (II).

26. Reset the ECM/PCM with the HDS.

27. Do the ECM/PCM idle learn procedure (see page 11-268).

28. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0443 indicated?

YES—Check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM, then go to step 1.

NO—Go to step 29.

29. Monitor the OBD STATUS for DTC P0443 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 28, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM, then go to step 1. If the HDS indicates EXECUTING, OUT OF CONDITION, or NOT COMPLETED, keep idling until a result comes on.

30. Reconnect all connectors.

31. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

32. Start the engine, and let it idle.

33. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0443 indicated?

YES—Check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 32. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 34.

34. Monitor the OBD STATUS for DTC P0443 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 33, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the EVAP canister purge valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 32. If the ECM/PCM was substituted, go to step 1. If the HDS indicates EXECUTING, OUT OF CONDITION, or NOT COMPLETED, keep idling until a result comes on.



DTC P0451: FTP Sensor Circuit Range/Performance Problem

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P2422 is stored at the same time as DTC P0451, troubleshoot DTC P2422 first, then recheck for DTC P0451.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine, and let it idle for 1 minute.
4. Monitor the OBD STATUS for DTC P0451 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 5.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and the ECM/PCM. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

5. Turn the ignition switch to LOCK (0).
6. Replace the FTP sensor (see page 11-359).
7. Turn the ignition switch to ON (II).
8. Reset the ECM/PCM with the HDS.
9. Do the ECM/PCM idle learn procedure (see page 11-268).
10. Start the engine, and let it idle for 1 minute.
11. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0451 indicated?

YES—Check for poor connections or loose terminals at the FTP sensor and the ECM/PCM. Also check the FTP vent for restrictions, then go to step 1.

NO—Go to step 12.

12. Monitor the OBD STATUS for DTC P0451 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 11, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

(cont'd)

EVAP System

DTC Troubleshooting (cont'd)

DTC P0452: FTP Sensor Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Remove the fuel fill cap.
5. Turn the ignition switch to ON (II).
6. Check the FTP SENSOR in the DATA LIST with the HDS.
Is about -7.3 kPa (-2.16 in Hg, -55 mmHg), or 0.3 V or less indicated?

YES—Go to step 10.

NO—Go to step 7.

7. Reinstall the fuel fill cap.
8. Start the engine.
9. Monitor the OBD STATUS for DTC P0452 in the DTCs MENU with the HDS.
Does the HDS indicate FAILED?

YES—Go to step 10.

NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and the ECM/PCM. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

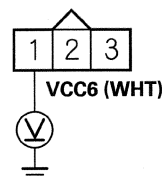
10. Turn the ignition switch to LOCK (0).
11. Disconnect the FTP sensor 3P connector.
12. Turn the ignition switch to ON (II).
13. Check the FTP SENSOR in the DATA LIST with the HDS.
Is about -7.3 kPa (-2.16 in Hg, -55 mmHg), or 0.3 V or less indicated?

YES—Go to step 20.

NO—Go to step 14.

14. Measure the voltage between FTP sensor 3P connector terminal No. 1 and body ground.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

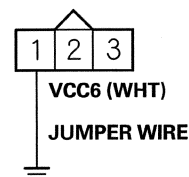
Is there about 5 V?

YES—Go to step 24.

NO—Go to step 15.

15. Turn the ignition switch to LOCK (0).
16. Jump the SCS line with the HDS.
17. Disconnect ECM/PCM connector A (49P).
18. Connect FTP sensor 3P connector terminal No. 1 to body ground with a jumper wire.

FTP SENSOR 3P CONNECTOR

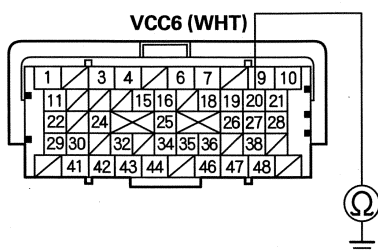


Wire side of female terminals



19. Check for continuity between ECM/PCM connector terminal A20 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

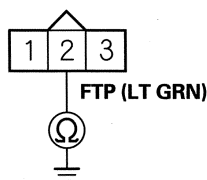
Is there continuity?

YES—Go to step 32.

NO—Repair an open in the wire between the ECM/PCM (A20) and the FTP sensor, then go to step 26.

20. Turn the ignition switch to LOCK (0).
21. Jump the SCS line with the HDS.
22. Disconnect ECM/PCM connector A (49P).
23. Check for continuity between FTP sensor 3P connector terminal No. 2 and body ground.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between the ECM/PCM (A27) and the FTP sensor, then go to step 26.

NO—Go to step 32.

24. Turn the ignition switch to LOCK (0).
25. Replace the FTP sensor (see page 11-359).
26. Reconnect all connectors.
27. Turn the ignition switch to ON (II).
28. Reset the ECM/PCM with the HDS.
29. Do the ECM/PCM idle learn procedure (see page 11-268).
30. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0452 indicated?

YES—Check for poor connections or loose terminals at the FTP sensor and the ECM/PCM, then go to step 1.

NO—Go to step 31.

31. Monitor the OBD STATUS for DTC P0452 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 30, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

32. Reconnect all connectors.
33. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
34. Start the engine, and let it idle.
35. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0452 indicated?

YES—Check for poor connections or loose terminals at the FTP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 34. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 36.

(cont'd)

EVAP System

DTC Troubleshooting (cont'd)

36. Monitor the OBD STATUS for DTC P0452 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 35, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 34. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

DTC P0453: FTP Sensor Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Remove the fuel fill cap.
5. Turn the ignition switch to ON (II).
6. Check the FTP SENSOR in the DATA LIST with the HDS.

Is about 7.3 kPa (2.16 in Hg, 55 mmHg), or 4.7 V or more indicated?

YES—Go to step 10.

NO—Go to step 7.

7. Reinstall the fuel fill cap.
8. Start the engine.
9. Monitor the OBD STATUS for DTC P0453 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 10.

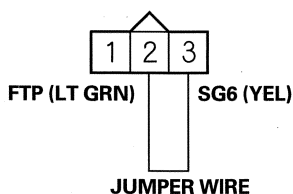
NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor and the ECM/PCM. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

10. Turn the ignition switch to LOCK (0).
11. Disconnect the FTP sensor 3P connector.



12. Connect FTP sensor 3P connector terminals No. 2 and No. 3 with a jumper wire.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

13. Turn the ignition switch to ON (II).
14. Check the FTP SENSOR in the DATA LIST with the HDS.

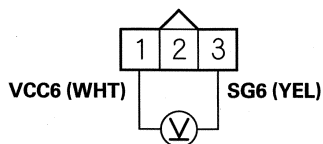
Is about 7.3 kPa (2.16 in Hg, 55 mmHg), or 4.7 V or more indicated?

YES—Remove the jumper wire, then go to step 15.

NO—Go to step 26.

15. Measure the voltage between FTP sensor 3P connector terminals No. 1 and No. 3.

FTP SENSOR 3P CONNECTOR



Wire side of female terminals

Is there about 5 V?

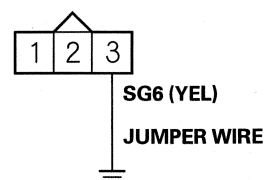
YES—Go to step 21.

NO—Go to step 16.

16. Turn the ignition switch to LOCK (0).
17. Jump the SCS line with the HDS.
18. Disconnect ECM/PCM connector A (49P).

19. Connect FTP sensor 3P connector terminal No. 3 to body ground with a jumper wire.

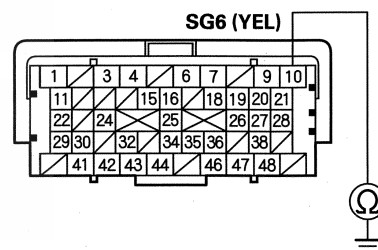
FTP SENSOR 3P CONNECTOR



Wire side of female terminals

20. Check for continuity between ECM/PCM connector terminal A10 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 34.

NO—Repair an open in the wire between the ECM/PCM (A10) and the FTP sensor, then go to step 28.

21. Turn the ignition switch to LOCK (0).
22. Jump the SCS line with the HDS.
23. Disconnect ECM/PCM connector A (49P).

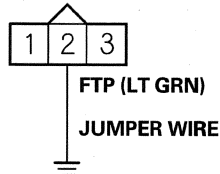
(cont'd)

EVAP System

DTC Troubleshooting (cont'd)

24. Connect FTP sensor 3P connector terminal No. 2 to body ground with a jumper wire.

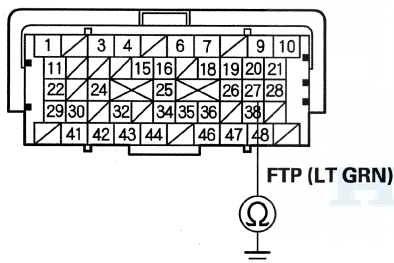
FTP SENSOR 3P CONNECTOR



Wire side of female terminals

25. Check for continuity between ECM/PCM connector terminal A27 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 34.

NO—Repair an open in the wire between the ECM/PCM (A27) and the FTP sensor, then go to step 28.

26. Turn the ignition switch to LOCK (0).
27. Replace the FTP sensor (see page 11-359).
28. Reconnect all connectors.
29. Turn the ignition switch to ON (II).
30. Reset the ECM/PCM with the HDS.
31. Do the ECM/PCM idle learn procedure (see page 11-268).
32. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0453 indicated?

YES—Check for poor connections or loose terminals at the FTP sensor and the ECM/PCM, then go to step 1.

NO—Go to step 33.

33. Monitor the OBD STATUS for DTC P0453 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 32, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

34. Reconnect all connectors.
35. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
36. Start the engine, and let it idle.
37. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0453 indicated?

YES—Check for poor connections or loose terminals at the FTP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 36. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 38.



38. Monitor the OBD STATUS for DTC P0453 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 37, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the FTP sensor and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 36. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

DTC P0455: EVAP System Large Leak Detected

DTC P0456: EVAP System Very Small Leak Detected

NOTICE

The fuel system is designed to allow specified maximum vacuum and pressure conditions. Do not deviate from the vacuum and pressure tests in these procedures. Excessive pressure/vacuum will damage the EVAP components or eventually cause fuel tank failure.

Special Tools Required

- Vacuum/Pressure Gauge, 0—4 In.Hg, 07JAZ-001000B
- Vacuum Pump/Gauge, 0—30 In.Hg, Snap-on YA4000A or equivalent, commercially available

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- Fresh fuel has a higher volatility that will create greater pressure/vacuum. The best condition for testing is less than a full tank of fresh fuel. If possible, to assist in leak detection, add 1 gallon of fresh fuel to the tank (as long as it will not fill the tank), just before starting these procedures.

1. Check the fuel fill cap (the cap must say TIGHTEN TO CLICK). It should turn 1/4 turn after it's tight, then it clicks.

Is the correct fuel fill cap installed and properly tightened?

YES—Go to step 2.

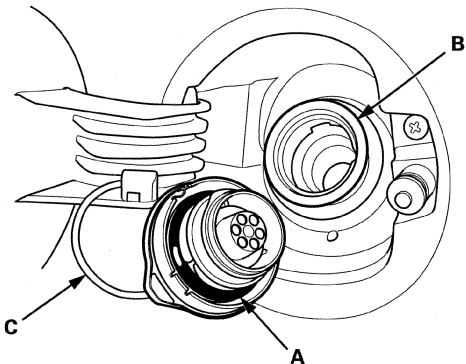
NO—Replace or tighten the cap, then go to step 24.

(cont'd)

EVAP System

DTC Troubleshooting (cont'd)

2. Check the fuel fill cap seal (A) and the fuel fill pipe mating surface (B). Verify that the fuel fill cap tether cord (C) is not caught under the cap.



Is the fuel fill cap seal missing or damaged, is the fuel fill pipe damaged, or is the tether cord caught under the cap?

YES—Replace the fuel fill cap or the fuel fill pipe, then go to step 24.

NO—Go to step 3.

3. Turn the ignition switch to ON (II).
4. Clear the DTC with the HDS.
5. Turn the ignition switch to LOCK (0).
6. Check for a poor connection or damage at the fuel tank vapor recirculation tube.

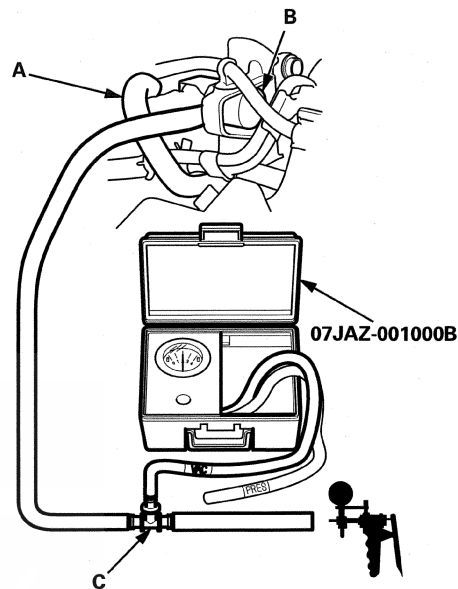
Is the tube OK?

YES—Go to step 7.

NO—

- Reconnect or replace the fuel tank vapor recirculation tube, then go to step 26.
- If needed, replace the fuel tank (see page 11-299), then go to step 26.

7. Disconnect the vacuum hose (purge line) (A) from the EVAP canister purge valve (B) in the engine compartment, then connect a T-fitting (C), a vacuum gauge, and a vacuum pump/gauge, 0–30 in.Hg, to the EVAP canister purge valve as shown.



8. Slowly apply about 2 kPa (0.6 in Hg, 15 mmHg) of vacuum to the hose.

Does it hold vacuum for 1 minute?

YES—Go to step 9.

NO—Replace the EVAP canister purge valve, then go to step 25.

9. Turn the ignition switch to ON (II).
10. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

Is the result OK?

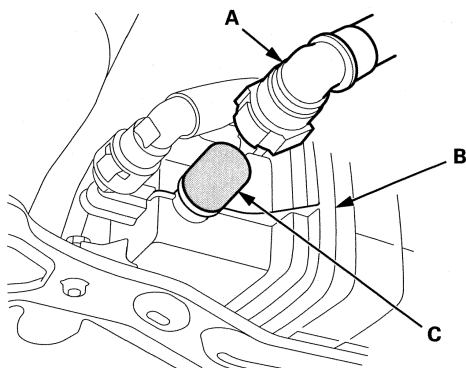
YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, the EVAP canister vent shut valve, and the ECM/PCM. ■

NO—Go to step 5.

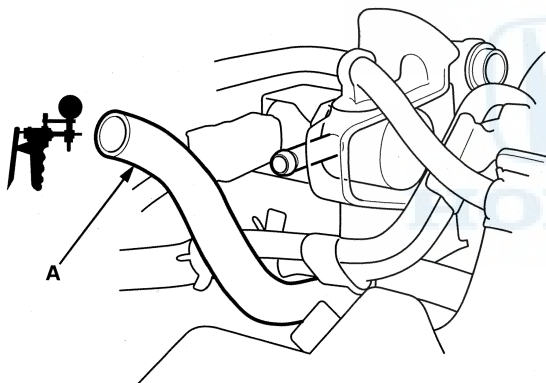
11. Turn the ignition switch to LOCK (0).



12. Disconnect the fuel tank vapor recirculation tube (A) from the EVAP canister (B), and plug the EVAP canister port (C).

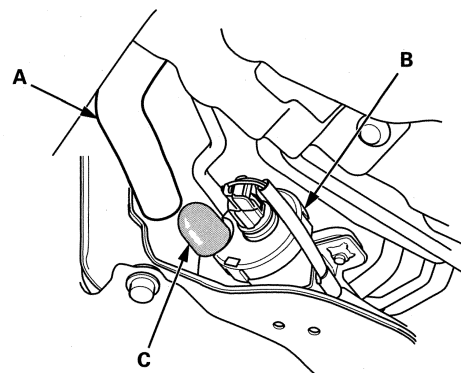


13. Remove the vacuum gauge, then connect the vacuum pump/gauge to the vacuum hose (A) as shown.



14. Turn the ignition switch to ON (II).
15. Select EVAP CVS ON in the INSPECTION MENU with the HDS.
16. Apply vacuum to the hose until the FTP reads 1.90 V (−0.59 in Hg, −15.1 mmHg).
- NOTE: Be careful not to exceed the vacuum. If you do, the FTP sensor can be damaged.
17. Monitor the FTP SENSOR in the DATA LIST for 1 minute with the HDS.
- Does the voltage increase more than 0.2 V (0.1 in Hg, 0.5 mmHg)?
- YES**—Go to step 18.
- NO**—Go to step 23.
18. Select EVAP CVS OFF in the INSPECTION MENU with the HDS.

19. Disconnect the fresh air hose (A) from the EVAP canister vent shut valve (B), and plug the EVAP canister vent shut valve port (C).



20. Apply vacuum to the EVAP system until the FTP reads 1.90 V (−0.59 in Hg, −15.1 mmHg).

NOTE: Be careful not to exceed the vacuum. If you do, the FTP sensor can be damaged.

21. Monitor the FTP SENSOR in the DATA LIST for 1 minute with the HDS.

Does the voltage increase more than 0.2 V (0.1 in Hg, 2.5 mmHg)?

YES—Go to step 22.

NO—Replace the EVAP canister vent shut valve, then go to step 25.

22. Check for a loose or damaged EVAP canister purge line between the EVAP canister and the EVAP canister purge valve, or a leaking EVAP canister purge valve.

Are the line and the EVAP canister purge valve OK?

YES—Replace these parts, then go to step 25:

- FTP sensor O-ring
- EVAP canister vent shut valve case and O-ring
- EVAP canister

NO—Reconnect or repair the EVAP canister purge hose, then go to step 25.

(cont'd)

EVAP System

DTC Troubleshooting (cont'd)

23. Select EVAP CVS OFF in the INSPECTION MENU with the HDS.

24. Check these parts for looseness or damage:

- Fuel fill pipe
- Fuel vapor return pipe

Are the parts OK?

YES—Check the fuel tank unit base gasket (see page 11-295), and check the fuel tank, then go to step 25.

NO—Repair or replace the damaged parts, then go to step 25.

25. Reconnect all hoses and connectors.

26. Turn the ignition switch to ON (II).

27. Reset the ECM/PCM with the HDS.

28. Do the ECM/PCM idle learn procedure (see page 11-268).

29. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Troubleshooting is complete. ■

NO—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, the EVAP canister vent shut valve, and the ECM/PCM, then go to step 1.

DTC P0496: EVAP System High Purge Flow Detected

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, the EVAP canister vent shut valve, and the ECM/PCM. ■

NO—If the EVAP FUNCTION TEST did not finish because of a DTC, do the indicated DTC's troubleshooting. Go to step 4.

4. Turn the ignition switch to LOCK (0).

5. Replace the EVAP canister purge valve (see page 11-361).

6. Turn the ignition switch to ON (II).

7. Reset the ECM/PCM with the HDS.

8. Do the ECM/PCM idle learn procedure (see page 11-268).

9. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Troubleshooting is complete. ■

NO—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, the EVAP canister vent shut valve, and the ECM/PCM, then go to step 1.



DTC P0497: EVAP System Low Purge Flow Detected

Special Tools Required

- Vacuum/Pressure Gauge, 0–4 In.Hg, 07JAZ-001000B
- Vacuum Pump/Gauge, 0–30 In.Hg, Snap-on YA4000A or equivalent, commercially available
- Fuel Pressure Gauge Attachment Set 07AAJ-S6MA150

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, the EVAP canister vent shut valve, and the ECM/PCM. ■

NO—Go to step 4.

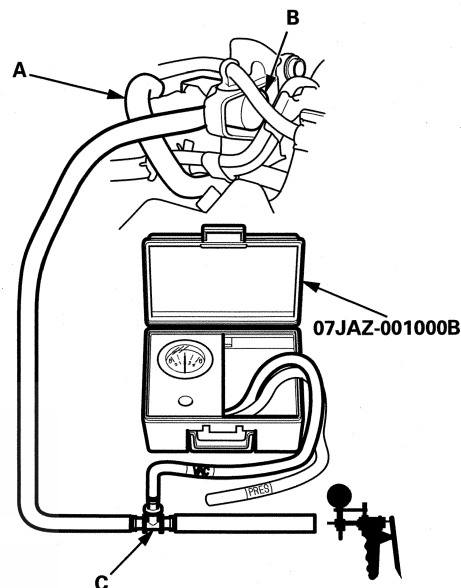
4. Turn the ignition switch to LOCK (0).
5. Check for a loose or damaged EVAP canister purge line between the intake manifold and the EVAP canister purge valve.

Is the line OK?

YES—Go to step 6.

NO—Reconnect or repair the EVAP canister purge line, then go to step 24.

6. Disconnect the vacuum hose (A) from the EVAP canister purge valve (B) in the engine compartment, then connect a T-fitting (C), a vacuum gauge, and a vacuum pump/gauge to the vacuum hose as shown.



7. Turn the ignition switch to ON (II).
8. Select EVAP PCS ON in the INSPECTION MENU with the HDS.
9. Slowly apply about 2 kPa (0.6 in Hg, 15 mmHg) of vacuum to the hose.

Does it hold vacuum?

YES—Replace the EVAP canister purge valve, then go to step 23.

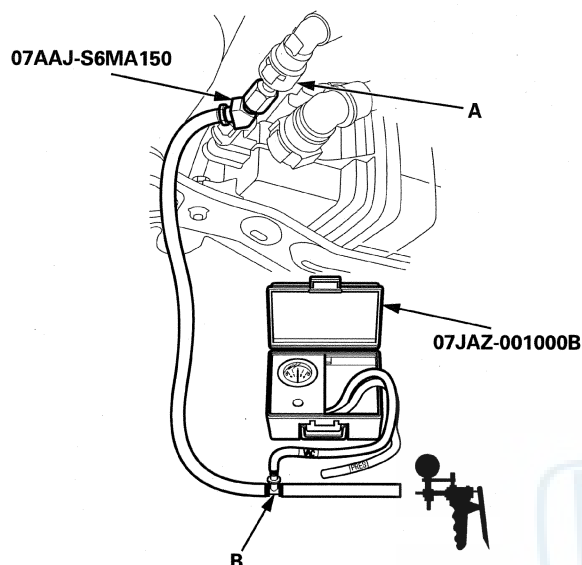
NO—Go to step 10.
10. Reconnect the vacuum hose to the EVAP canister purge valve.

(cont'd)

EVAP System

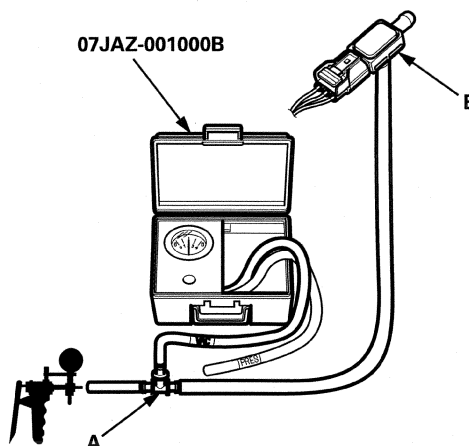
DTC Troubleshooting (cont'd)

11. Disconnect the vacuum hose (A) from the purge line (at the EVAP canister side), then connect a T-fitting (B), the vacuum gauge, and the vacuum pump/gauge to the hose as shown.



12. Select EVAP PCS ON in the INSPECTION MENU with the HDS.
13. Slowly apply about 2 kPa (0.6 in Hg, 15 mmHg) of vacuum to the hose.
- Does it hold vacuum?*
- YES**—Check for a restricted EVAP canister purge line between the EVAP canister purge valve and the EVAP canister, then go to step 23.
- NO**—Go to step 14.
14. Remove the FTP sensor with its connector connected (see page 11-359).

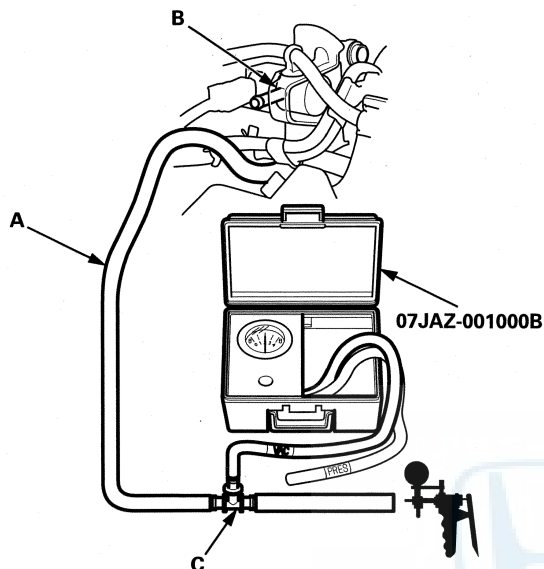
15. Connect a T-fitting (A), the vacuum pump/gauge, and the vacuum pump to the FTP sensor (B) as shown.



16. Check and record the FTP SENSOR reading in the DATA LIST with the HDS.
17. Slowly apply about 1.3 kPa (0.4 in Hg, 10 mmHg) of vacuum to the hose.
18. Check the FTP SENSOR in the DATA LIST with the HDS.
- Does the reading change more than 1.1 kPa (0.31 in.Hg, 8 mmHg) before and after applying vacuum?*
- YES**—Go to step 19.
- NO**—Replace the FTP sensor (see page 11-359), then go to step 23.
19. Reconnect the vacuum hoses to the EVAP canister purge line (EVAP canister side), and reinstall the FTP sensor.



20. Disconnect the vacuum hose (purge line) (A) from the EVAP canister purge valve (B), then connect the T-fitting (C), the vacuum gauge, and the vacuum pump/gauge to the hose as shown.



21. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

22. Slowly apply about 2 kPa (0.6 in Hg, 15 mmHg) of vacuum to the hose.

Does the hose hold vacuum?

YES—Check for a blockage at the EVAP canister port, then go to step 23.

NO—Replace the EVAP canister vent shut valve (see page 11-360), then go to step 23.

23. Reconnect all hoses.

24. Turn the ignition switch ON (II).

25. Reset the ECM/PCM with the HDS.

26. Do the ECM/PCM idle learn procedure (see page 11-268).

27. Do the EVAP FUNCTION TEST in the INSPECTION MENU with the HDS.

Is the result OK?

YES—Troubleshooting is complete. ■

NO—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister purge valve, the EVAP canister vent shut valve, and the ECM/PCM, then go to step 1.

DTC P0498: EVAP Canister Vent Shut Valve Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0498 indicated?

YES—Go to step 6.

NO—Go to step 4.

4. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

5. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0498 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM/PCM. ■

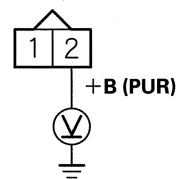
6. Turn the ignition switch to LOCK (0).

7. Disconnect the EVAP canister vent shut valve 2P connector.

8. Turn the ignition switch to ON (II).

9. Measure the voltage between EVAP canister vent shut valve 2P connector terminal No. 2 and body ground.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 10.

NO—Repair an open in the wire between the EVAP canister vent shut valve and the A/F sensor relay, then go to step 18.

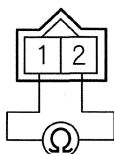
(cont'd)

EVAP System

DTC Troubleshooting (cont'd)

10. Turn the ignition switch to LOCK (0).
11. At the valve side, measure the resistance between EVAP canister vent shut valve 2P connector terminals No. 1 and No. 2.

EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Terminal side of male terminals

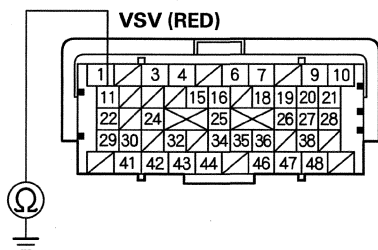
Is there about 25—30 Ω at room temperature (18—21°C, 65—70°F)?

YES—Go to step 12.

NO—Go to step 17.

12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector A (49P).
14. Check for continuity between ECM/PCM connector terminal A11 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

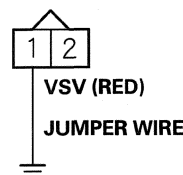
Is there continuity?

YES—Repair a short in the wire between the EVAP canister vent shut valve and the ECM/PCM (A11), then go to step 18.

NO—Go to step 15.

15. Connect EVAP canister vent shut valve 2P connector terminal No. 1 to body ground with a jumper wire.

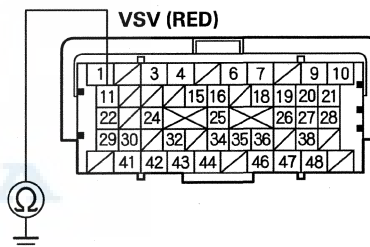
EVAP CANISTER VENT SHUT VALVE 2P CONNECTOR



Wire side of female terminals

16. Check for continuity between ECM/PCM connector terminal A11 and body ground.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 25.

NO—Repair an open in the wire between the EVAP canister vent shut valve and the ECM/PCM (A11), then go to step 18.



17. Replace the EVAP canister vent shut valve (see page 11-360).

18. Reconnect all connectors.

19. Turn the ignition switch to ON (II).

20. Reset the ECM/PCM with the HDS.

21. Do the ECM/PCM idle learn procedure (see page 11-268).

22. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

23. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0498 indicated?

YES—Check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM/PCM, then go to step 1.

NO—Go to step 24.

24. Monitor the OBD STATUS for DTC P0498 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 23, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, go to step 22.

25. Reconnect all connectors.

26. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

27. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

28. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0498 indicated?

YES—Check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 27. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 29.

29. Monitor the OBD STATUS for DTC P0498 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 28, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 27. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, go to step 27.

(cont'd)

EVAP System

DTC Troubleshooting (cont'd)

DTC P0499: EVAP Canister Vent Shut Valve Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Select EVAP CVS ON in the INSPECTION MENU with the HDS.
4. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0499 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM/PCM. ■

5. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
6. Select EVAP CVS ON in the INSPECTION MENU with the HDS.
7. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0499 indicated?

YES—Check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 6. If the ECM/PCM was substituted, go to step 1.

NO—Go to step 8.

8. Monitor the OBD STATUS for DTC P0499 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). If any other Pending or Confirmed DTCs were indicated in step 7, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the EVAP canister vent shut valve and the ECM/PCM. If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then go to step 6. If the ECM/PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, go to step 6.

DTC P1454: FTP Sensor Range/Performance Problem

DTC P2422: EVAP Canister Vent Shut Valve Stuck Closed Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Remove the fuel fill cap, and wait 1 minute.
5. Turn the ignition switch to ON (II).
6. Check the FTP SENSOR in the DATA LIST with the HDS.

Is it between -0.67 and 0.67 kPa (-0.2 and 0.2 in Hg, -5 and 5 mmHg), or 2.4 and 2.6 V?

YES—Go to step 7.

NO—Go to step 18.

7. Install the fuel fill cap.
8. Clear the DTC with the HDS.
9. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
10. Monitor the OBD STATUS for DTC P1454 in the DTCs MENU with the HDS.

Does the HDS indicate FAILED?

YES—Go to step 11.

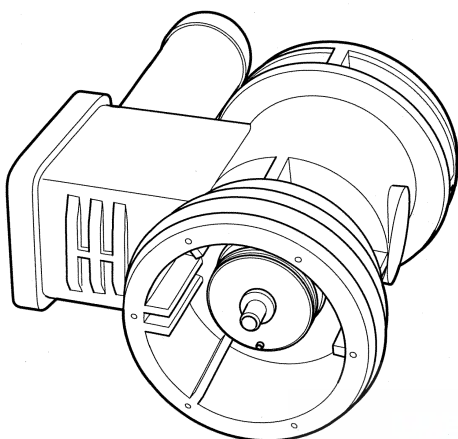
NO—If the HDS indicates PASSED, intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor, the EVAP canister vent shut valve, and the ECM/PCM. Also check for a blockage in the vent hoses and the drain joint. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.

11. Clear the DTC with the HDS.
12. Turn the ignition switch to LOCK (0).
13. Remove the EVAP canister vent shut valve from the EVAP canister (see page 11-360).
14. Connect the 2P connector to the EVAP canister vent shut valve.
15. Turn the ignition switch to ON (II).



16. Select EVAP CVS ON in the INSPECTION MENU with the HDS.

17. Check the EVAP canister vent shut valve (A) operation.

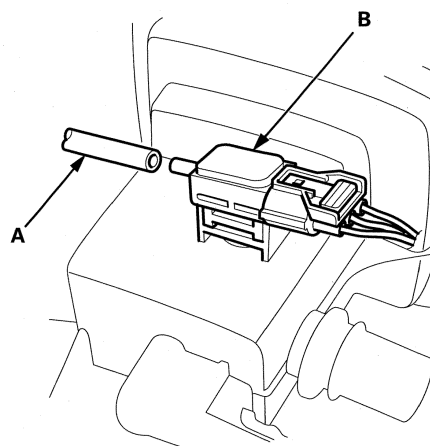


Does the valve operate?

YES—Check for a blockage in the EVAP canister, the vent hoses, and the EVAP canister filter, then install the EVAP canister vent shut valve, and go to step 24.

NO—Replace the EVAP canister vent shut valve (see page 11-360), then go to step 24.

18. Disconnect the vent hose (A) from the FTP sensor (B).



19. Check the FTP SENSOR in the DATA LIST with the HDS.

Is it between -0.67 and 0.67 kPa (-0.2 and 0.2 in Hg, -5 and 5 mmHg), or 2.4 and 2.6 V?

YES—Check for a blockage in the FTP sensor vent hose or the vent, then go to step 24.

NO—Go to step 20.

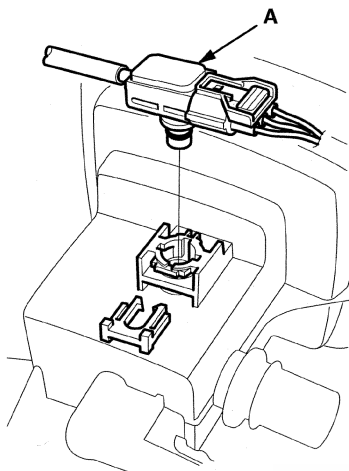
20. Turn the ignition switch to LOCK (0).

(cont'd)

EVAP System

DTC Troubleshooting (cont'd)

21. Remove the FTP sensor (A) from the EVAP canister with its connector connected (see page 11-359).



22. Turn the ignition switch to ON (II).
23. Check the FTP SENSOR in the DATA LIST with the HDS.

Is it between -0.67 kPa and 0.67 kPa (-0.2 and 0.2 in Hg, -5 and 5 mmHg), or 2.4 and 2.6 V?

YES—Check for debris or clogging at the EVAP canister and the FTP sensor port, then go to step 24.

NO—Replace the FTP sensor (see page 11-359), then go to step 24.

24. Turn the ignition switch to ON (II).
25. Reset the ECM/PCM with the HDS.
26. Do the ECM/PCM idle learn procedure (see page 11-268).
27. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle.
28. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1454 and/or P2422 indicated?

YES—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister vent shut valve, and the ECM/PCM, then go to step 1.

NO—Go to step 29.

29. Monitor the OBD STATUS for DTC P1454 in the DTCs MENU with the HDS.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other Pending or Confirmed DTCs were indicated in step 28, go to the indicated DTC's troubleshooting. ■

NO—If the HDS indicates FAILED, check for poor connections or loose terminals at the FTP sensor, the EVAP canister vent shut valve, and the ECM/PCM, then go to step 1. If the HDS indicates NOT COMPLETED, keep idling until a result comes on.



DTC P1458: FTP Sensor Circuit Range/Performance Problem

Special Tools Required

Vacuum Pump/Gauge, 0–30 inHg Snap-on YA4000A or equivalent, commercially available

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If any of DTCs listed below are indicated at the same time as DTC P1458, troubleshoot those DTCs first, then recheck for P1458.

P0451, P0452, P0453, P1454: FTP sensor

P2422: EVAP canister vent shut valve

- Do not start the engine during this troubleshooting.

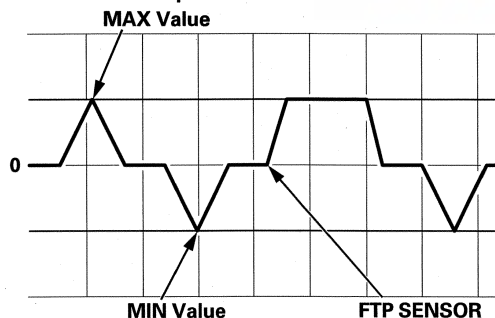
1. Turn the ignition switch to ON (II).
2. Note the recorded on-board snapshot parameters with the HDS:

Max Value of FTP SENSOR

Min Value of FTP SENSOR

FUEL LEVEL

HDS on-board snapshot screen



3. Check the FUEL LEVEL in the DATA LIST with the HDS.

Is the FUEL LEVEL less than it is on the on-board snapshot?

YES—Go to step 4.

NO—Drain the fuel until the FUEL LEVEL is less than it is on the on-board snapshot, then go to step 4.

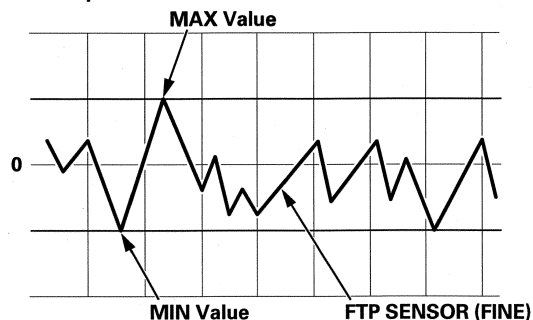
4. Take a snapshot with the HDS for 3 minutes without starting the engine.

5. Check the recorded snapshot parameters with the HDS:

Max Value of FTP SENSOR (FINE)

Min Value of FTP SENSOR (FINE)

HDS snapshot screen



Is the difference between the MAX and MIN values of the FTP SENSOR (FINE) about 0.67 kPa (0.2 inHg, 5 mmHg) or less?

YES—Go to step 6.

NO—Go to step 12.

6. Check the FTP SENSOR (FINE) in the recorded snapshot with the HDS.

Does it vary 0.067 kPa (0.02 inHg, 0.5 mmHg) or more for 3 seconds?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor, the EVAP canister vent shut valve, and the ECM/PCM. Also check for a blockage in the EVAP vent hose. ■

(cont'd)

EVAP System

DTC Troubleshooting (cont'd)

7. Turn the ignition switch to LOCK (0).
8. Remove the FTP sensor (see page 11-359).
9. Reconnect the FTP sensor 2P connector.
10. Turn the ignition switch to ON (II).
11. Check the FTP SENSOR (FINE) in the DATA LIST with the HDS.

Does it vary 0.067 kPa (0.02 inHg, 0.5 mmHg) or more for 3 seconds?

YES—Replace the FTP sensor (see page 11-359), then go to step 28.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the FTP sensor, the EVAP canister vent shut valve, and the ECM/PCM. Also check for a blockage in the EVAP vent hose. ■
12. Remove the fuel fill cap.
13. Check the FTP SENSOR (FINE) in the DATA LIST with the HDS.

Is the value about 0.67 kPa (0.2 inHg, 5 mmHg) or more, or about -0.67 kPa (-0.2 inHg, -5 mmHg) or less?

YES—Reinstall the fuel fill cap, then go to step 22.

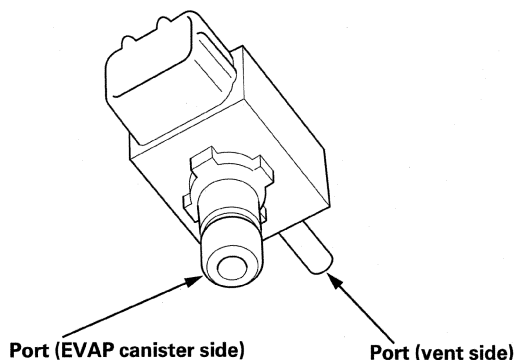
NO—Go to step 14.
14. Turn the ignition switch to LOCK (0).
15. Remove the FTP sensor (see page 11-359).
16. Reconnect the FTP sensor 2P connector.
17. Turn the ignition switch to ON (II).
18. Check the FTP SENSOR (FINE) in the DATA LIST with the HDS.

Is the value about 0.67 kPa (0.2 inHg, 5 mmHg) or more, or about -0.67 kPa (-0.2 inHg, -5 mmHg) or less?

YES—Remove the blockage in the EVAP vent hose. Replace the hose if needed. ■

NO—Go to step 19.
19. Turn the ignition switch to LOCK (0).
20. Disconnect the FTP sensor 2P connector.

21. Check for a blockage or damage at the FTP sensor ports (EVAP canister side and vent side).



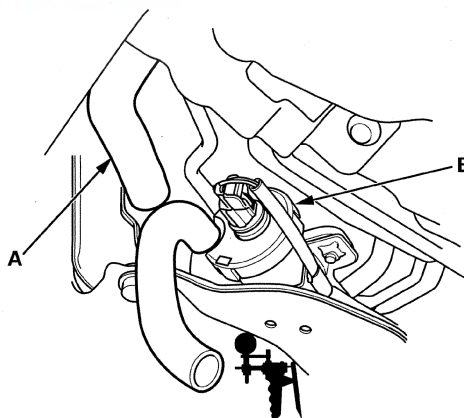
Is there any blockage or damage?

YES—Remove the blockage, and replace the FTP sensor (see page 11-359) if needed, then go to step 28.

NO—Replace the FTP sensor (see page 11-359), then go to step 28.

22. Turn the ignition switch to LOCK (0).

23. Disconnect the fresh air hose (A) from the EVAP canister (B), then connect a vacuum pump/gauge, 0-30 inHg, to the EVAP vent shut valve as shown.





24. Turn the ignition switch to ON (II).

25. Try to apply vacuum to the hose valve (not more than 5.3 kPa (1.6 inHg, 40 mmHg)) while checking the FTP SENSOR (FINE) in the DATA LIST with the HDS.

NOTE: To avoid damaging the FTP sensor, do not apply more than 5.3 kPa (1.6 inHg, 40 mmHg) of vacuum.

Does the valve hold more than 1.3 kPa (0.4 inHg, 10 mmHg) of vacuum?

YES—Replace the EVAP canister vent shut valve, then go to step 26.

NO—Remove the blockage in the fresh air hose. Replace hose if needed, then go to step 26.

26. Turn the ignition switch to LOCK (0).

27. Reconnect all connectors and the fresh air hose.

28. Turn the ignition switch to ON (II).

29. Reset the ECM/PCM with the HDS.

30. Do the ECM/PCM idle learn procedure (see page 11-268).

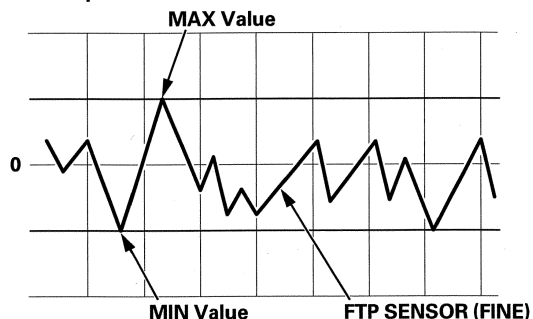
31. Take a snapshot with the HDS for 3 minutes without starting the engine.

32. Check the recorded snapshot parameters with the HDS:

Max Value of FTP SENSOR (FINE)

Min Value of FTP SENSOR (FINE)

HDS snapshot screen



Is the difference between the MAX and MIN values of the FTP SENSOR (FINE) about 0.67 kPa (0.2 inHg, 5 mmHg) or less?

YES—Troubleshooting is complete. ■

NO—Check for poor connections or loose terminals at the FTP sensor, the EVAP canister vent shut valve, and the ECM/PCM, then go to step 1.

(cont'd)

EVAP System

DTC Troubleshooting (cont'd)

DTC P145C: EVAP System Purge Flow Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 11-3).
- If DTC P145C is indicated alone, do the troubleshooting for DTC P0496 and P0497 using the freeze data for P145C.
- If DTC P0497 and P145C are stored at the same time, check for a poor connection, a blockage, or damage at the EVAP canister purge line between the EVAP canister purge valve and the EVAP canister. Also check for a stuck closed EVAP canister purge valve.
- If any of DTCs listed below are indicated at the same time as DTC P145C, troubleshoot those DTCs first, then recheck for P145C.
P0496, P0497: EVAP system purge flow

Fuel Cap Warning Message System Troubleshooting

Special Tools Required

- Vacuum/Pressure Gauge, 0–4 In.Hg, 07JAZ-001000B
- Vacuum Pump/Gauge, 0–30 In.Hg, Snap-on YA4000A or equivalent, commercially available

Do this procedure if the fuel cap warning message comes on frequently, or if the message does not go off after the fuel fill cap is tightened and the vehicle is driven several days.

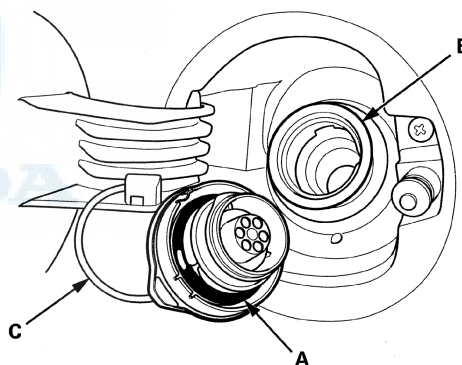
1. Check the fuel fill cap (the cap must say TIGHTEN TO CLICK). It should turn 1/4 after it's tight, then it clicks.

Is the correct fuel fill cap installed and properly tightened?

YES—Go to step 2.

NO—Replace or tighten the cap, then go to step 14.

2. Check the fuel fill cap seal (A) and the fuel fill pipe mating surface (B). Make sure the fuel fill cap tether cord (C) is not caught under the cap.



Is the fuel fill cap seal missing or damaged, is the fuel fill pipe damaged, or is the tether cord caught under the cap?

YES—Replace the fuel fill cap or the fuel fill pipe, then go to step 13.

NO—Go to step 3.

3. Reinstall and tighten the fuel fill cap.
4. Clear the DTC with the HDS.
5. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until the radiator fan comes on, then let it idle for 1 minute.



6. Test drive at 45 mph (72 km/h) for 1 minute or more.

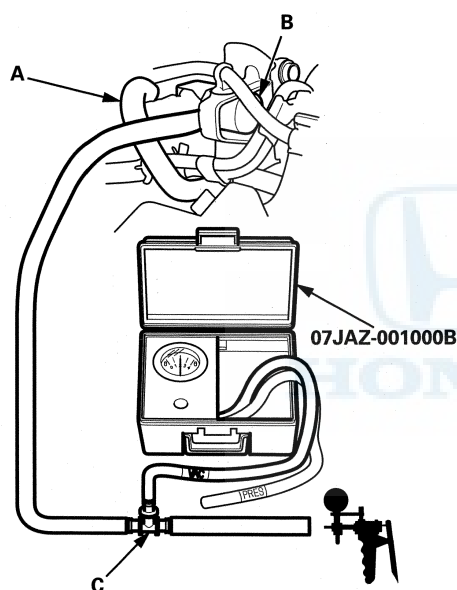
Does the fuel fill cap warning message come on?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. ■

7. Turn the ignition switch to LOCK (0).

8. Disconnect the vacuum hose (purge line) (A) from the EVAP canister purge valve (B) in the engine compartment, then connect a T-fitting (C), a vacuum gauge, and a vacuum pump/gauge, 0–30 in.Hg, to the EVAP canister purge valve as shown.



9. Turn the ignition switch to ON (II).

10. Apply about 2 kPa (0.6 in Hg, 15 mmHg) of vacuum to the hose.

11. Select EVAP PCS ON in the INSPECTION MENU with the HDS.

Does the vacuum release immediately?

YES—Check for a blockage at the EVAP canister purge line between the EVAP canister purge valve and the EVAP canister, then go to step 12.

NO—Replace the EVAP canister purge valve (see page 11-361), then go to step 12.

12. Reconnect all hoses.

13. Turn the ignition switch to ON (II).

14. Reset the ECM/PCM with the HDS.

15. Start the engine. Hold the engine speed at 3,000 rpm without load (A/T in P or N, M/T in neutral) until a radiator fan comes on, then let it idle for 1 minute.

16. Test-drive at 45 mph (72 km/h) for 1 minute or more.

Does the fuel cap warning message come on?

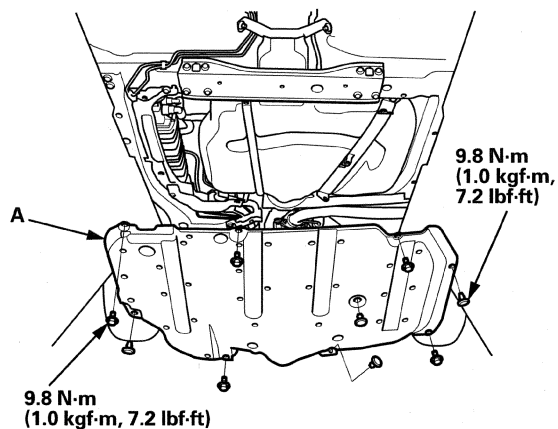
YES—Go to step 1 and recheck.

NO—Troubleshooting is complete. ■

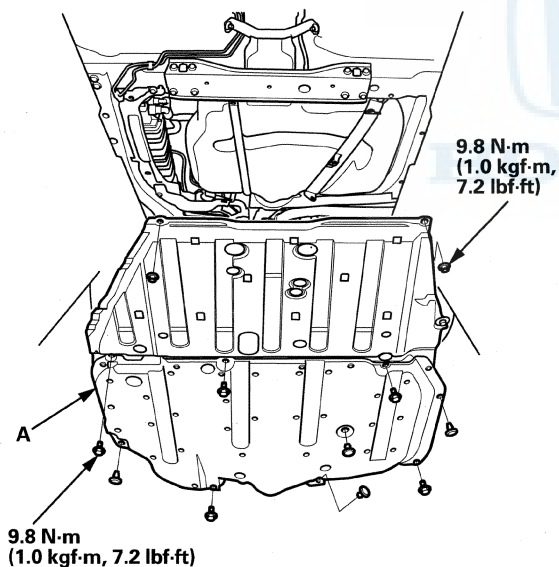
EVAP System

EVAP Canister Replacement

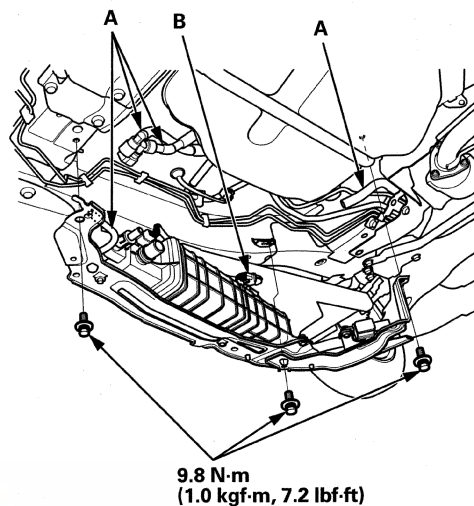
1. Raise the vehicle on a lift (see page 1-14).
2. Except LX (A/T model): Remove the fuel tank cover (A)



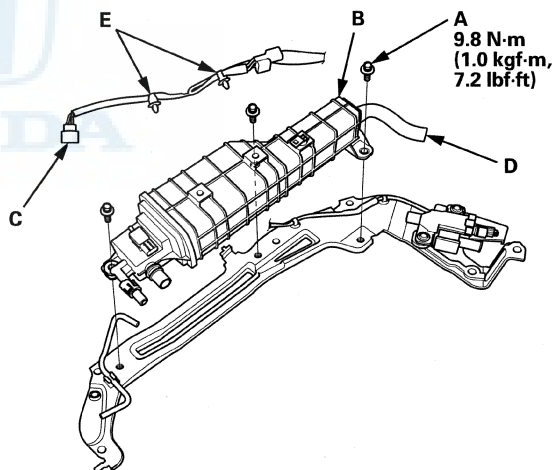
3. LX (A/T model): Remove the floor under cover assembly (A).



4. Remove the hoses (A), and disconnect the fuel subharness 6P connector (B).



5. Remove the bolts (A).



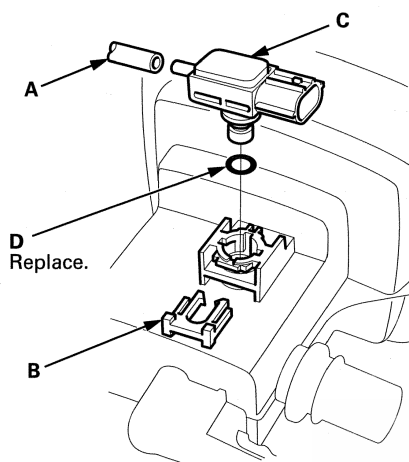
6. Remove the EVAP canister assembly (B).
7. Disconnect the FTP sensor connector (C), the hose (D), and the clips (E).



FTP Sensor Replacement

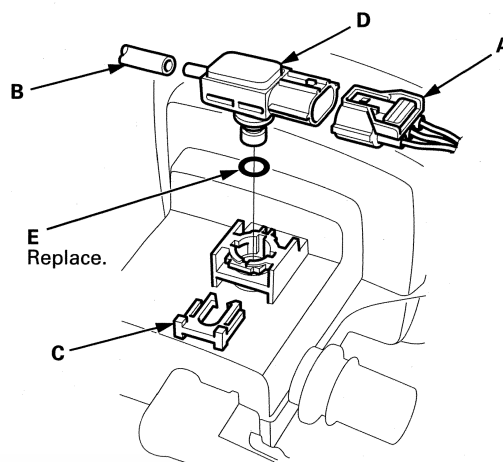
8. Disconnect the hose (A), remove the retainer (B) and remove the FTP sensor (C).

NOTE: When installing the FTP sensor, use a new O-ring (D).



9. Install the parts in the reverse order of removal.

1. Remove the EVAP canister (see page 11-358).
2. Disconnect the FTP sensor connector (A).

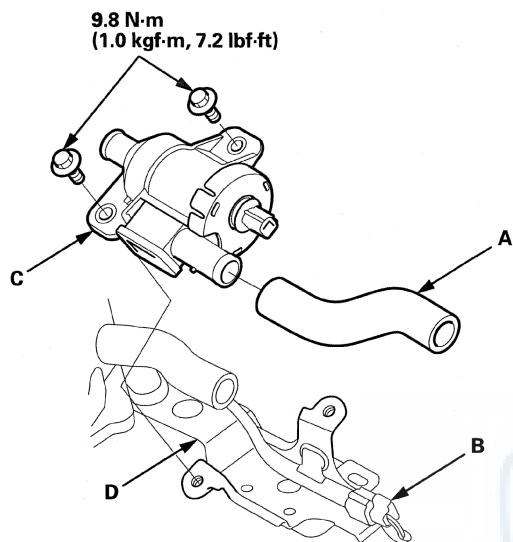


3. Disconnect the hose (B), remove the retainer (C), and remove the FTP sensor (D).
4. Install the parts in the reverse order of removal with a new O-ring (E).

EVAP System

EVAP Canister Vent Shut Valve Replacement

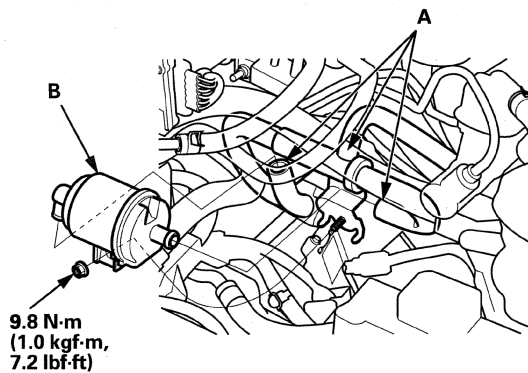
1. Remove the EVAP canister assembly (see page 11-358).
2. Remove the hose (A), and disconnect the EVAP canister vent shut valve connector (B).



3. Remove the EVAP canister vent shut valve (C) from the canister bracket (D).
4. Install the parts in the reverse order of removal.

EVAP Canister Filter Replacement

1. Remove the air cleaner (see page 11-307).
2. Disconnect the hoses (A).

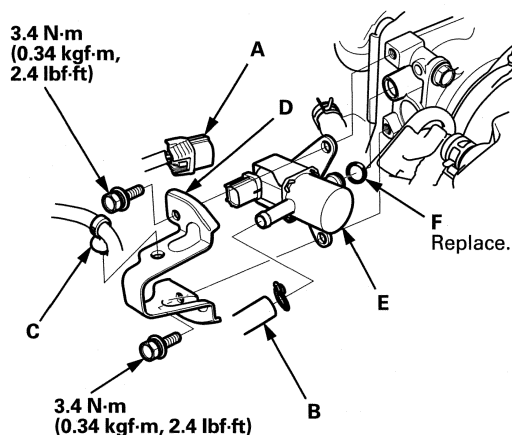


3. Remove the EVAP canister filter (B).
4. Install the parts in the reverse order of removal.

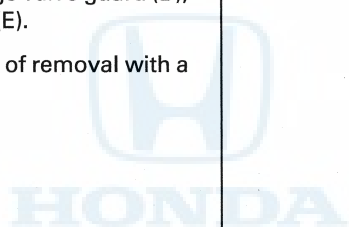


EVAP Canister Purge Valve Replacement

1. Disconnect the EVAP canister purge valve connector (A).



2. Disconnect the hose (B), and the harness clamp (C), then remove the EVAP canister purge valve guard (D), and the EVAP canister purge valve (E).
3. Install the parts in the reverse order of removal with a new O-ring (F).



Transaxle

Clutch	12-1
Manual Transmission	13-1
Automatic Transmission	14-1
Driveline/Axle	16-1

***** Driveline / Axle section located
in the next volume (Volume 2) *****



Transaxle

Clutch

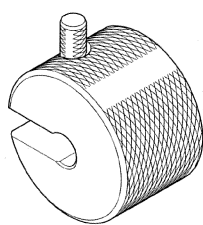
Special Tools	12-2
Component Location Index	12-3
Clutch Hydraulic System Bleeding	12-4
Clutch Pedal, Clutch Pedal Position Switch, and Clutch Interlock Switch Adjustment	12-5
Clutch Pedal Assembly Replacement	12-7
Clutch Master Cylinder Replacement	12-8
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Clutch Hose Replacement	12-13
Clutch Replacement	12-14



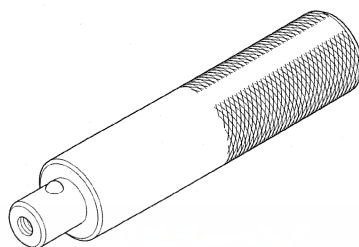
Clutch

Special Tools

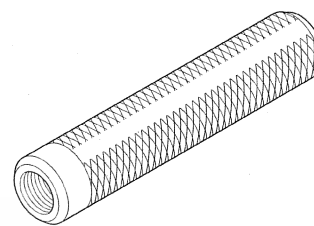
Ref.No.	Tool Number	Description	Qty
①	07741-0010201	Weight, Remover	1
②	07749-0010000	Driver Handle, 15 x 135L	1
③	07936-3710100	Remover Handle	1
④	07936-KC10500	Bearing Remover Shaft Set, 15 mm	1
⑤	07946-1870100	Bearing Driver Attachment, 28 x 30	1
⑥	07JAF-PM7011A	Clutch Alignment Disc	1
⑦	07JAF-PM7012A	Clutch Alignment Shaft	1
⑧	07LAB-PV00100	Ring Gear Holder	1
⑨	07ZAF-PR8A100	Clutch Alignment Shaft	1



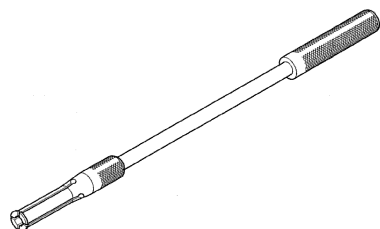
①



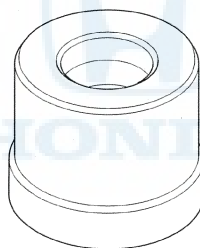
②



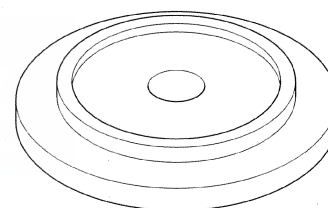
③



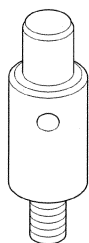
④



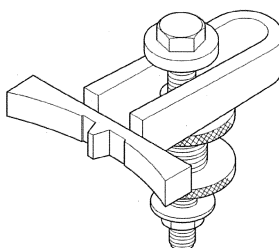
⑤



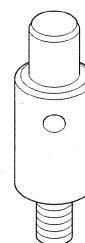
⑥



⑦



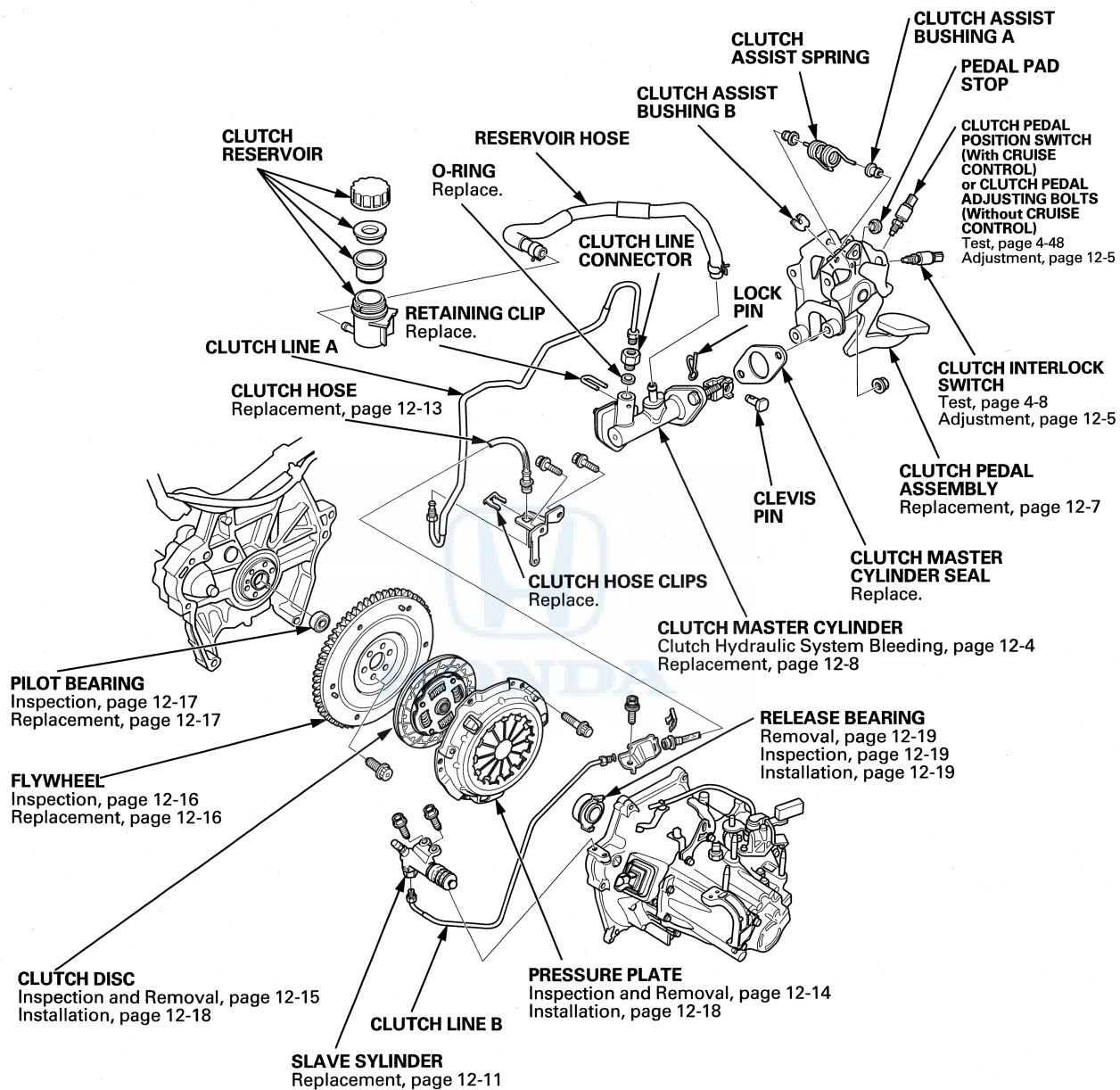
⑧



⑨



Component Location Index



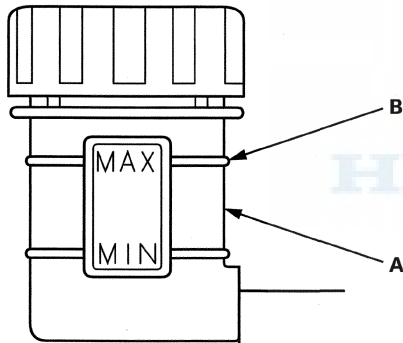
Clutch

Clutch Hydraulic System Bleeding

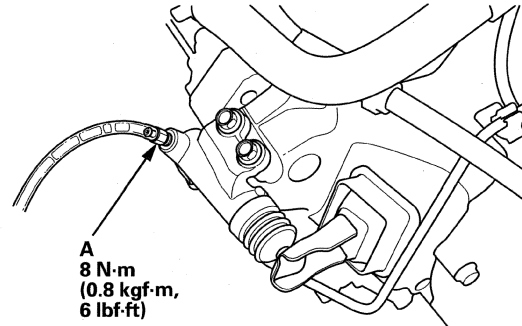
NOTE:

- Do not reuse the drained fluid. Always use Honda DOT 3 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Do not mix different brands of brake fluid; they may not be compatible.
- Make sure no dirt or other foreign matter is allowed to contaminate the brake fluid.
- Do not spill brake fluid on the vehicle; it may damage the paint or plastic. If brake fluid does contact the paint or plastic, wash it off immediately with water.
- If may be necessary to limit the movement of the release fork with a block of wood to remove all the air from the system.
- Use fender covers to avoid damaging painted surfaces.

1. Make sure the brake fluid level in the clutch reservoir (A) is at the MAX (upper) level line (B).



2. Attach one end of a clear tube to the bleeder screw (A), and put the other end into a container. Loosen the bleeder screw to allow air to escape from the system.



3. Make sure there is an adequate supply of fluid in the reservoir, then slowly push the clutch pedal all the way down. Before releasing the pedal, have an assistant temporarily tighten the bleeder screw. Loosen the bleeder screw, and push the clutch pedal down again. Repeat this step until no more bubbles appear at the clear tube.

NOTE: Make sure the fluid level on the reservoir does not go below MIN (lower).

4. Tighten the bleeder screw securely.
5. Refill the brake fluid in the reservoir to the MAX (upper) level line.
6. Check the clutch operation, and check for leaks.



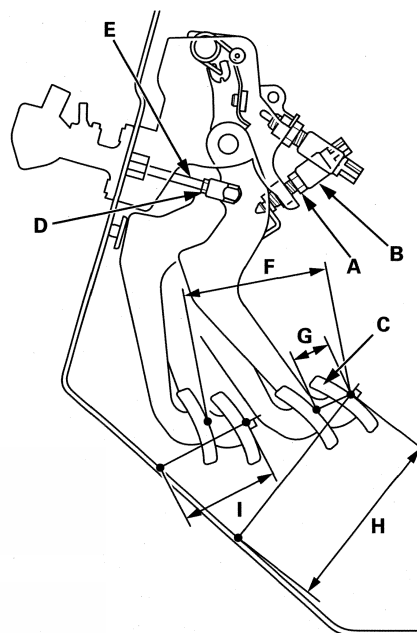
Clutch Pedal, Clutch Pedal Position Switch, and Clutch Interlock Switch Adjustment

NOTE:

- For a cruise control problem, check the clutch pedal position switch (see page 4-48).
- For a clutch interlock operation problem, check the clutch interlock switch (see page 4-8).
- Remove the driver's floor mat before adjusting the clutch pedal.
- If there is no clearance between the master cylinder piston and the push rod, the release bearing will be held against the diaphragm spring, which can result in clutch slippage or other clutch problems.
- Without cruise control: The adjusting bolt is substituted as clutch pedal position switch. The clutch pedal height adjustment is same procedure as with the clutch pedal position switch.

1. Disconnect the clutch pedal position switch connector and the clutch interlock switch connector.

2. Loosen the clutch pedal position switch locknut (A), and back off the clutch pedal position switch (B) until it no longer touches the clutch pedal (C).



3. Loosen the master cylinder pushrod locknut (D), and turn the pushrod (E). Measure the clutch pedal stroke (F).

(F) Clutch Pedal Stroke:
120–130 mm (4.72–5.12 in)

(G) Clutch Pedal Free Play (Reference):
4.1–17.4 mm (0.161–0.685 in)

(H) Clutch Pedal Height (Reference):
150 mm (5.91 in)

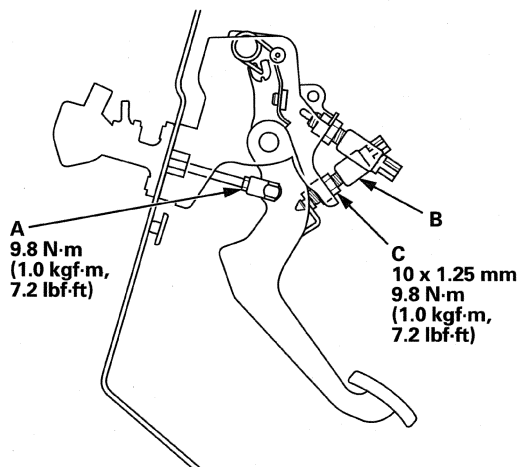
(I) Clutch Pedal Disengagement Height
(Minimum to the floor) (Reference):
75.7 mm (2.98 in)

(cont'd)

Clutch

Clutch Pedal, Clutch Pedal Position Switch, and Clutch Interlock Switch Adjustment (cont'd)

4. Tighten the master cylinder pushrod locknut (A).

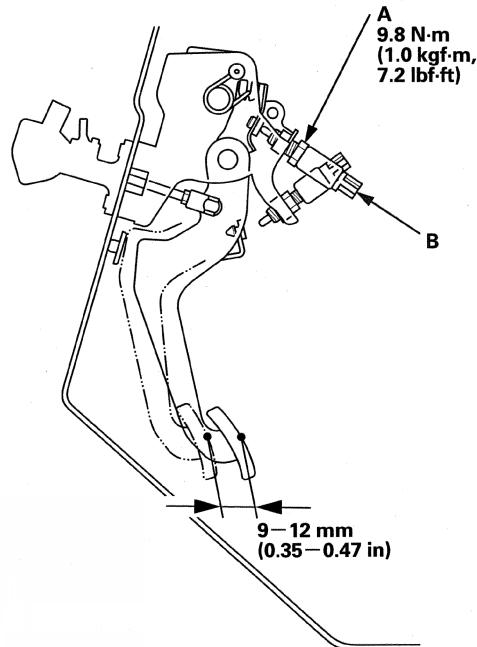


5. With the clutch pedal released, turn in the clutch pedal position switch (B) until it contacts the clutch pedal.

6. Turn in the clutch pedal position switch an additional 3/4 to 1 turn. Make sure the clutch pedal height did not change.

7. While holding the clutch pedal position switch, tighten the locknut (C).

8. Loosen the clutch interlock switch locknut (A).



9. Fully press the clutch pedal to the floor, then release the clutch pedal 9–12 mm (0.35–0.47 in) and hold it there.

10. Adjust the position of the clutch interlock switch (B) so the engine starts with the clutch pedal in this position.

11. While holding the clutch interlock switch, tighten the locknut.

12. Check the clutch operation.

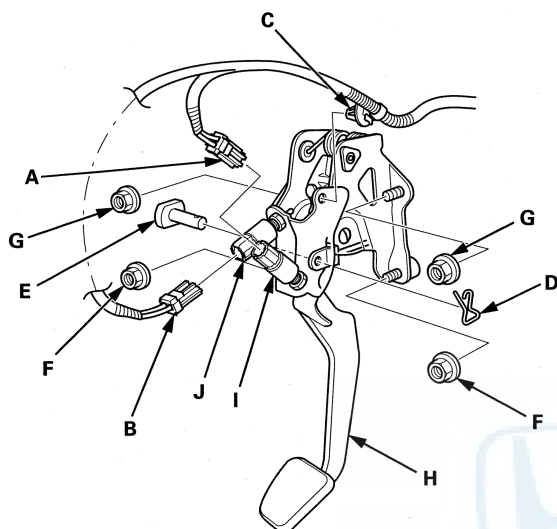
13. Connect the clutch pedal position switch connector and the clutch interlock switch connector, then check the cruise control and clutch interlock operation.



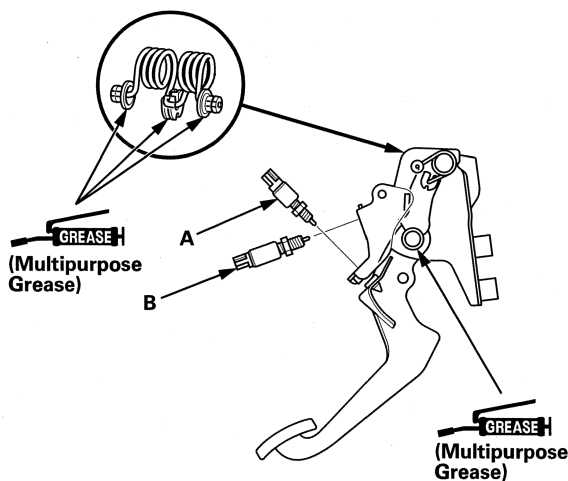
Clutch Pedal Assembly Replacement

NOTE: Without cruise control: The adjusting bolt is substituted as clutch pedal position switch.

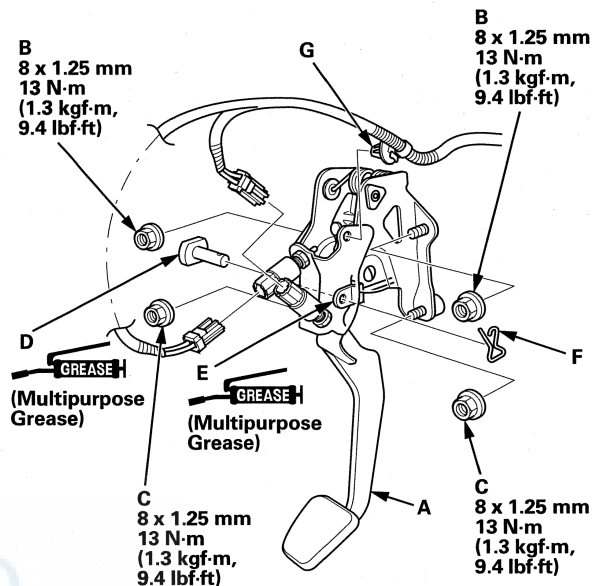
1. Disconnect the clutch pedal position switch connector (A) and the clutch interlock switch connector (B). Remove the harness clip (C).



2. Pry out the lock pin (D), and pull the clevis pin (E) out of the clevis.
3. Remove the master cylinder mounting nuts (F) and clutch pedal mounting nuts (G).
4. Remove the clutch pedal assembly (H).
5. Remove the clutch pedal position switch (I) and the clutch interlock switch (J).
6. Loosely install the clutch pedal position switch (A) and the clutch interlock switch (B).



7. Install the clutch pedal assembly (A).



8. Install the clutch pedal mounting nuts (B) and the master cylinder mounting nuts (C).
9. Apply multipurpose grease to the clevis pin (D) and the mating surfaces (E) of the clevis and the pedal.
Slide the clevis pin into the clevis, then install the lock pin (F).
10. Adjust the clutch pedal, the clutch pedal position switch, and the clutch interlock switch (see page 12-5).

NOTE: Connect the switch connectors after adjusting them.

11. Install the harness clip (G).
12. Check the clutch operation.

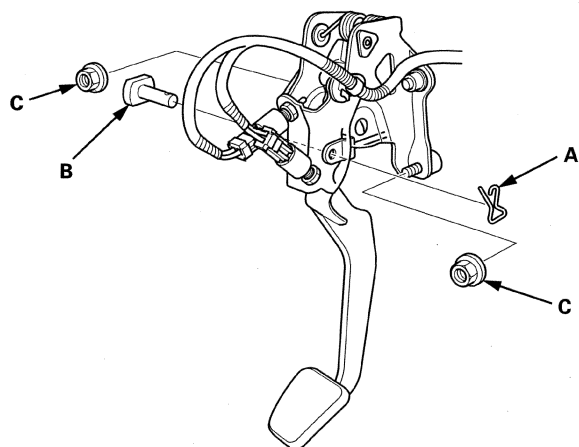
Clutch

Clutch Master Cylinder Replacement

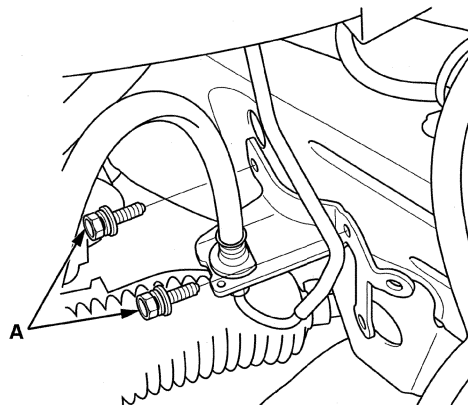
NOTE:

- Use fender covers to avoid damaging painted surfaces.
- Do not spill brake fluid on the vehicle; it may damage the paint or plastic. If brake fluid does contact the paint or plastic, wash it off immediately with water.
- Without cruise control: Clutch pedal adjusting bolt is substituted as clutch pedal position switch.
- Put on gloves to protect your hands.

1. Secure the hood in the wide open position (support rod in the lower hole).
2. Remove the wiper arms (see page 22-264).
3. Remove the cowl cover and hood hinge cover (see page 20-168).
4. Remove the wiper motor (see page 22-262).
5. Remove the under-cowl panel (see page 20-185).
6. Remove the air cleaner housing (see page 11-307).
7. Remove and discard the brake fluid from the clutch master cylinder reservoir with a syringe or other suitable device.
8. Remove the driver's dashboard lower cover (see page 20-97).
9. Pry out the lock pin (A), and pull the clevis pin (B) out of the clevis. Remove the master cylinder mounting nuts (C).



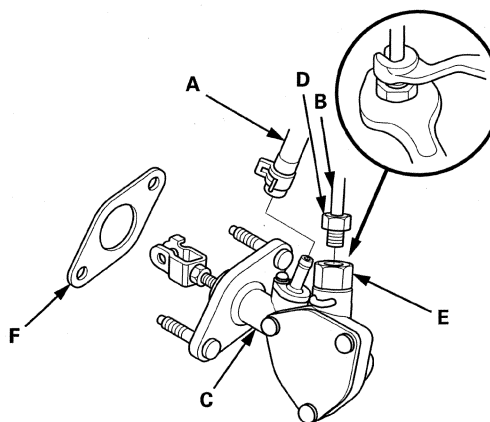
10. Remove the clutch line bracket bolts (A).



11. Remove the reservoir hose from two clips.
12. Disconnect the reservoir hose (A), then remove the clutch line (B) from the clutch master cylinder (C). Plug or wrap the end of the reservoir hose and clutch line with a shop towel to prevent brake fluid from coming out.

NOTE:

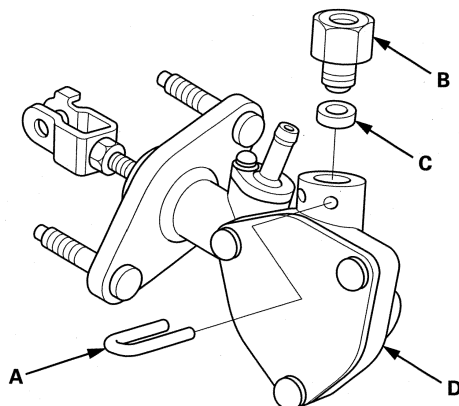
- Loosen the flare nut (D) while holding the clutch line connector (E) with a wrench.
- Inspect the hose. If the hose has damage, leaks interference, or twisting, replace it.



13. Remove the clutch master cylinder seal (F) from the clutch master cylinder.



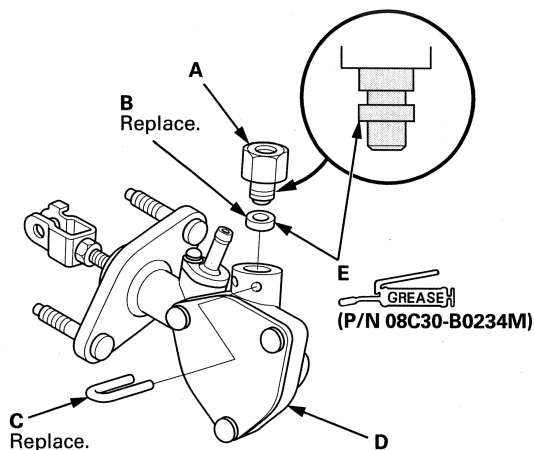
14. Remove the retaining clip (A), then remove the clutch line connector (B) and the O-ring (C) from the master cylinder (D).



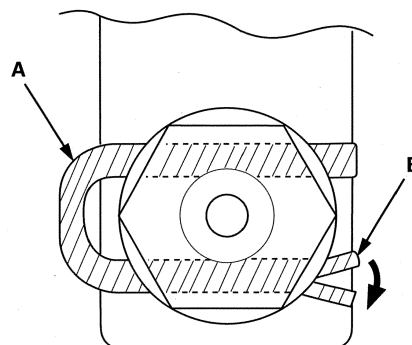
15. Install the clutch line connector (A) with a new O-ring (B), then set in a new retaining clip (C) to the master cylinder (D).

NOTE:

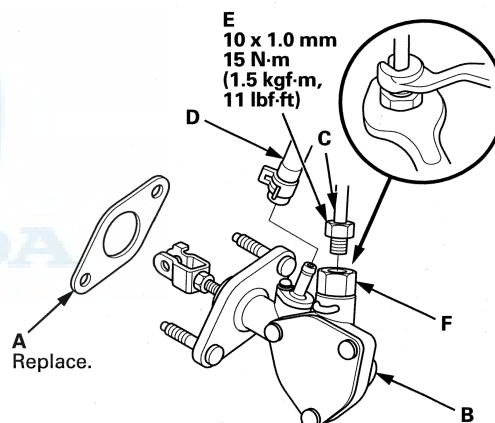
- Apply the silicone grease (P/N 08C30-B0234M) on the O-ring and the joint part (E) of the clutch line connector.
- Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands or gloves.



16. To prevent the retaining clip (A) from coming off, pry apart the tip (B) of the clip with a screwdriver.



17. Install a new clutch master cylinder seal (A) to the clutch master cylinder (B).



18. Connect the clutch line (C), and reservoir hose (D).

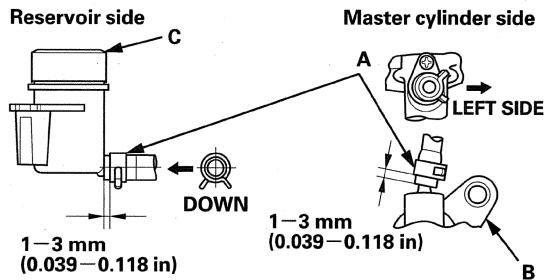
NOTE: Tighten the flare nut (E) while holding the clutch line connector (F) with a wrench.

(cont'd)

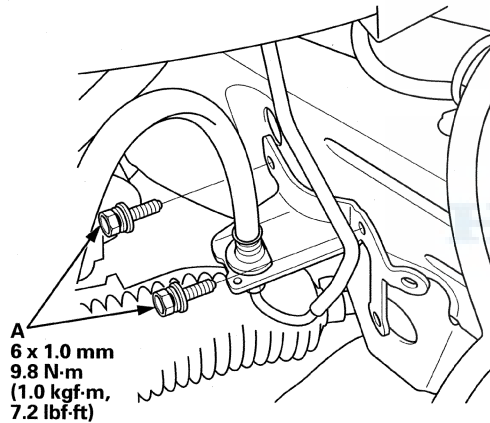
Clutch

Clutch Master Cylinder Replacement (cont'd)

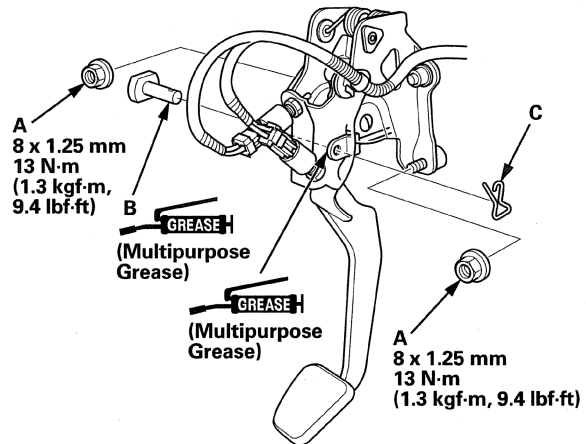
19. Make sure the hose clamps (A) are positioned on the master cylinder (B) and reservoir (C) as shown.



20. Install the two reservoir hose clips.
21. Install the clutch line bracket bolts (A).



22. Install the master cylinder mounting nuts (A).



23. Apply multipurpose grease to the clevis pin (B), and slide it into the clevis, then install a lock pin (C).
24. Adjust the clutch pedal, the clutch pedal position switch, and the clutch interlock switch (see page 12-5).
25. Bleed the clutch hydraulic system (see page 12-4).
26. Check the clutch operation, and check for leaks.
27. Install the driver's dashboard lower cover (see page 20-97).
28. Install the air cleaner housing (see page 11-307).
29. Install the under-cowl panel (see page 20-185).
30. Install the wiper motor (see page 22-262).
31. Install the cowl cover and hood hinge cover (see page 20-168).
32. Install the wiper arms (see page 22-264).
33. Test-drive the vehicle.



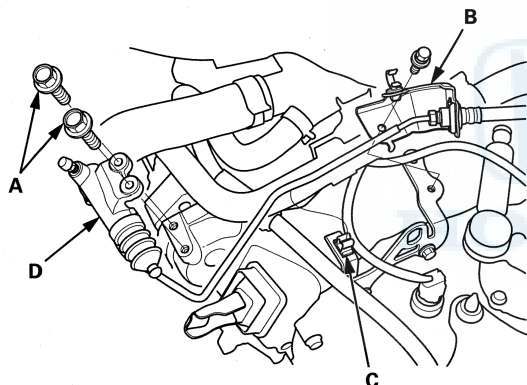
Slave Cylinder Replacement

NOTE:

- Use fender covers to avoid damaging painted surfaces.
- Do not spill brake fluid on the vehicle; it may damage the paint or plastic. If brake fluid does contact the paint or plastic, wash it off immediately with water.
- Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands or gloves.

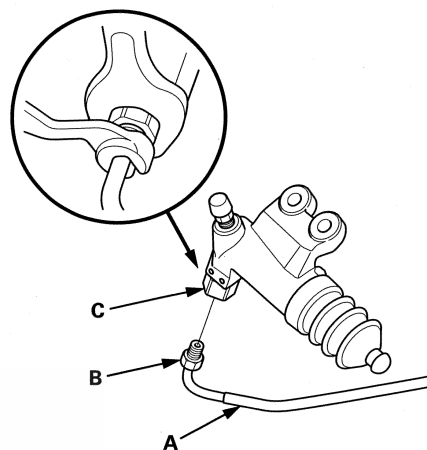
Removal/Installation

1. Do the battery removal procedure (see page 22-70).
2. Remove the air cleaner housing (see page 11-307).
3. Remove the mounting bolts (A), clutch line bracket (B), and clutch line clip (C), then remove the slave cylinder (D).



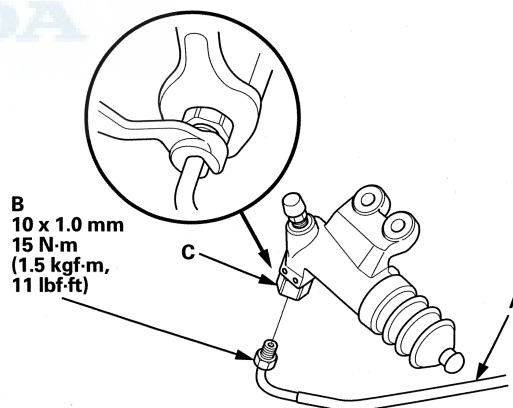
4. Disconnect the clutch line (A). Plug the end of the clutch line with a shop towel to prevent brake fluid from coming out.

NOTE: Loosen the flare nut (B) while holding the clutch line connector (C) with a wrench.



5. Connect the clutch line (A).

NOTE: Tighten the flare nut (B) while holding the clutch line connector (C) with a wrench.

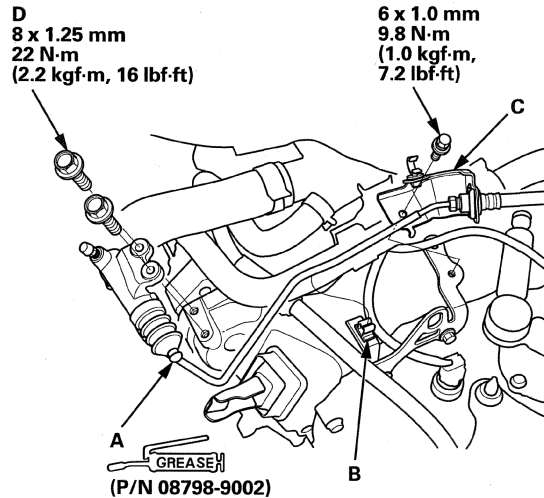


(cont'd)

Clutch

Slave Cylinder Replacement (cont'd)

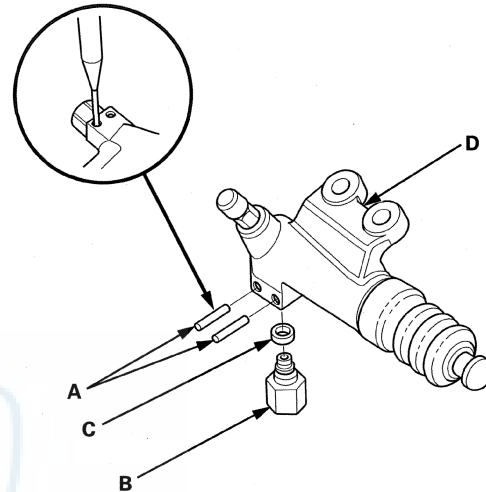
6. Apply a light coat of super high temp urea grease (P/N 08798-9002) to the push rod (A) of the slave cylinder.



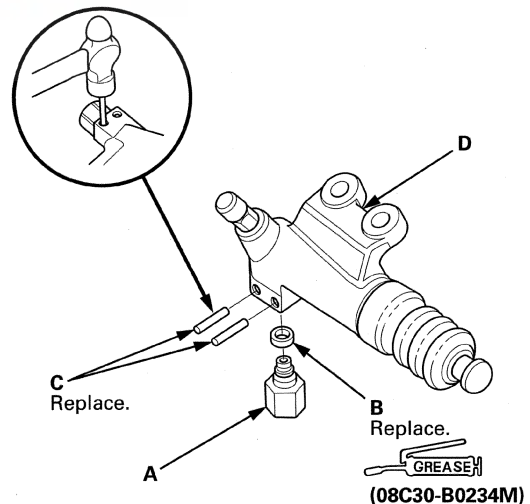
7. Install the clutch line clip (B), the clutch line bracket (C), and the mounting bolts (D).
8. Bleed the clutch hydraulic system (see page 12-4).
9. Check the clutch operation, and check for leaks.
10. Install the air cleaner housing (see page 11-307).
11. Do the battery installation procedure (see page 22-70).
12. Test-drive the vehicle.

O-ring Replacement

1. Remove the slave cylinder.
2. Remove the roll pins (A), then remove the clutch line connector (B) and the O-ring (C) from the slave cylinder (D).



3. Install the clutch line connector (A) with a new O-ring (B), then set in new roll pins (C) to the slave cylinder (D).



4. Install the slave cylinder.

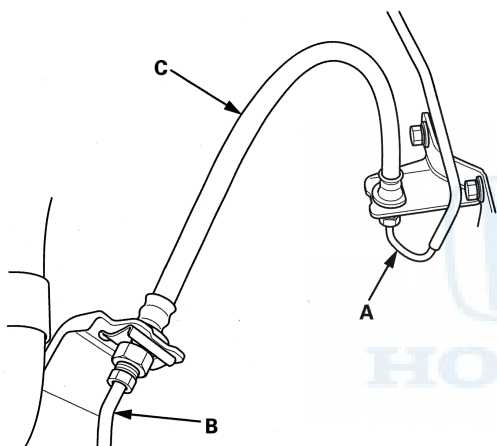


Clutch Hose Replacement

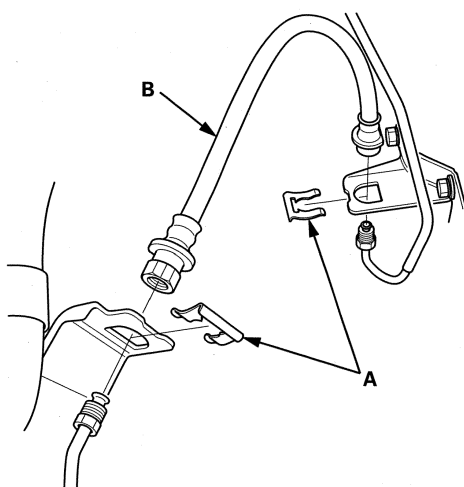
NOTE:

- Replace the clutch hose if it is twisted or cracked, or if it leaks.
- Use fender covers to avoid damaging painted surfaces.
- Do not spill brake fluid on the vehicle; it may damage the paint or plastic. If brake fluid does contact the paint or plastic, wash it off immediately with water.

1. Do the battery removal procedure (see page 22-70).
2. Remove the air cleaner housing (see page 11-307).
3. Disconnect the clutch hose (C) from the clutch line A and clutch line B.

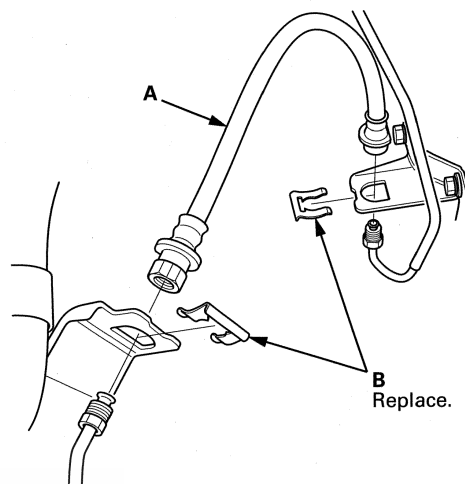


4. Remove and discard the clutch hose clips (A) from the clutch hose (B).

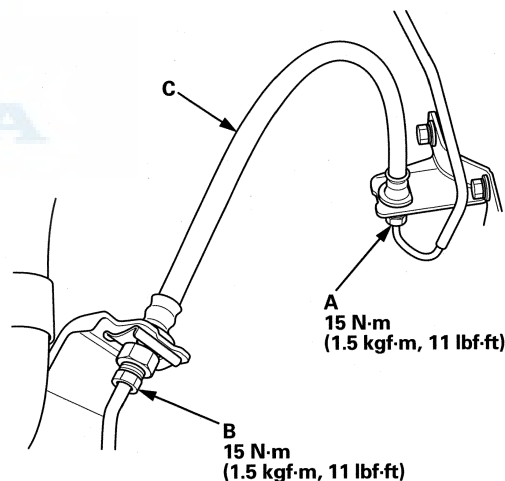


5. Remove the clutch hose from clutch hose brackets.

6. Install the clutch hose (A) with new clutch hose clips (B).



7. Connect the clutch line A and clutch line B to the clutch hose (C).



8. Bleed the clutch hydraulic system (see page 12-4).
9. Do the following checks:
 - Check the clutch hose and line joint for leaks, and tighten if necessary.
 - Check the clutch hose for interference and twisting.
10. Install the air cleaner housing (see page 11-307).
11. Do the battery installation procedure (see page 22-70).
12. Test-drive the vehicle.

Clutch

Clutch Replacement

Special Tools Required

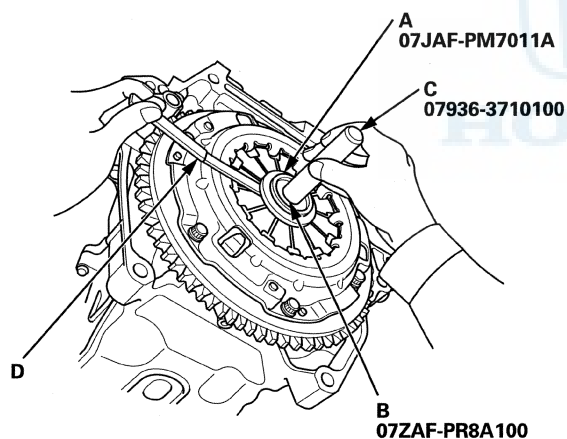
- Clutch Alignment Disc 07JAF-PM7011A
- Clutch Alignment Shaft 07JAF-PM7012A
- Clutch Alignment Shaft 07ZAF-PR8A100
- Ring Gear Holder 07LAB-PV00100
- Weight, Remover 07741-0010201
- Driver Handle, 15 x 135L 07749-0010000
- Remover Handle 07936-3710100
- Bearing Remover Shaft Set, 15 mm 07936-KC10500
- Bearing Driver Attachment, 28 x 30 07946-1870100

Engine Side

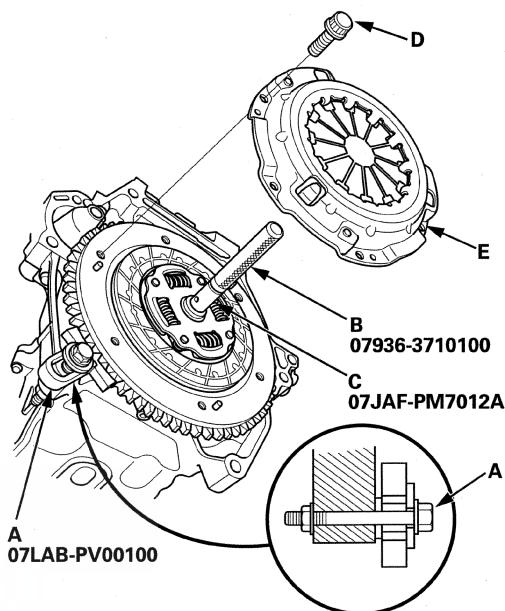
Pressure Plate Inspection and Removal

1. Remove the transmission (see page 13-7).
2. Check the evenness of the height of the diaphragm spring fingers using the clutch alignment disc (A), clutch alignment shaft (B), remover handle (C), and a feeler gauge (D). If the height difference is more than the service limit, replace the pressure plate.

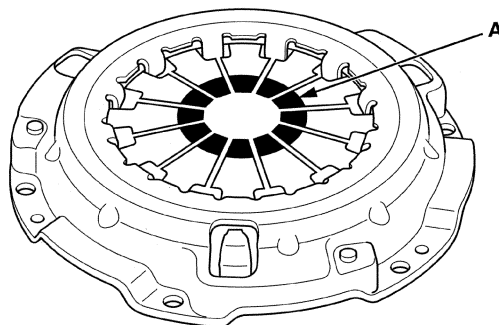
Standard (New): 0.6 mm (0.024 in) max.
Service Limit: 1.0 mm (0.039 in)



3. Install the ring gear holder (A), the remover handle (B), and the clutch alignment shaft (C).

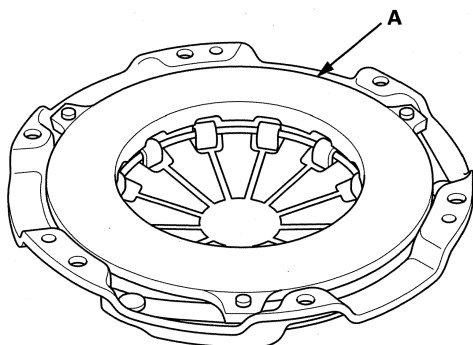


4. To prevent warping, unscrew the pressure plate mounting bolts (D) in a crisscross pattern in several steps, then remove the pressure plate (E).
5. Inspect the fingers of the diaphragm spring (A) for wear at the release bearing contact area.



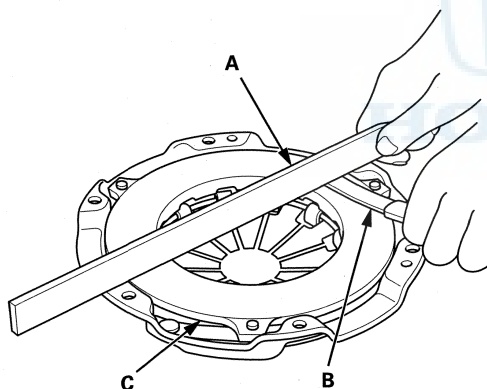


6. Inspect the pressure plate (A) surface for wear, cracks, and burning.



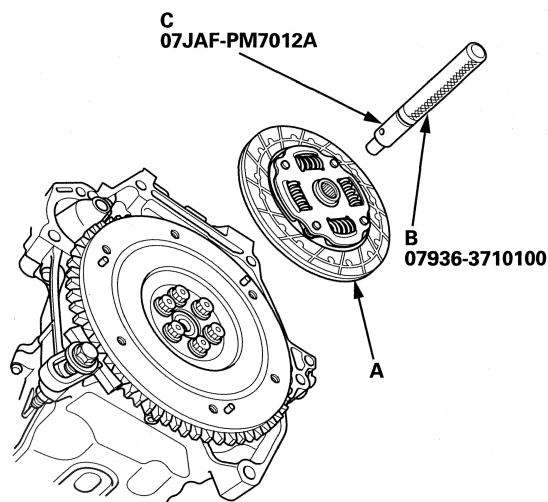
7. Inspect for warpage using a precision straight edge (A) and a feeler gauge (B). Measure across the pressure plate (C). If the measurement is greater than the service limit, replace the pressure plate.

Standard (New): 0.03 mm (0.001 in) max.
Service Limit: 0.15mm (0.005 in)



Clutch Disc Inspection and Removal

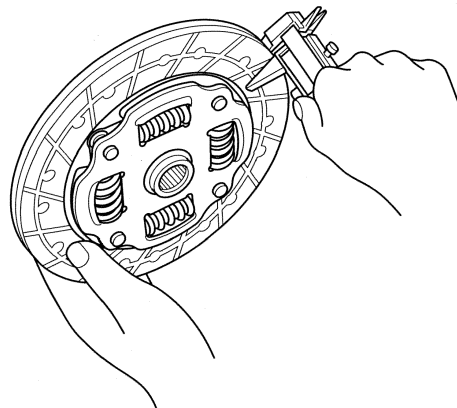
8. Remove the clutch disc (A), the remover handle (B), and the clutch alignment shaft (C).



9. Inspect the lining of the clutch disc for signs of slipping or oil. If the clutch disc looks burnt or is oil soaked, replace the clutch disc and the pressure plate as a set. If the clutch disc is oil soaked, find and repair the source of the oil leak.

10. Measure the clutch disc thickness. If the measurement is less than the service limit, replace the clutch disc.

Standard (New): 7.25—7.95 mm (0.2854—0.3130 in)
Service Limit: 5.0 mm (0.197 in)



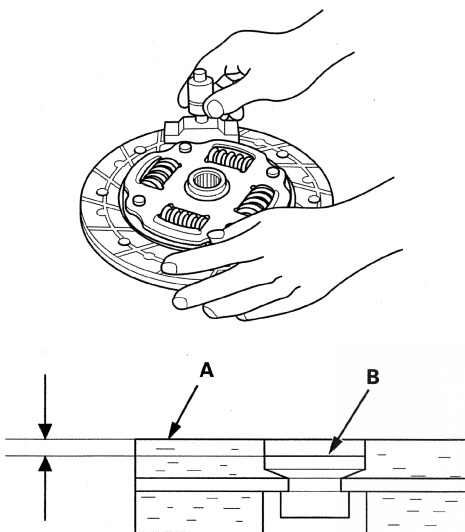
(cont'd)

Clutch

Clutch Replacement (cont'd)

11. Measure the rivet depth from the clutch disc lining surface (A) to the rivets (B) on both sides. If the measurement is less than the service limit, replace the clutch disc.

Standard (New): 1.00—1.50 mm (0.039—0.059 in)
Service Limit: 0.2 mm (0.008 in)

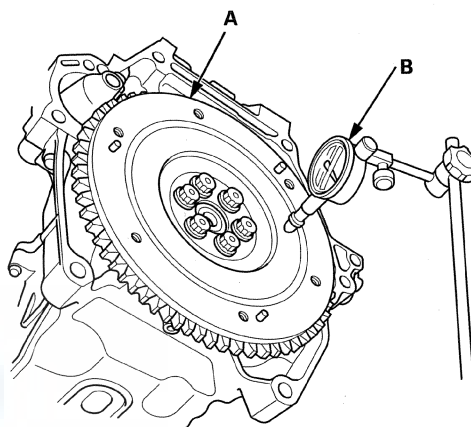


Flywheel Inspection

12. Remove the ring gear holder.
13. Inspect the ring gear teeth for wear and damage.
14. Inspect the clutch disc mating surface on the flywheel for wear, cracks, and burning.

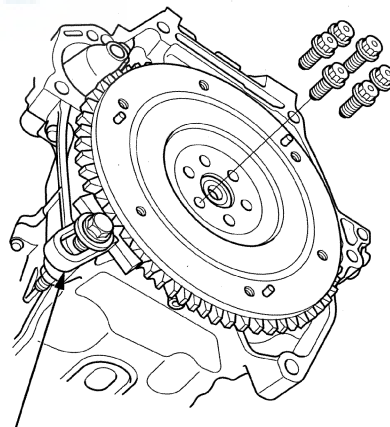
15. Measure the flywheel (A) runout using a dial indicator (B). Through at least two full turns with pushing against the flywheel each time you turn it to take up the crankshaft thrust washer clearance. If the measurement is more than the service limit, replace the flywheel, and recheck the runout. Go to step 16.

Standard (New): 0.05 mm (0.0020 in) max.
Service Limit: 0.15 mm (0.0059 in)



Flywheel Replacement

16. Install the ring gear holder.

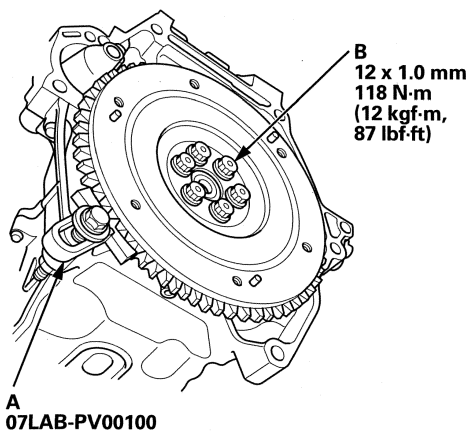


07LAB-PV00100

17. Loosen the flywheel mounting bolts in a crisscross pattern in several steps. Remove the bolts, then remove the flywheel and the ring gear holder.
18. Install the flywheel on the crankshaft, and install the mounting bolts finger-tight.

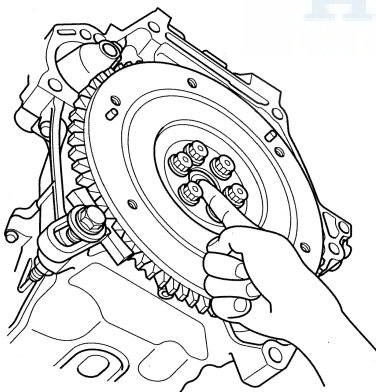


19. Install the ring gear holder (A), then tighten the flywheel mounting bolts (B) in a crisscross pattern in several steps.



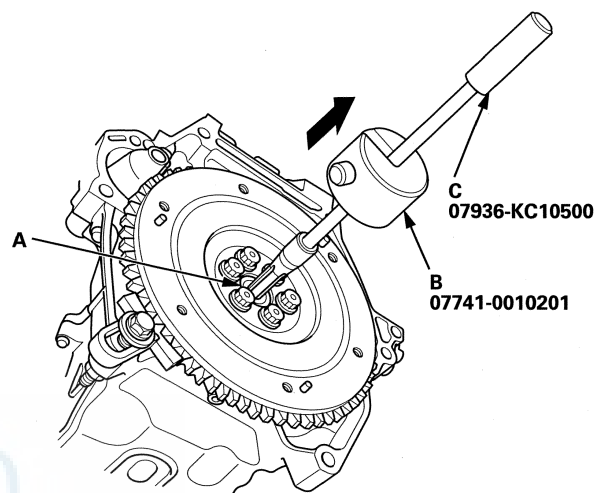
Pilot Bearing Inspection

20. Inspect the crankshaft pilot bearing for wear and damage.
21. Inspect the inside surface of the crankshaft pilot bearing with your finger. If the crankshaft pilot bearing is not smooth, replace it; go to step 22.

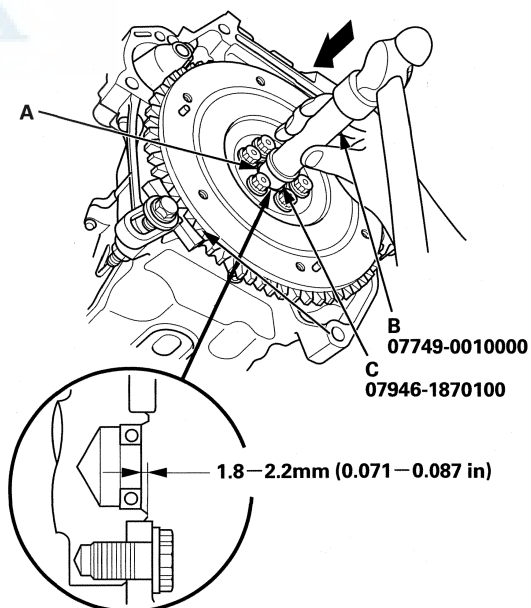


Pilot Bearing Replacement

22. Remove the crankshaft pilot bearing (A) using the remover weight (B), and the 15 mm bearing remover shaft set (C).



23. Install a new pilot bearing (A) into the crankshaft using the 15 x 135L driver handle (B) and the 28 x 30 mm bearing driver attachment (C).



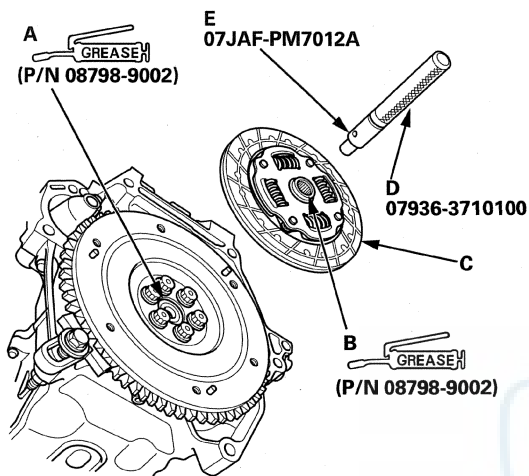
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Clutch

Clutch Replacement (cont'd)

Clutch Disc and Pressure Plate Installation

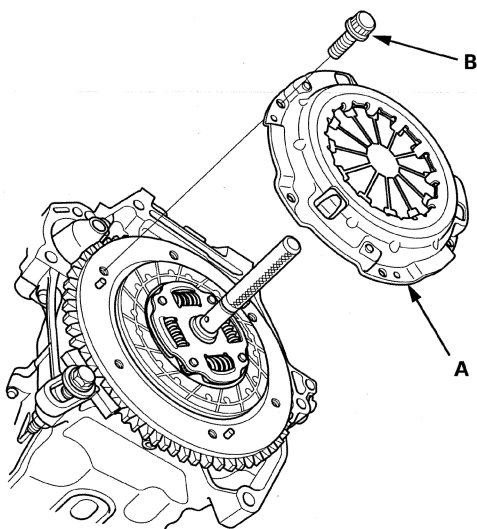
24. Temporarily install the clutch disc onto the splines of the transmission mainshaft. Make sure the clutch disc slides freely on the mainshaft.
25. Apply a light coat of super high temp urea grease (P/N 08798-9002) to the crankshaft pilot bearing (A).



26. Apply super high temp urea grease (P/N 08798-9002) to the splines (B) of the clutch disc (C), then install the clutch disc using the remover handle (D) and the clutch alignment shaft (E).

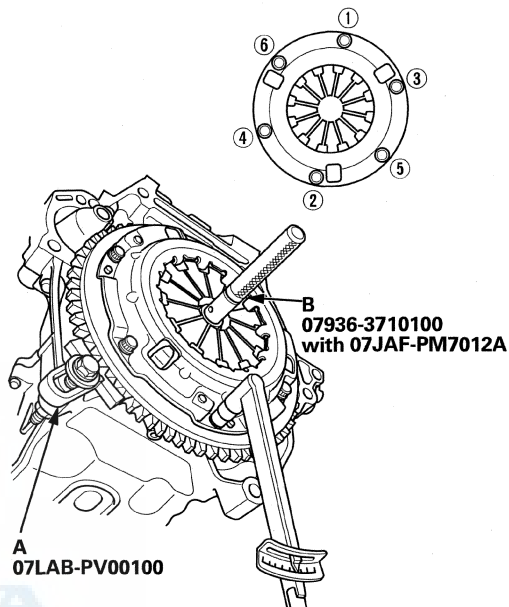
NOTE: Wipe off any excess grease.

27. Install the pressure plate (A) and the mounting bolts (B) finger-tight.



28. Torque the mounting bolts in a crisscross pattern. Tighten the bolts in several steps to prevent warping the diaphragm spring.

PRESSURE PLATE MOUNTING BOLT TORQUE:
25 N·m (2.5 kgf·m, 18 lbf·ft)



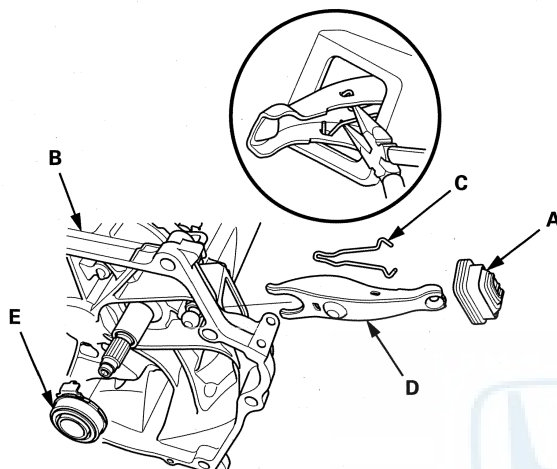
29. Remove the ring gear holder (A), the remover handle, and the clutch alignment shaft (B).
30. Make sure the diaphragm spring fingers are all the same height.
31. Do the release bearing inspection, and replace it if necessary.
32. Install the transmission (see page 13-11).



Transmission Side

Release Bearing Removal

1. Remove the transmission (see page 13-7).
2. Remove the release fork boot (A) from the clutch housing (B).

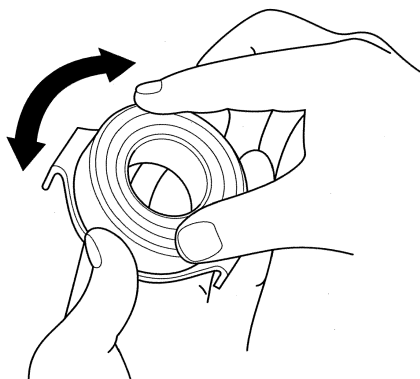


3. Squeeze the release fork set spring (C) with pliers to remove the release fork (D) from the clutch housing. Remove the release bearing (E).

Release Bearing Inspection

4. Check the play of the release bearing by spinning it by hand. If there is excessive play or noise, replace the release bearing.

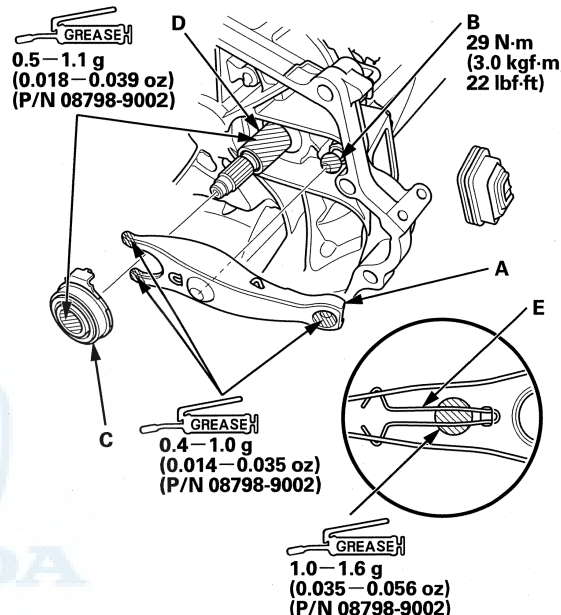
NOTE: The release bearing is packed with grease. Do not wash it in solvent.



Release Bearing Installation

5. Apply high temp urea grease (P/N 08798-9002) to the release fork (A), the release fork bolt (B), the release bearing (C), and the release bearing guide (D) in the shaded areas, then set the release fork set spring (E).

NOTE: Replace the release fork bolt if necessary.

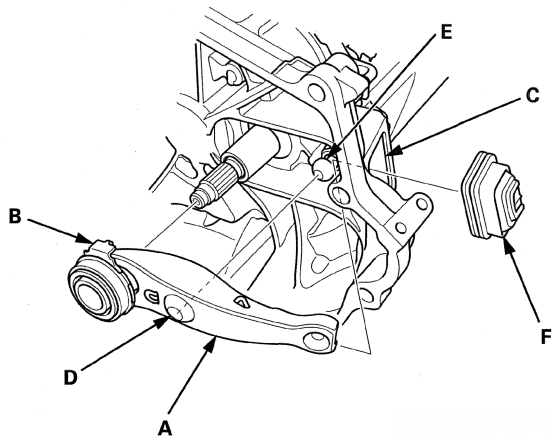


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Clutch

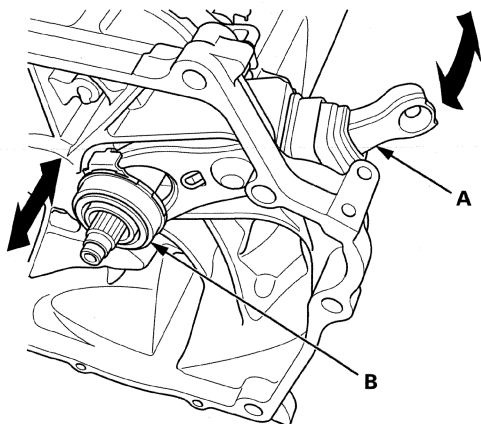
Clutch Replacement (cont'd)

6. With the release fork (A) slid between the release bearing pawls (B), install the release bearing on the mainshaft while inserting the release fork through the hole (C) in the clutch housing.



7. Align the detent (D) of the release fork with the release fork bolt (E), then press the detent of the release fork over the release fork bolt squarely.
8. Install the release fork boot (F). Make sure the boot seals around the release fork and clutch housing.
9. Move the release fork (A) right and left to make sure that it fits properly against the release bearing (B), and that the release bearing slides smoothly.

NOTE: Wipe off any excess grease.



10. Install the transmission (see page 13-11).

Transaxle

Manual Transmission

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M/T Differential

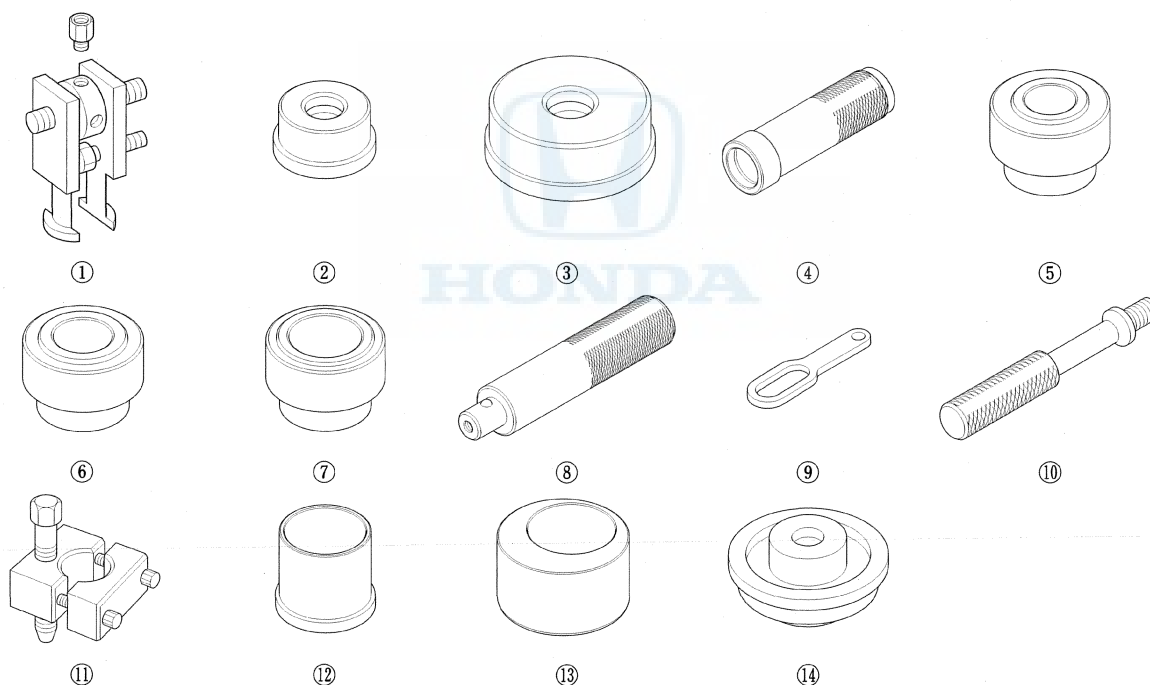
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Manual Transmission

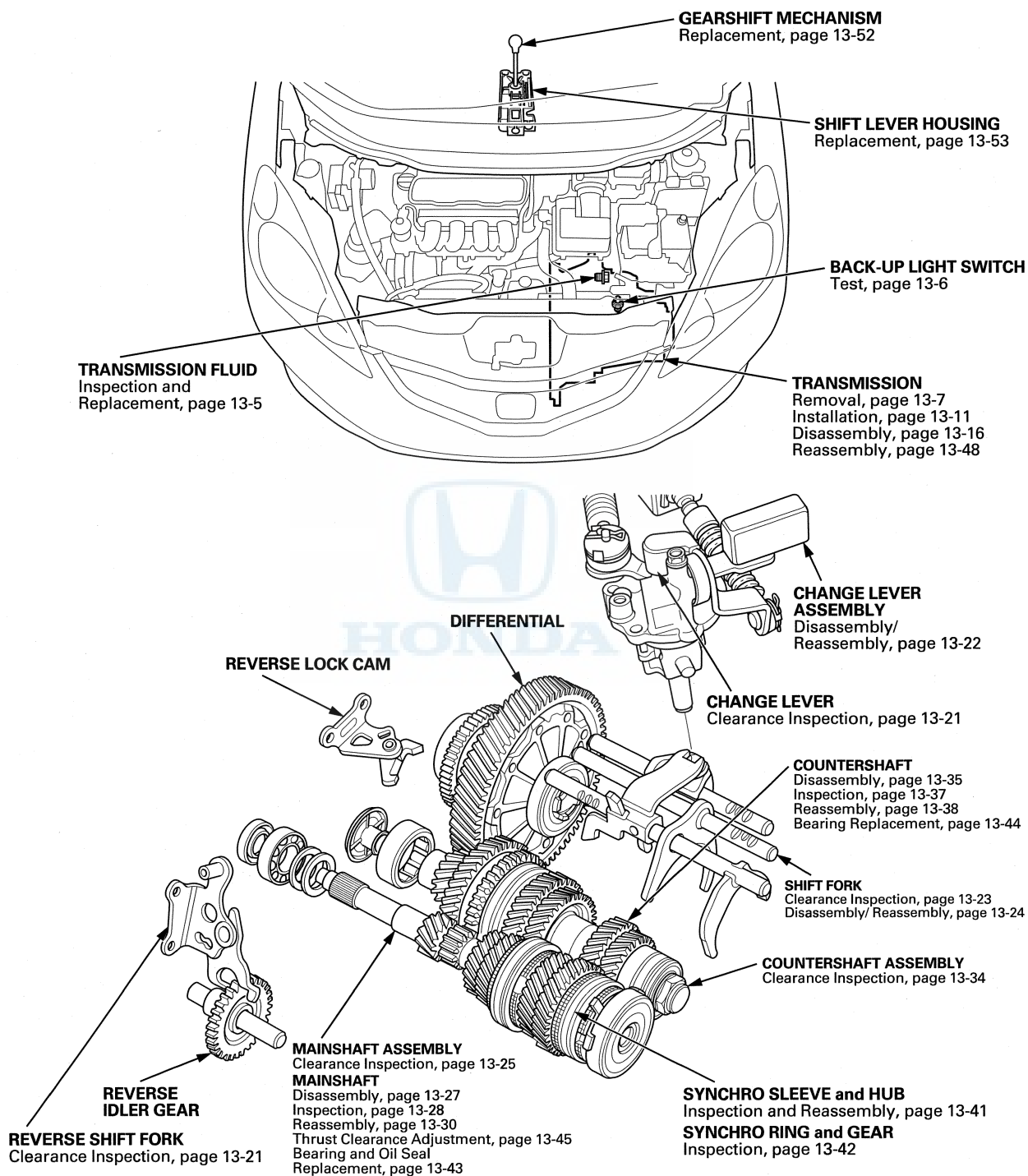
Special Tools

Ref.No.	Tool Number	Description	Qty
①	07736-A01000B	Adjustable Bearing Puller, 25—40 mm	1
②	07746-0010200	Attachment, 37 x 40 mm	1
③	07746-0010400	Attachment, 52 x 55 mm	1
④	07746-0030100	Driver Handle, 40 mm I.D.	1
⑤	07746-0030200	Attachment, 25 mm I.D.	1
⑥	07746-0030300	Bearing Driver Attachment, 30 mm	1
⑦	07746-0030400	Attachment, 35 mm I.D.	1
⑧	07749-0010000	Driver Handle, 15 x 135L	1
⑨	07AAK-SNAA120	Universal Lifting Eyelet	1
⑩	07AAK-SNAA500	1.8 Support Bolt	1
⑪	07GAJ-PG20110	Mainshaft Holder	1
⑫	07GAJ-PG20120	Collar	1
⑬	07GAJ-PG20130	Mainshaft Base	1
⑭	07JAD-PN00100	Oil Seal Driver Attachment, 64 x 72 mm	1





Component Location Index



Manual Transmission

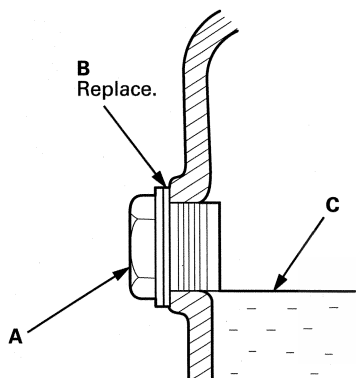
Symptom Troubleshooting Index

Symptom	Diagnostic procedure
Hard to shift into 1st gear	<ol style="list-style-type: none">1. Check and/or replace the MTF (see page 13-5).2. Check the clutch (see page 12-14).3. Check the change lever assembly (see page 13-22).4. Check the 1st synchro ring and 1st gear (see page 13-42).5. Check the 1st/2nd synchro sleeve and hub (see page 13-41).
Hard to shift into 2nd gear	<ol style="list-style-type: none">1. Check and/or replace the MTF (see page 13-5).2. Check the change lever assembly (see page 13-22).3. Check the 2nd synchro ring and 2nd gear (see page 13-42).4. Check the 1st/2nd synchro sleeve and hub (see page 13-41).
Hard to shift into 3rd gear	<ol style="list-style-type: none">1. Check and/or replace the MTF (see page 13-5).2. Check the change lever assembly (see page 13-22).3. Check the 3rd synchro ring and 3rd gear (see page 13-42).4. Check the 3rd/4th synchro sleeve and hub (see page 13-41).
Hard to shift into 4th gear	<ol style="list-style-type: none">1. Check and/or replace the MTF (see page 13-5).2. Check the change lever assembly (see page 13-22).3. Check the 4th synchro ring and 4th gear (see page 13-42).4. Check the 3rd/4th synchro sleeve and hub (see page 13-41).
Hard to shift into 5th gear	<ol style="list-style-type: none">1. Check and/or replace the MTF (see page 13-5).2. Check the change lever assembly (see page 13-22).3. Check the 5th synchro ring and 5th gear (see page 13-42).4. Check the 5th synchro sleeve and hub (see page 13-41).
Hard to shift into reverse	<ol style="list-style-type: none">1. Check and/or replace the MTF (see page 13-5).2. Check the clutch (see page 12-14).3. Check the change lever assembly (see page 13-22).4. Check the reverse shift fork and the reverse idler gear (see page 13-21).5. Check reverse gears.
Noise from the transmission	<ol style="list-style-type: none">1. Check and/or replace the MTF (see page 13-5).2. Check the MTF level (under filled or over filled).3. Check the transmission gears.4. Check the transmission bearings.5. Check the differential carrier, the final driven gear, and the carrier bearings.
Shift lever does not operate smoothly	<ol style="list-style-type: none">1. Check and/or replace the MTF (see page 13-5).2. Check the shift cables and the joints (see page 13-52).3. Check the shift lever housing and the shift lever shaft.4. Check the change lever assembly. (see page 13-22)
Transmission jumps out of gear	<ol style="list-style-type: none">1. Check and/or replace the MTF (see page 13-5).2. Check the detent balls and springs for proper size and/or damage (see page 13-17).3. Check the teeth of the synchro rings and the gears (see page 13-42).4. Check for bent, deform, or damaged of the shift forks.

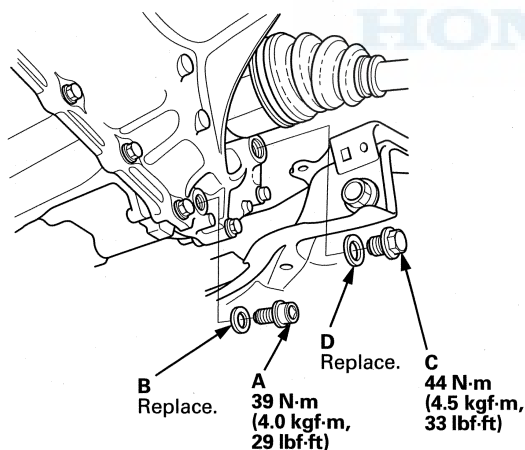


Transmission Fluid Inspection and Replacement

1. Park the vehicle on level ground, and turn the engine off.
2. Raise the vehicle on a lift, and make sure it is securely supported.
3. Remove the splash shield (see page 20-180).
4. Remove the filler plug (A) and the sealing washer (B), check the condition of the MTF, and make sure it is at the proper level (C).



5. If the MTF is dirty, remove the drain plug (A) and the sealing washer (B), and drain the MTF.



6. Reinstall the drain plug with a new sealing washer, and refill the transmission with MTF to the proper level. Always use Honda Manual Transmission Fluid (MTF).

Fluid Capacity:

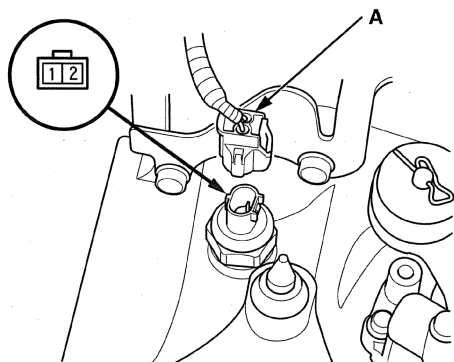
- 1.5 L (1.6 US qt) at fluid change
- 1.6 L (1.7 US qt) at overhaul

7. Install the filler plug (C) with a new sealing washer (D).
8. Install the splash shield (see page 20-180).
9. Lower the vehicle on the lift.
10. Connect the Honda diagnostic system (HDS) to the data link connector (DLC) (see step 2 on page 11-3).
11. Turn the ignition switch to ON (II).
12. Make sure the HDS communicates with the vehicle and the engine control module (ECM). If it doesn't, communicate, troubleshoot the DLC circuit (see page 11-193).
13. Select GAUGES in the BODY ELECTRICAL with the HDS.
14. Select ADJUSTMENT in the GAUGES with the HDS.
15. Select MAINTENANCE MINDER in the ADJUSTMENT with the HDS.
16. Select RESET in the MAINTENANCE MINDER with the HDS.
17. Select MAINTENANCE SUB ITEM 3 RESET, and reset the MTF with the HDS.

Manual Transmission

Back-Up Light Switch Test

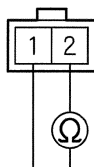
1. Disconnect the back-up light switch 2P connector (A).



2. Check for continuity between back-up light switch 2P connector terminals No. 1 and No. 2. There should be continuity when the shift lever is in reverse.

- If the test result is OK, go to step 5.
- If the test result is faulty, go to step 3.

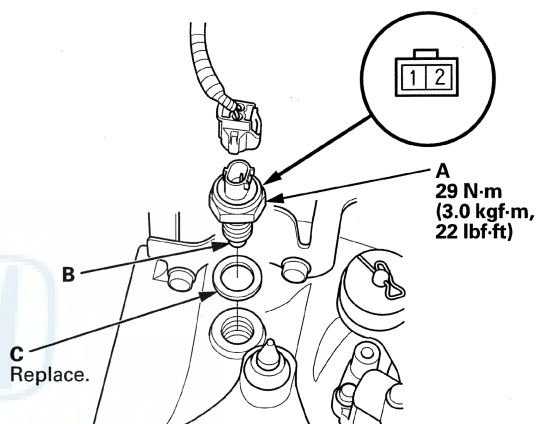
BACK-UP LIGHT SWITCH 2P CONNECTOR



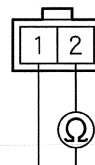
Terminal side of male terminals

3. Remove the back-up light switch (A). Check for continuity between back-up light switch 2P connector terminals No. 1 and No. 2. There should be continuity when the actuator (B) is pressed, and no continuity when the actuator is released. If the result is faulty, replace the back-up light switch. If the switch is OK, check the reverse shift piece in the transmission.

- If there is continuity, check the reverse shift mechanism in the transmission.
- If there is no continuity, replace the back-up light switch.



BACK-UP LIGHT SWITCH 2P CONNECTOR



Terminal side of male terminals

4. Install the removed or a new back-up light switch with a new washer (C).
5. Connect the back-up light switch 2P connector.



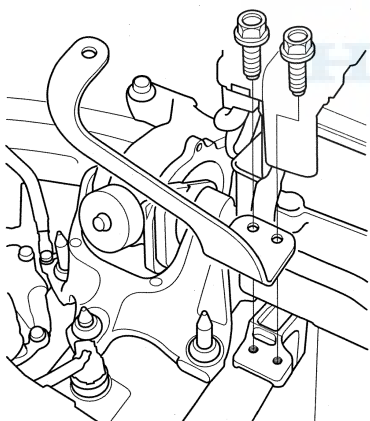
Transmission Removal

Special Tools Required

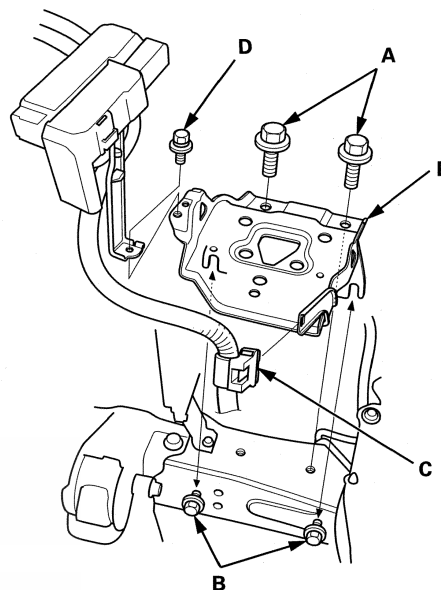
- Universal Lifting Eyelet 07AAK-SNAA120
 - 1.8 Support Bolt 07AAK-SNAA500
 - Engine Support Hanger, A and Reds AAR-T1256*
- *: Reds engine support hanger AAR-T1256 is available through the Honda Tool and Equipment Program 888-424-6857.

NOTE: Use fender covers to avoid damaging painted surfaces.

1. Secure the hood in the wide open position with the support strut.
2. Remove the wiper arms (see page 22-264).
3. Remove the cowl covers and hood hinge cover (see page 20-168).
4. Remove the wiper motor (see page 22-262).
5. Remove the under-cowl panel (see page 20-185).
6. Do the battery removal procedure (see page 22-70).
7. Remove the air cleaner housing (see page 11-307).
8. Remove the air cleaner bracket.



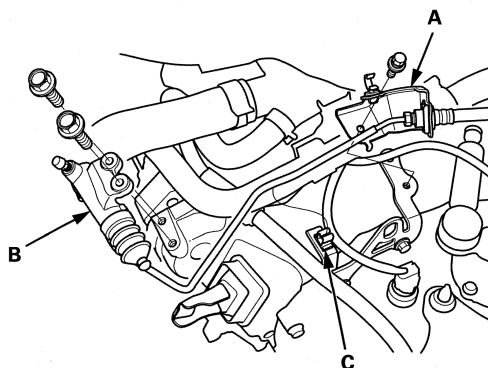
9. Remove the battery base bolts (A), loosen the two bolts (B), remove the battery harness clamp (C) and the bracket bolt (D), then remove the battery base (E).



10. Remove the clutch hose bracket (A) and the slave cylinder (B). Remove the clutch line from the clip (C), then carefully move the slave cylinder out of the way to avoid bending the clutch line.

NOTE:

- Do not disconnect the clutch line joints.
- Do not press the clutch pedal after the slave cylinder has been removed.

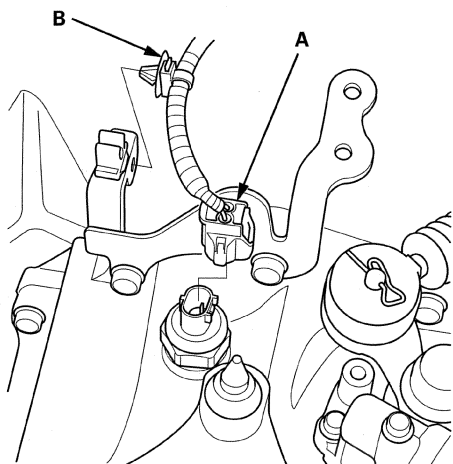


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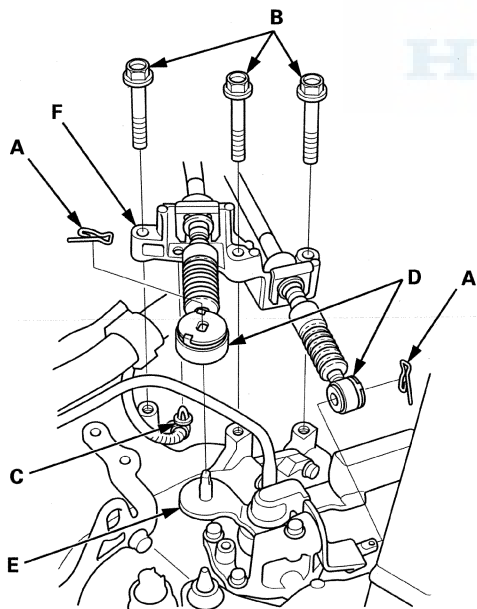
Manual Transmission

Transmission Removal (cont'd)

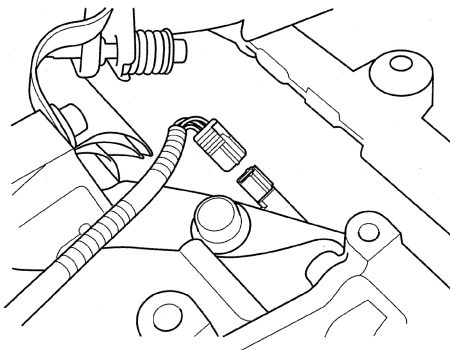
11. Disconnect the back-up light switch connector (A), then remove the harness clip (B).



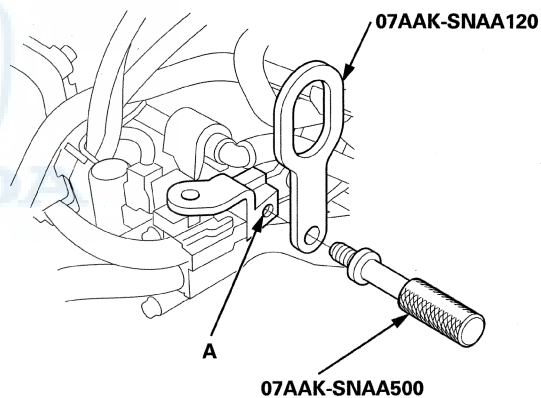
12. Remove the lock pins (A), shift cable bracket bolts (B), and harness clip (C), then disconnect the shift cables (D) from the change lever assembly (E). Carefully remove both cables and the shift cable bracket (F) together to avoid bending the cables.



13. Disconnect the output shaft (countershaft) speed sensor 3P connector.

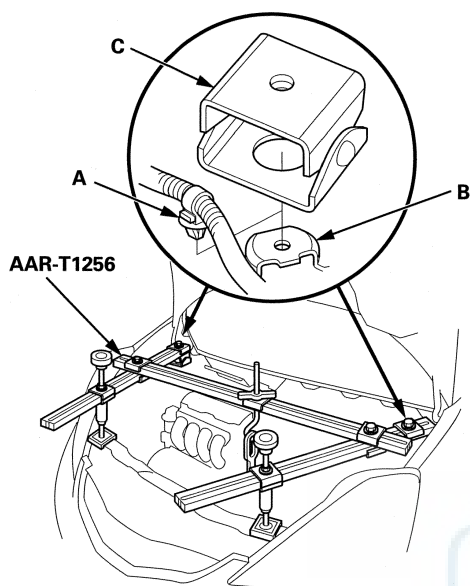


14. Install the universal lifting eyelet (07AAK-SNAA120) to the bolt hole (A) at the air cleaner housing mounting bracket with the 1.8 support bolt (07AAK-SNAA500).



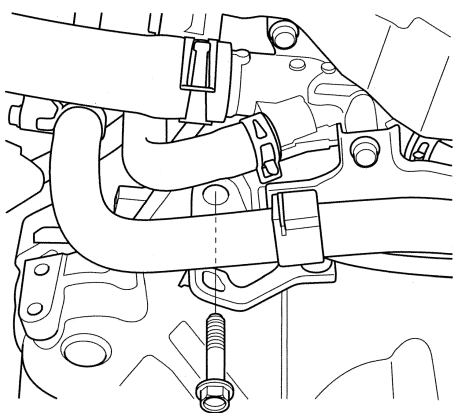


15. Remove the harness clamp (A) from its clamp bracket (B) located in front of the left damper top.

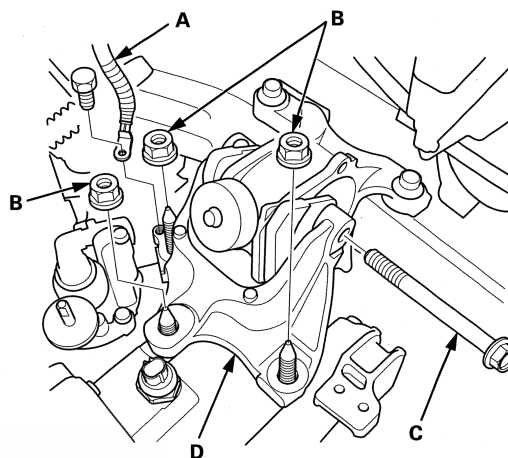


16. Set up the engine support hanger (AAR-T1256). Carefully position the engine support hanger to the vehicle; position both cross-arm foot bases (C) over the harness clamp brackets on both sides, and position both front stands on the front bulkhead. Attach the hook to the universal eyelet, tighten the wing nut by hand, and lift and support the engine.

17. Remove the one upper transmission mounting bolt.



18. Remove the ground cable (A), the transmission mount nuts (B), and the transmission mount bolt (C) from the transmission bracket (D).



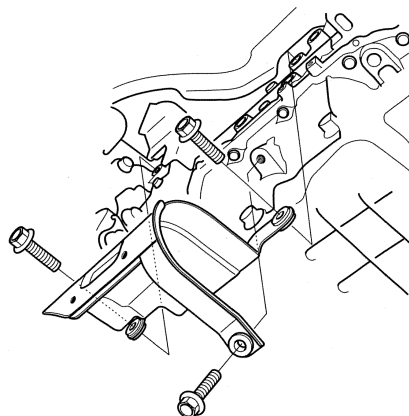
19. Raise the vehicle on a lift, and make sure it is securely supported.

20. Remove the splash shield (see page 20-180).

21. Drain the transmission fluid. Reinstall the drain plug using a new sealing washer (see page 13-5).

22. Remove the right and left driveshafts (see page 16-4).

23. Remove the heat shield.

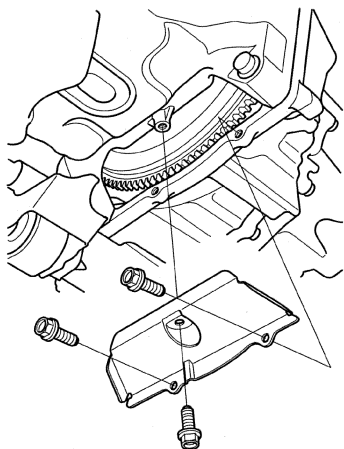


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Manual Transmission

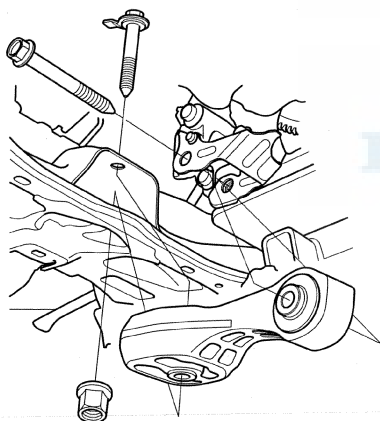
Transmission Removal (cont'd)

24. Remove the clutch case cover.

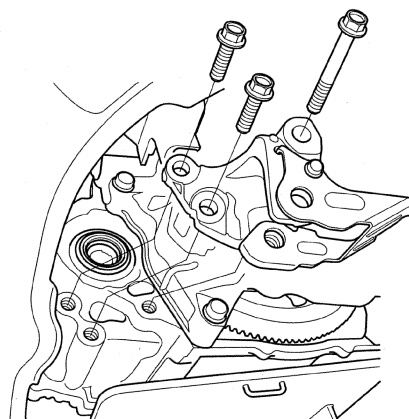


25. Securely support the transmission with a transmission jack.

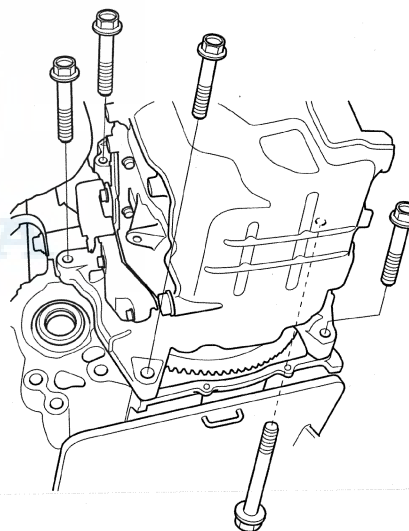
26. Remove the torque rod.



27. Remove the torque rod bracket.



28. Remove the lower transmission mounting bolts.



29. Pull the transmission away from the engine until the transmission mainshaft clears the clutch pressure plate.

30. Slowly lower the transmission. Check once again that all hoses and wire harnesses are disconnected and free from the transmission, then lower it completely. Remove the two dowel pins.



Transmission Installation

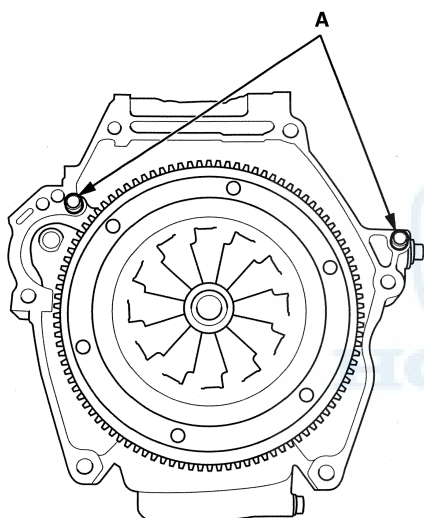
Special Tools Required

- Universal Lifting Eyelet 07AAK-SNAA120
- 1.8 Support Bolt 07AAK-SNAA500
- Engine Support Hanger, A and Reds AAR-T1256*

*: Reds engine support hanger AAR-T1256 is available through the Honda Tool and Equipment Program 888-424-6857.

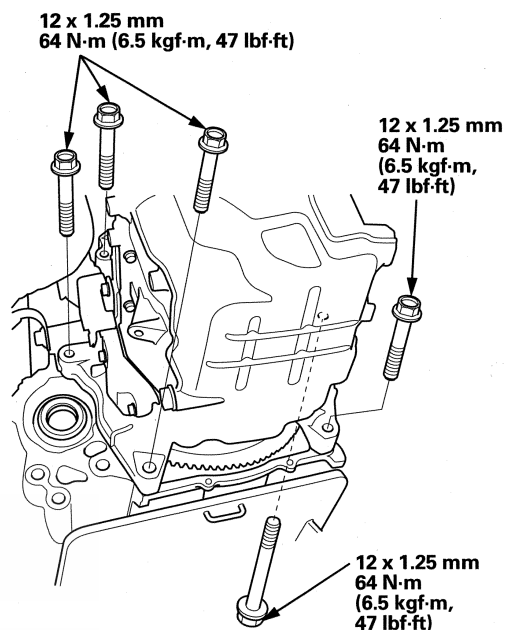
NOTE: Use fender covers to avoid damaging painted surfaces.

1. Make sure the two dowel pins (A) are undamaged and installed in prescribed holes on the engine block as shown. Replace the dowel pins if they are damaged.

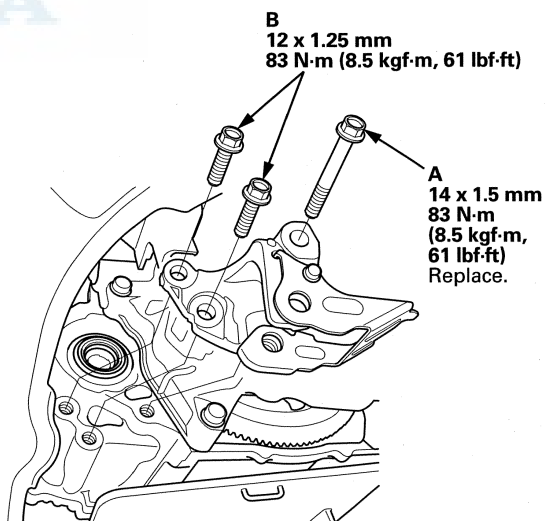


2. Check the release bearing (see page 12-19), and reinstall the release bearing and the release fork with specified grease (see page 12-19).
3. Place the transmission on the transmission jack, and raise it level with the engine.

4. Install the lower transmission mounting bolts.



5. Install the torque rod bracket with a new bolt (A) and bolts (B).

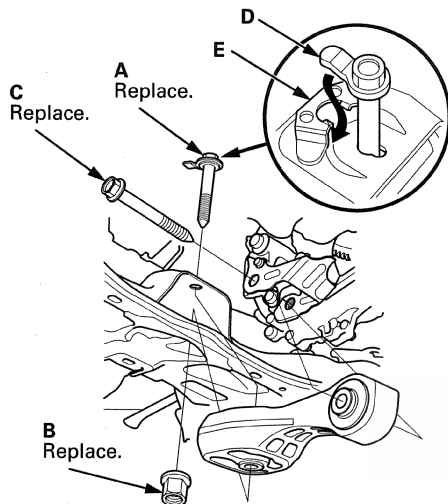


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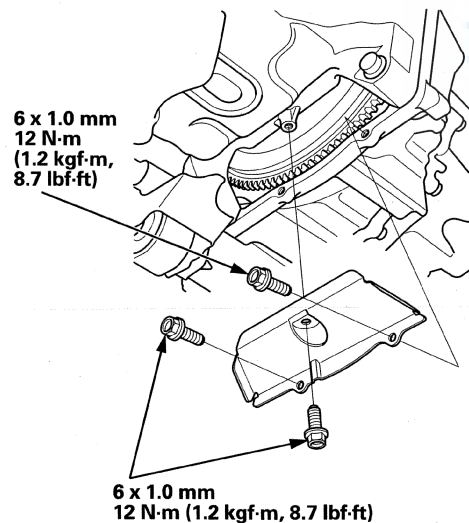
Manual Transmission

Transmission Installation (cont'd)

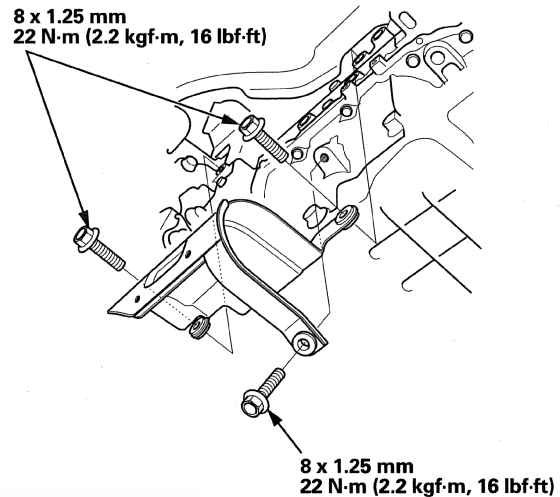
6. Loosely install the torque rod with a new torque rod bolt (A), a new nut (B), and a new bolt (C). Make sure the tab (D) on the torque rod is aligned with the guide (E) on the front subframe. Remove the transmission jack.



7. Install the clutch case cover.



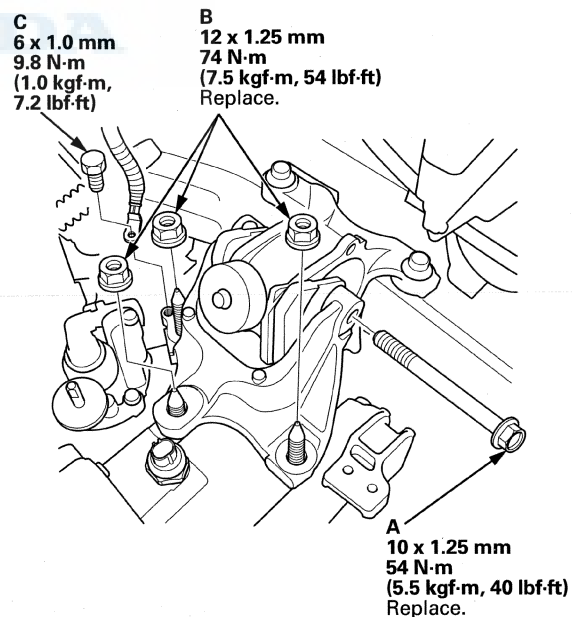
8. Install the heat shield.



9. Install the right and left driveshafts (see page 16-20).

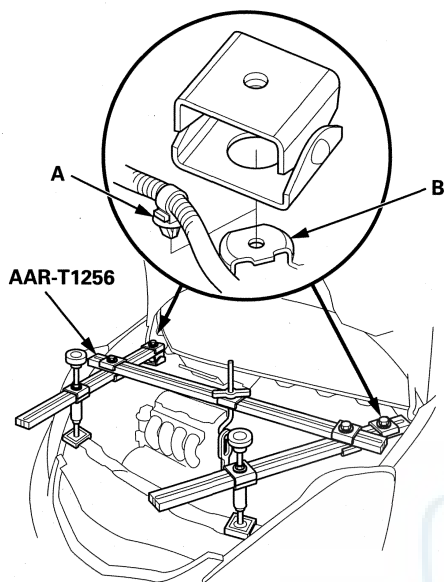
10. Lower the vehicle on the lift.

11. Loosely install a new transmission mount bolt (A), three new engine mount nuts (B), then install the ground cable (C).

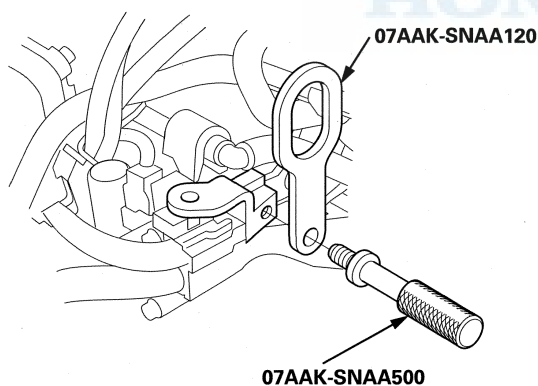




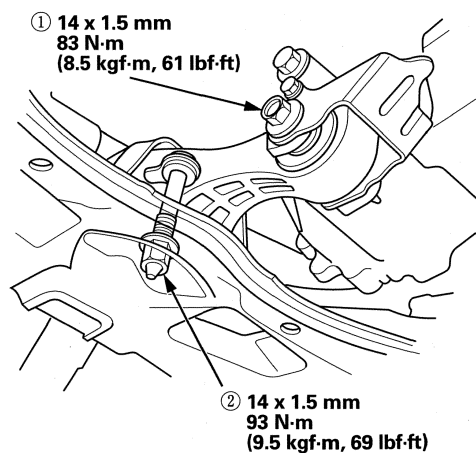
12. Remove the engine support hanger, and install the harness clamp (A) in its bracket (B) located in front of the left damper top.



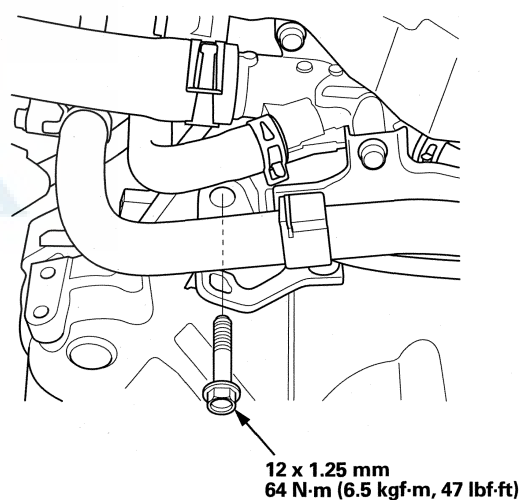
13. Remove the universal lifting eyelet (07AAK-SNAA120) and 1.8 support bolt (07AAK-SNAA500).



14. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.



15. Install the upper transmission mounting bolt.

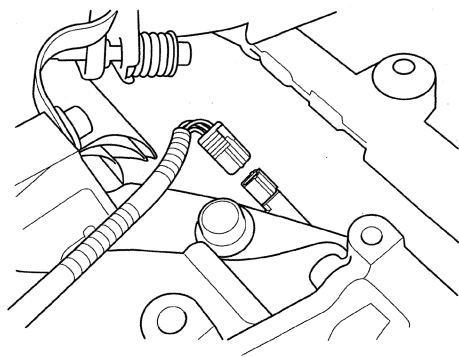


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Manual Transmission

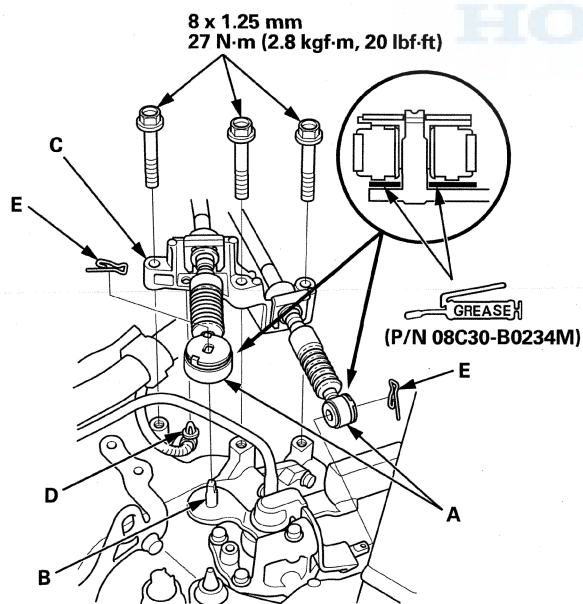
Transmission Installation (cont'd)

16. Connect the output shaft (countershaft) speed sensor 3P connector.

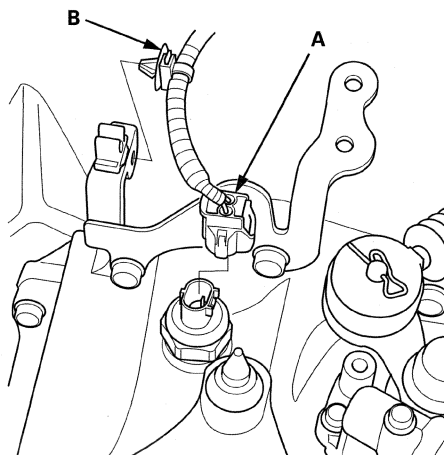


17. Apply a light coat of silicone grease (08C30-B0234M) to the cable ends (A), and connect the cable end to the change lever assembly (B), then install the shift cable bracket (C), harness clip (D) and the lock pins (E). Do not bend or damage the shift cables.

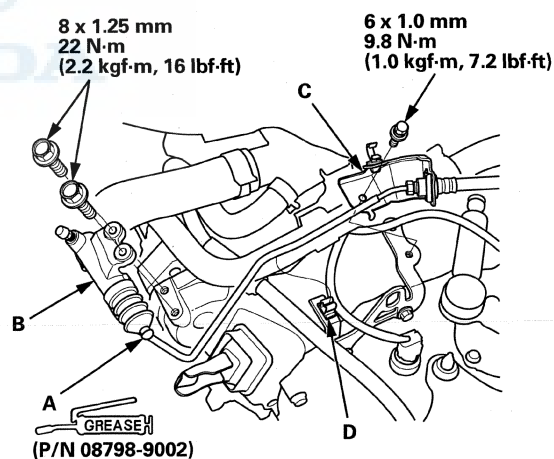
NOTE: Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands or gloves.



18. Connect the back-up light switch connector (A), then install the harness clip (B).

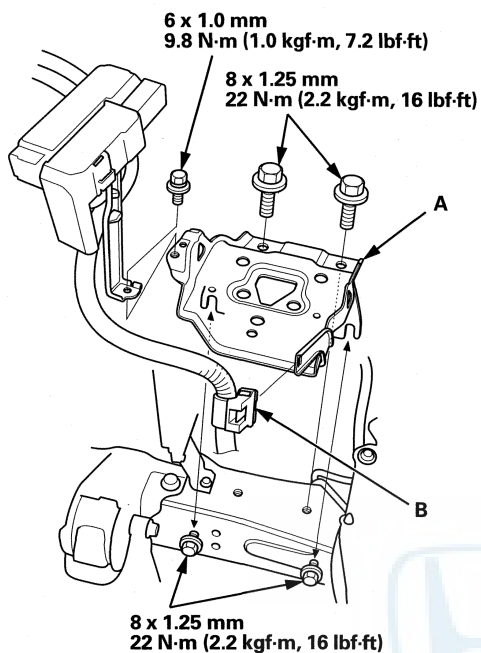


19. Apply a light coat of super high temp urea grease (P/N 08798-9002) to the end of the slave cylinder rod (A). Install the slave cylinder (B) and clutch line bracket (C). Install the clutch line in the clip (D). Take care not to bend the clutch line.

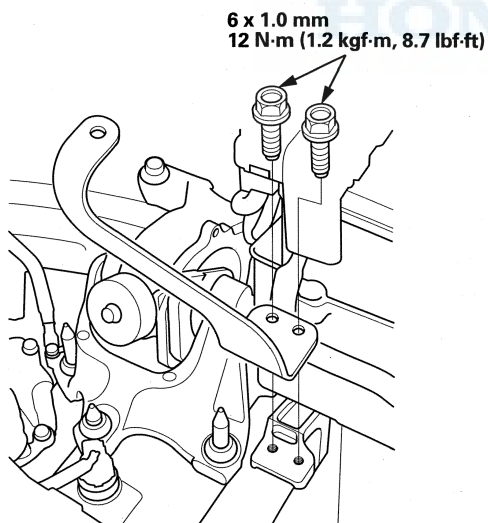




20. Install the battery base (A) and the harness clip (B).



21. Install the air cleaner bracket.



22. Install the air cleaner housing (see page 11-307).

23. Do the battery installation procedure (see page 22-70).

24. Refill the transmission fluid to the proper level (see page 13-5).

25. Install the splash shield (see page 20-180).

26. Install the under-cowl panel (see page 20-185).

27. Install the wiper motor (see page 22-262).

28. Install the hood hinge cover and cowl cover (see page 20-168).

29. Install the wiper arms (see page 22-264).

30. Check the wheel alignment, and adjust it if necessary (see page 18-6).

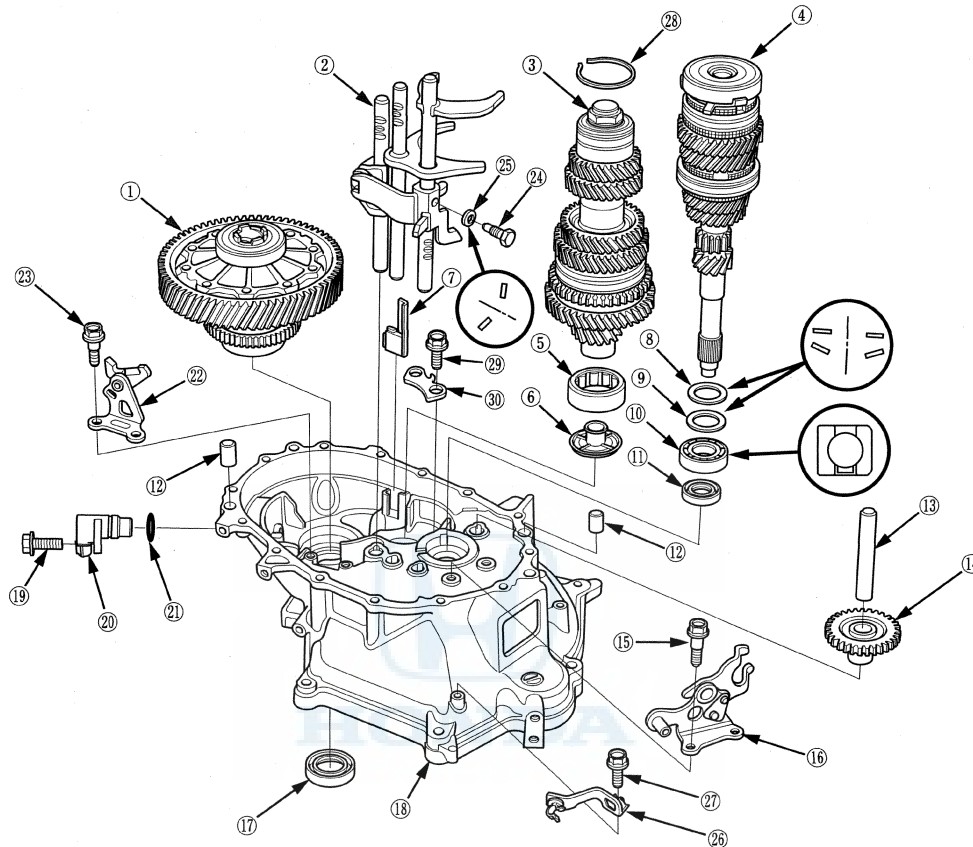
31. Check the shift lever and the clutch operation.

32. Test-drive the vehicle.

Manual Transmission

Transmission Disassembly

Exploded View - Clutch Housing



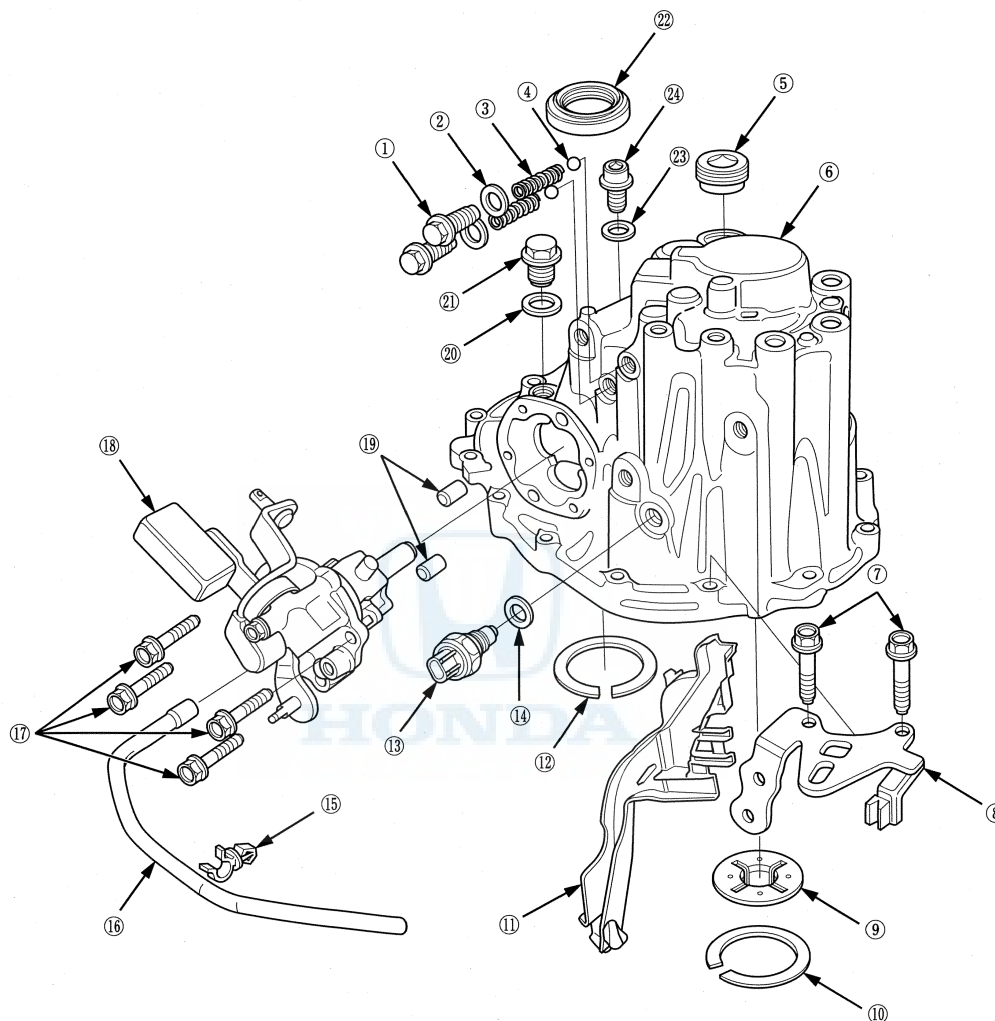
- ① DIFFERENTIAL ASSEMBLY
- ② SHIFT FORK ASSEMBLY
- ③ COUNTERSHAFT ASSEMBLY
- ④ MAINSHAFT ASSEMBLY
- ⑤ NEEDLE BEARING
- ⑥ OIL GUIDE PLATE C
- ⑦ MAGNET
- ⑧ 26 mm WASHER
- ⑨ 36 mm SPRING WASHER
- ⑩ BALL BEARING
- ⑪ 26 x 40 x 7 mm OIL SEAL
Replace.
- ⑫ 14 x 20 mm DOWEL PIN

- ⑬ REVERSE GEAR SHAFT
- ⑭ REVERSE IDLER GEAR
- ⑮ 6 mm SPECIAL BOLT
15 N·m (1.5 kgf-m, 11 lbf-ft)
- ⑯ REVERSE SHIFT FORK
- ⑰ 35 x 58 x 8 mm OIL SEAL
Replace.
- ⑱ CLUTCH HOUSING
- ⑲ 6 mm FLANGE BOLT
12 N·m (1.2 kgf-m, 8.7 lbf-ft)
- ⑳ OUTPUT SHAFT (COUNTERSHAFT)
SPEED SENSOR
- ㉑ O-RING
Replace.

- ㉒ REVERSE LOCK CAM
- ㉓ 6 mm SPECIAL BOLT
15 N·m (1.5 kgf-m, 11 lbf-ft)
- ㉔ 8 mm SPECIAL BOLT
31 N·m (3.2 kgf-m, 23 lbf-ft)
- ㉕ 8 mm SPRING WASHER
- ㉖ BREATHER TUBE BRACKET
- ㉗ 6 x 1.0 mm FLANGE BOLT
12 N·m (1.2 kgf-m, 8.7 lbf-ft)
- ㉘ 52 mm SNAP RING
- ㉙ 6 mm FLANGE BOLT
12 N·m (1.2 kgf-m, 8.7 lbf-ft)
- ㉚ BEARING SET PLATE



Exploded View - Transmission Housing



① DETENT BOLT
22 N·m (2.2 kgf·m, 16 lbf·ft)

② 12 mm WASHER
Replace.

③ DETENT BALL SPRING
(Free Length Size: 22.1 mm(0.87in))

④ STEEL BALL (Ball Size: 7.94 mm(0.3126in))

⑤ 32 mm SEALING SCREW
25 N·m (2.5 kgf·m, 18 lbf·ft)

⑥ TRANSMISSION HOUSING

⑦ 8 mm FLANGE BOLT
27 N·m (2.8 kgf·m, 20 lbf·ft)

⑧ TRANSMISSION HANGER

⑨ OIL GUIDE PLATE M

⑩ 72 mm SHIM

⑪ OIL GUTTER PLATE

⑫ 80 mm SHIM

⑬ BACK-UP LIGHT SWITCH
29 N·m (3.0 kgf·m, 22 lbf·ft)

⑭ 18 mm WASHER
Replace.

⑮ BREATHER TUBE CLAMP

⑯ BREATHER TUBE

⑰ 6 mm FLANGE BOLT
12 N·m (1.2 kgf·m, 8.7 lbf·ft)

⑱ CHANGE LEVER ASSEMBLY

⑲ 8 x 10 mm DOWEL PIN

⑳ 20 mm WASHER

㉑ FILLER PLUG

44 N·m (4.5 kgf·m, 33 lbf·ft)

㉒ 35 x 56 x 8 mm OIL SEAL
Replace.

㉓ 14 mm WASHER
Replace.

㉔ DRAIN PLUG
39 N·m (4.0 kgf·m, 29 lbf·ft)

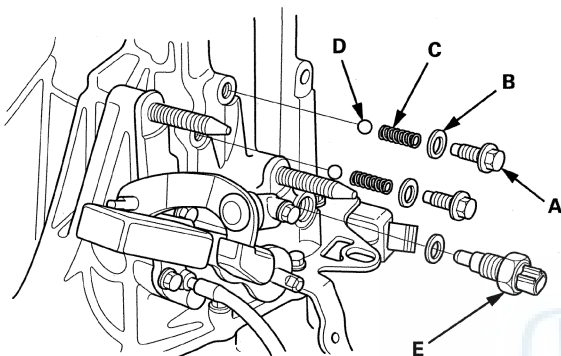
(cont'd)

Manual Transmission

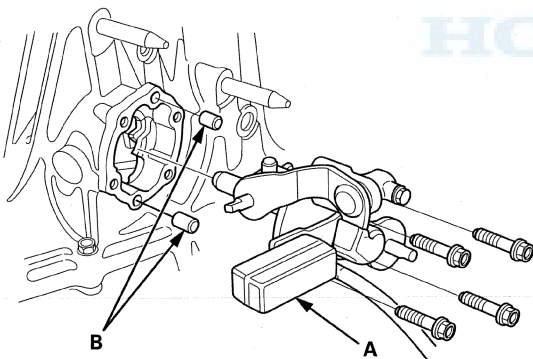
Transmission Disassembly (cont'd)

NOTE: Place the clutch housing on two pieces of wood thick enough to keep the mainshaft from hitting the workbench.

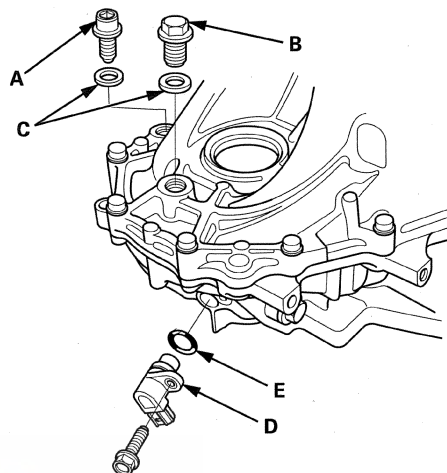
1. Remove the release bearing and the release fork (see page 12-19).
2. Remove the detent bolts (A), the 12 mm washers (B), the detent ball springs (C), the steel balls (D), and the back-up light switch (E).



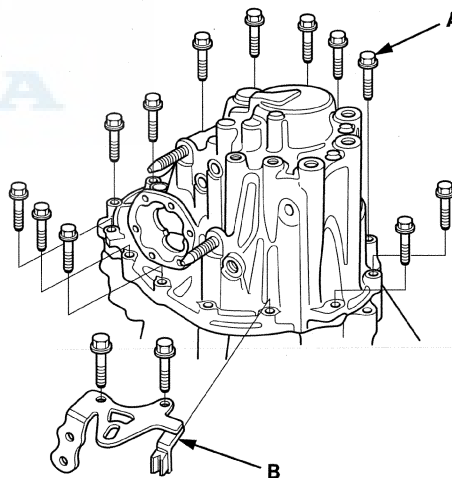
3. Remove the change lever assembly (A) and the 8 x 10 mm dowel pins (B).



4. Remove the drain plug (A), the filler plug (B), the sealing washers (C), the output shaft (countershaft) speed sensor (D), and the O-ring (E).

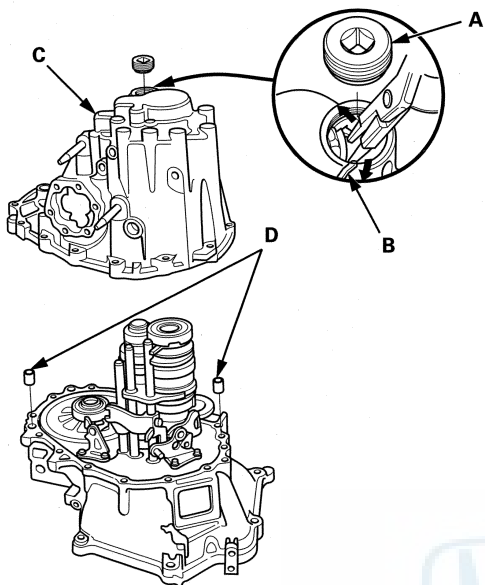


5. Remove the 8 mm flange bolts (A) and transmission hanger (B) in a crisscross pattern in several steps.





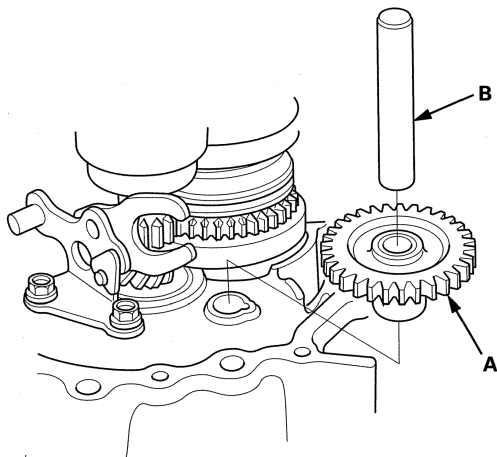
6. Remove the 32 mm sealing screw (A).



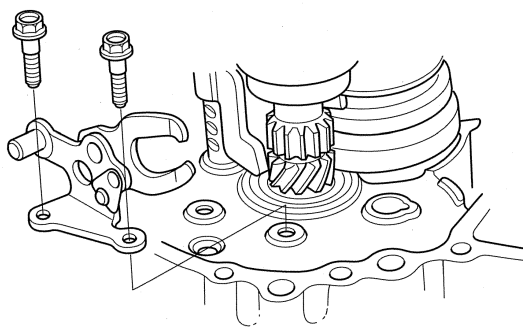
7. Expand the 52 mm snap ring (B) on the countershaft ball bearing, and remove it from the groove using a pair of snap ring pliers.

8. Remove the transmission housing (C) and 14 x 20 mm dowel pins (D).

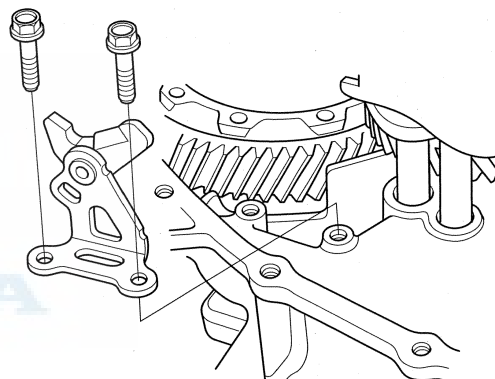
9. Remove the reverse idler gear (A) and the reverse gear shaft (B).



10. Remove the reverse shift fork.



11. Remove the reverse lock cam.



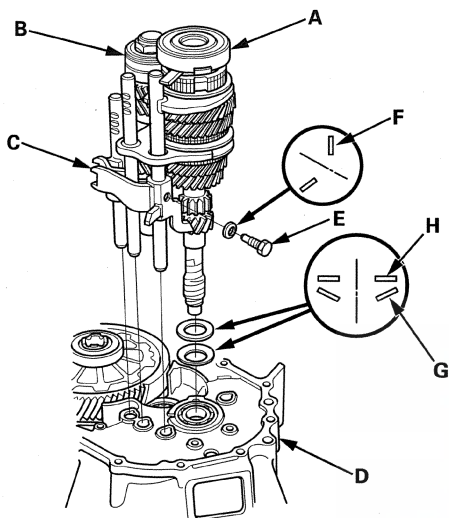
(cont'd)

Manual Transmission

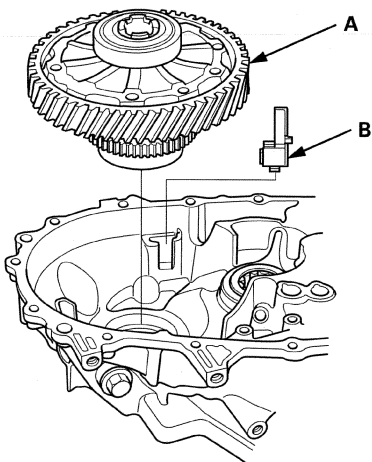
Transmission Disassembly (cont'd)

12. Apply tape to the mainshaft splines to protect the seal, then remove the mainshaft assembly (A) and the countershaft assembly (B) with the shift fork assembly (C) from the clutch housing (D).

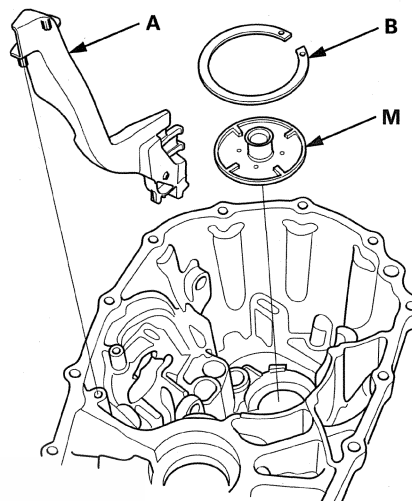
NOTE: Do not apply tape so thick that it damages the oil seal.



13. Remove the 8 mm special bolt (E) and the 8 mm spring washer (F).
14. Remove the 36 mm spring washer (G) and the 26 mm washer (H).
15. Remove the differential assembly (A) and the magnet (B).



16. Remove the oil gutter plate (A), the oil guide plate M, and the 72 mm shim (B).

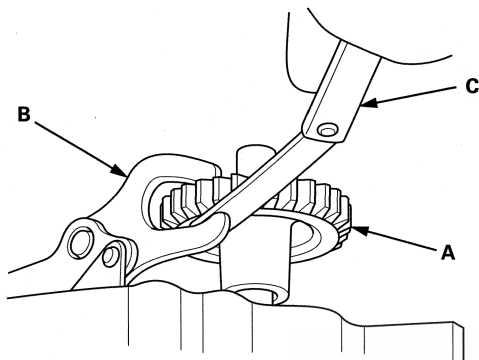




Reverse Shift Fork Clearance Inspection

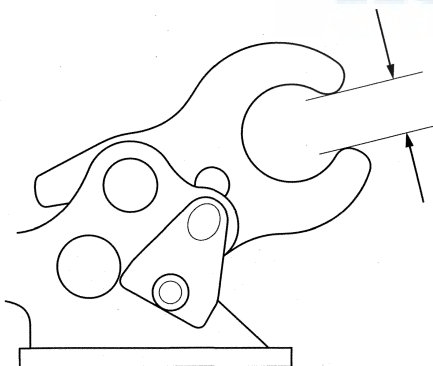
1. Measure the clearance between the reverse idler gear (A) and the reverse shift fork (B) with a feeler gauge (C). If the clearance is more than the service limit, go to step 2.

Standard: 1.30—1.90 (0.051—0.074 in)
Service Limit: 2.5 mm (0.098 in)



2. Measure the width of the reverse shift fork.
 - If the width is not within the standard, replace the reverse shift fork.
 - If the width is within the standard, replace the reverse idle gear.

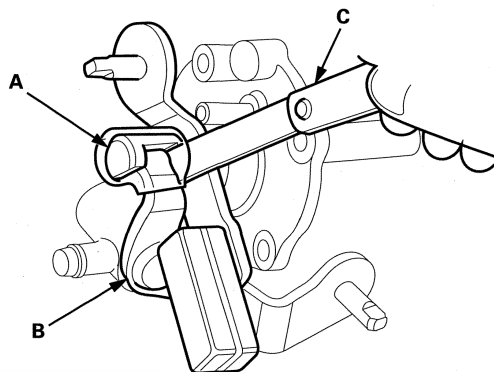
Standard: 13.5—13.8 mm (0.531—0.543 in)



Change Lever Clearance Inspection

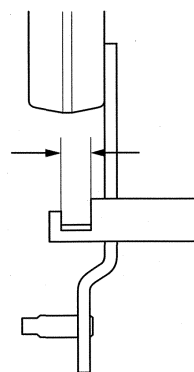
1. Measure the clearance between the change lever (A) and the select lever (B) with a feeler gauge (C). If the clearance is more than the service limit, go to step 2.

Standard: 0.05—0.35 mm (0.002—0.013 in)
Service Limit: 0.55 mm (0.021 in)



2. Measure the groove width of the change lever.
 - If the groove width is not within the standard, replace the change lever.
 - If the groove width is within the standard, replace the select lever.

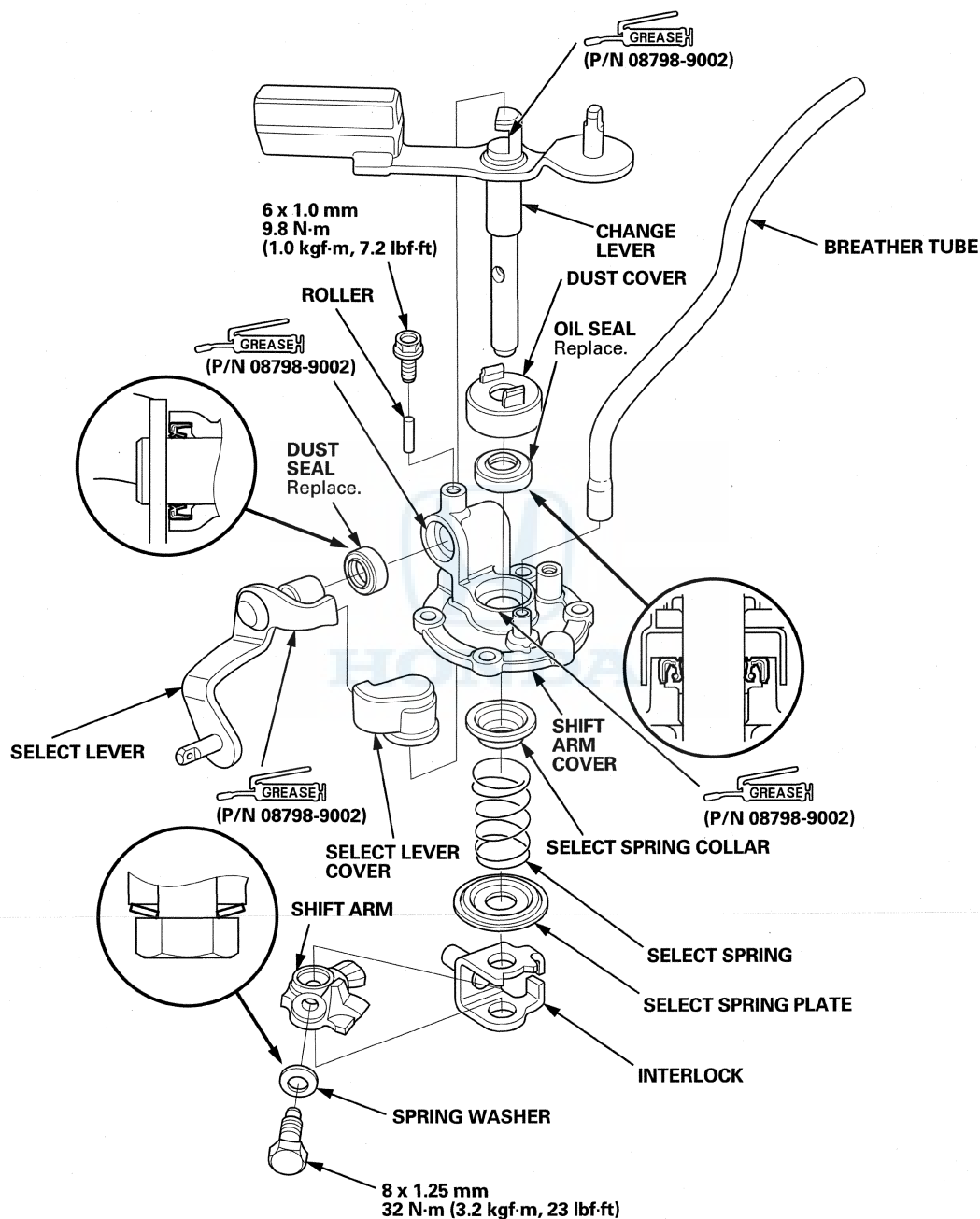
Standard: 13.00—13.15 mm (0.5118—0.5177 in)



Manual Transmission

Change Lever Assembly Disassembly/Reassembly

NOTE: Prior to reassembling, clean all the parts in solvent, dry them, and apply MTF to the contact surfaces as shown. Do not clean the rubber parts with solvent.



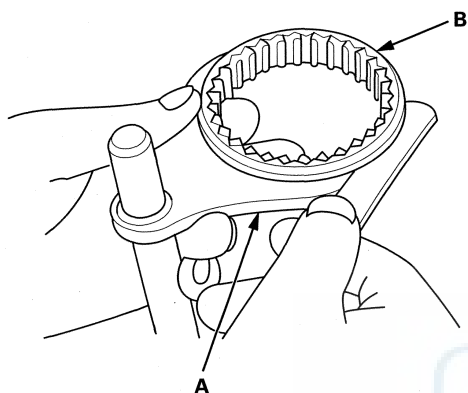


Shift Fork Clearance Inspection

NOTE: If required, always replace the synchro sleeve and the synchro hub as a set.

1. Measure the clearance between each shift fork (A) and its matching synchro sleeve (B). If the clearance exceeds the service limit, go to step 2.

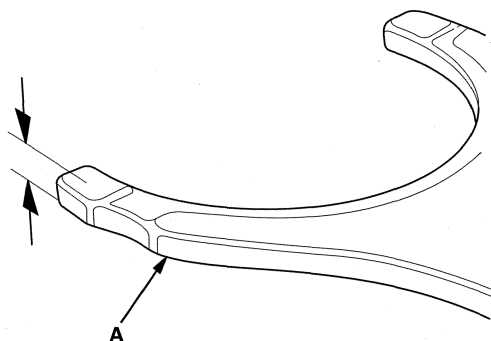
Standard: 0.35–0.65 mm (0.014–0.025 in)
Service Limit: 1.0 mm (0.039 in)



2. Measure the thickness of the shift fork (A) fingers.

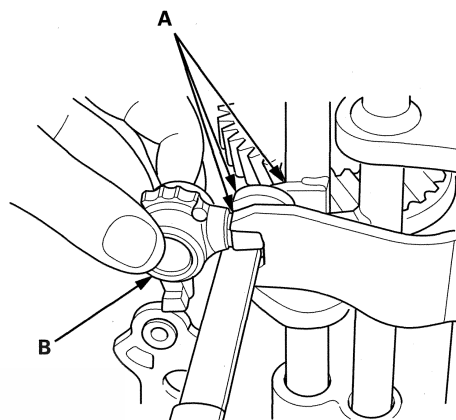
- If the thickness is not within the standard, replace the shift fork.
- If the thickness is within the standard, replace the synchro sleeve and the synchro hub as a set.
- If one arm of the shift fork shows more wear than the other, the fork may be bent and needs to be replaced.

Standard:
1st/2nd, 3rd/4th shift forks: 7.4–7.6 mm (0.291–0.299 in)
5th shift fork: 6.7–6.9 mm (0.264–0.272 in)



3. Measure the clearance between the shift forks (A) and the shift arm (B). If the clearance exceeds the service limit, go to step 4.

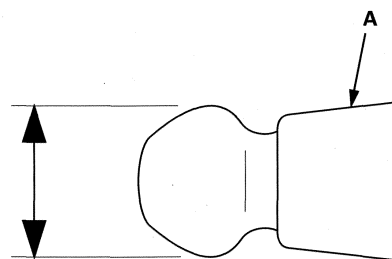
Standard: 0.2–0.5 mm (0.008–0.020 in)
Service Limit: 0.62 mm (0.024 in)



4. Measure the width of the shift arm (A).

- If the width is not within the standard, replace the shift arm.
- If the width is within the standard, replace the shift fork or the reverse shift piece.

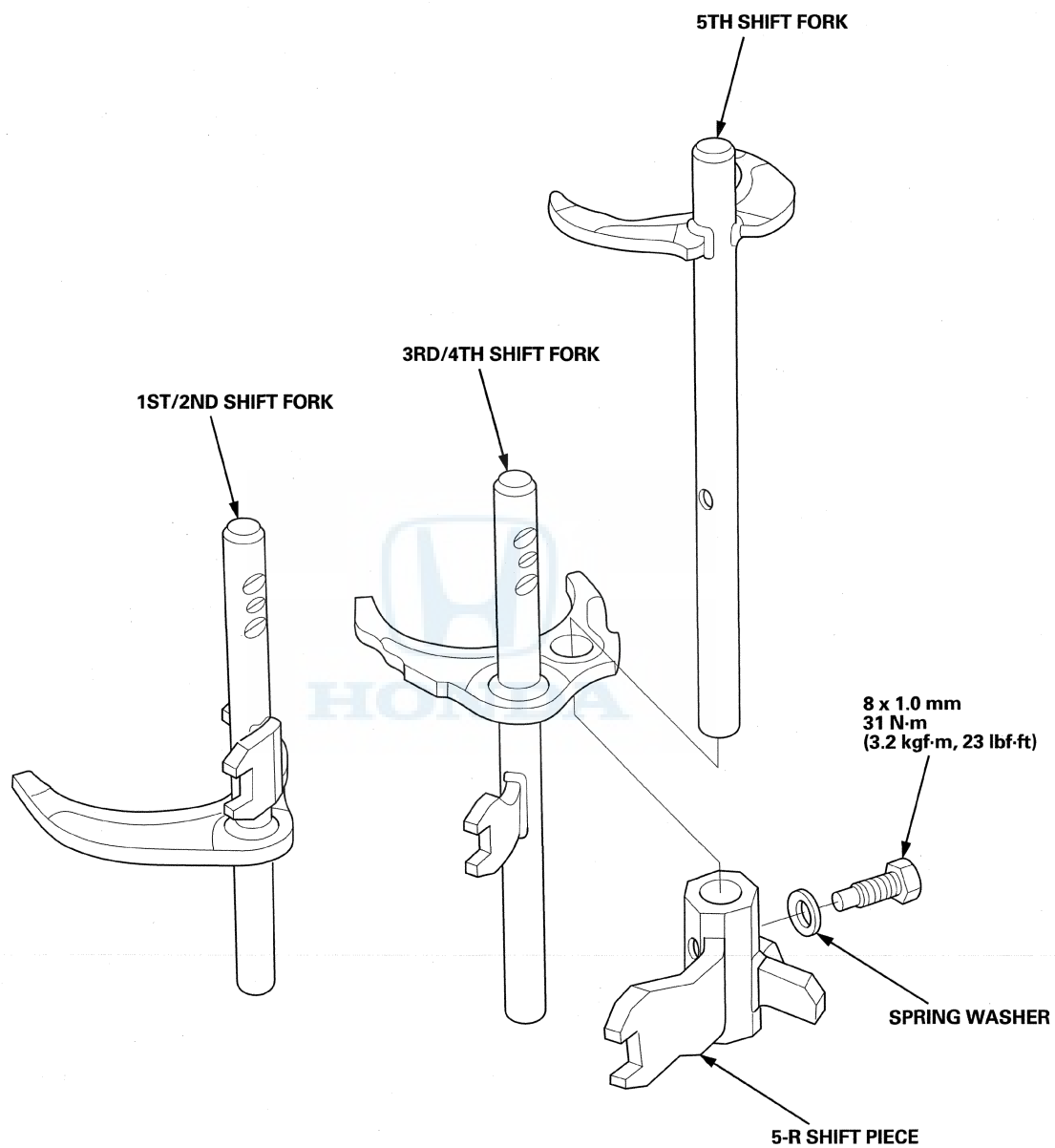
Standard: 12.9–13.0 mm (0.508–0.512 in)



Manual Transmission

Shift Fork Disassembly/Reassembly

NOTE: Prior to reassembling, clean all the parts in solvent, dry them, and apply MTF to all contact surfaces.

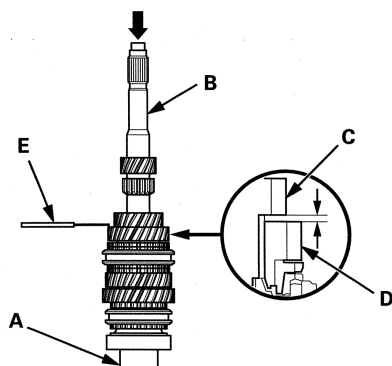




Mainshaft Assembly Clearance Inspection

NOTE: If replacement is required, always replace the synchro sleeve and the synchro hub as a set.

1. Support the bearing inner race with an appropriate size socket (A), and push down on the mainshaft (B).

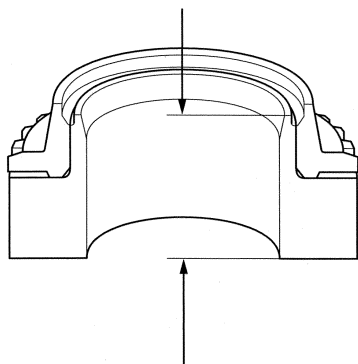


2. Measure the clearance between 2nd gear (C) and 3rd gear (D) gears with a feeler gauge (E).
 - If the clearance exceeds the service limit, go to step 3.
 - If the clearance is within the service limit, go to step 4.

Standard: 0.06–0.21 mm (0.003–0.008 in)
Service Limit: 0.33 mm (0.013 in)

3. Measure the thickness of 3rd gear.
 - If the thickness is less than the service limit, replace 3rd gear.
 - If the thickness is within the service limit, replace the 3rd/4th synchro hub and the 3rd/4th synchro sleeve as a set.

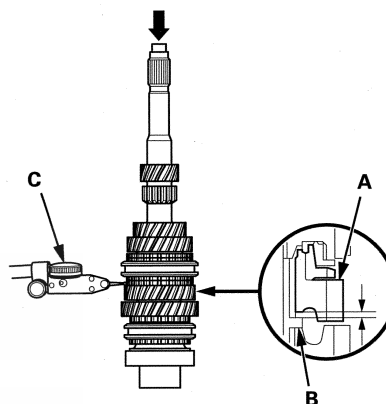
Standard: 27.92–27.97 mm (1.0992–1.1012 in)
Service Limit: 27.85 mm (1.0965 in)



4. Measure the clearance between 4th gear (A) and the 4th/5th gear distance collar (B) with a dial indicator (C).

- If the clearance exceeds the service limit, go to step 5.
- If the clearance is within the service limit, go to step 7.

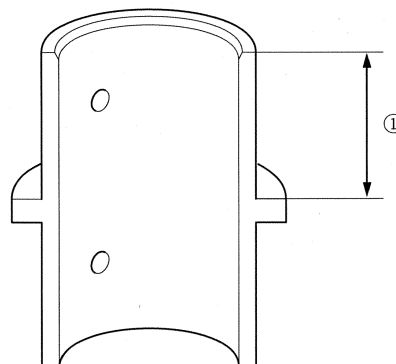
Standard: 0.06–0.19 mm (0.003–0.007 in)
Service Limit: 0.31 mm (0.012 in)



5. Measure distance ① of the 4th/5th gear distance collar as shown.

- If the length ① is not within the standard, replace the 4th/5th gear distance collar.
- If the length ① is within the standard, go to step 6.

Standard: 24.03–24.06 mm (0.9461–0.9472 in)



(cont'd)

Manual Transmission

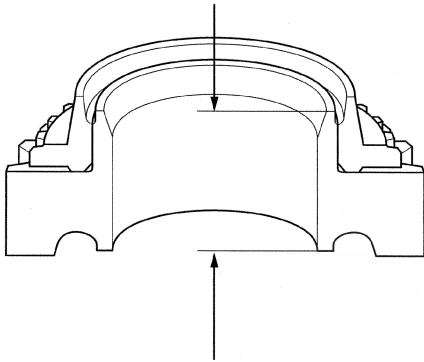
Mainshaft Assembly Clearance Inspection (cont'd)

6. Measure the thickness of 4th gear.

- If the thickness is less than the service limit, replace 4th gear.
- If the thickness is within the service limit, replace the 3rd/4th synchro hub and the 3rd/4th synchro sleeve as a set.

Standard: 27.02–27.07 mm (1.0638–1.0657 in)

Service Limit: 26.65 mm (1.0492 in)

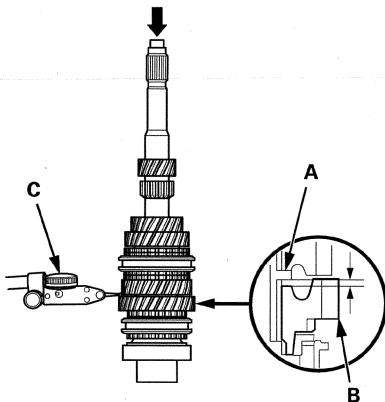


7. Measure the clearance between the 4th/5th gear distance collar (A) and 5th gear (B) with a dial indicator (C).

- If the clearance exceeds the service limit, go to step 8.
- If the clearance is within the service limit, go to step 10.

Standard: 0.06–0.19 mm (0.003–0.007 in)

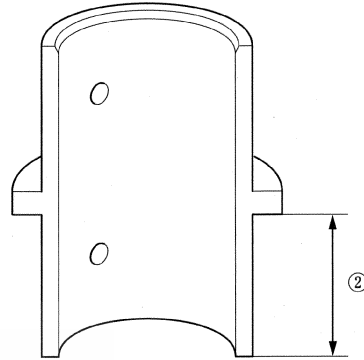
Service Limit: 0.31 mm (0.012 in)



8. Measure the length ② of the 4th/5th gear distance collar as shown.

- If the length ② is not within the standard, replace the 4th/5th gear distance collar.
- If the length ② is within the standard, go to step 9.

Standard: 24.03–24.06 mm (0.9461–0.9472 in)

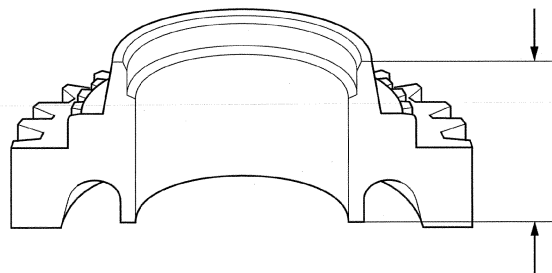


9. Measure the thickness of 5th gear.

- If the thickness is less than the service limit, replace 5th gear.
- If the thickness is within the service limit, replace the 5th synchro hub and the 5th synchro sleeve as a set.

Standard: 28.92–28.97 mm (1.1386–1.1405 in)

Service Limit: 28.85 mm (1.1358 in)



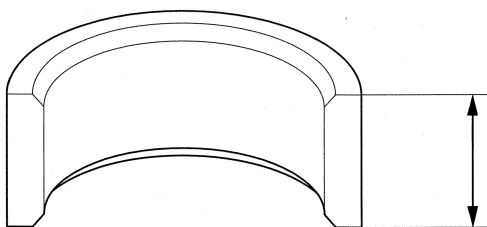


Mainshaft Disassembly

10. Measure the length of the MBS distance collar.

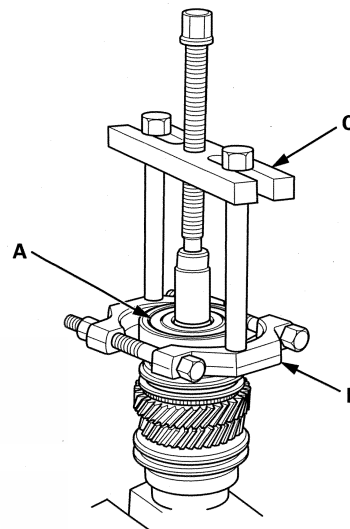
If the length is not within standard, replace the MBS distance collar.

Standard: 12.00—12.05 mm (0.4724—0.4744 in)



NOTE: Refer to the Exploded View in the Mainshaft Reassembly, as needed, when removing components pressed onto the mainshaft (see page 13-30).

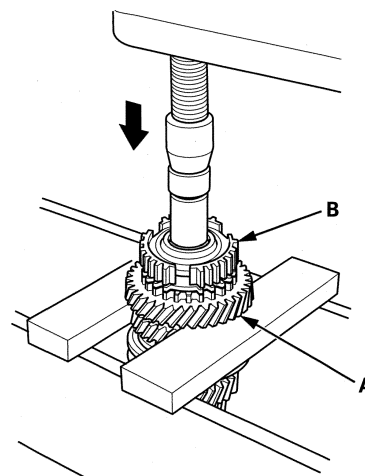
1. Remove the angular ball bearing (A) using a commercially available bearing separator (B) and a commercially available bearing puller (C).



2. Remove the tapered cone ring, the distance collar, the synchro ring, and the 5th synchro sleeve.

3. Support 5th gear (A) on steel blocks, and press the mainshaft out of the 5th synchro hub (B).

NOTE: Do not use a jaw-type puller; it can damage the gear teeth.



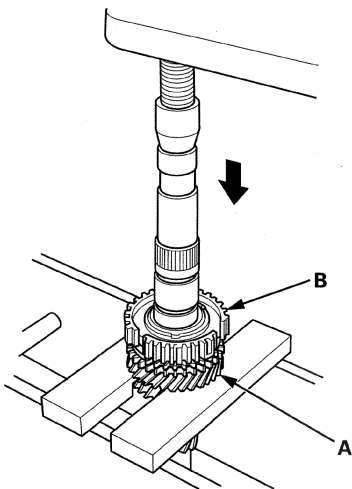
(cont'd)

Manual Transmission

Mainshaft Disassembly (cont'd)

- Support 3rd gear (A) on steel blocks, and press the mainshaft out of the 3rd/4th synchro hub (B).

NOTE: Do not use a jaw-type puller; it can damage the gear teeth.



Mainshaft Inspection

- Inspect the gear and bearing contact areas for wear and damage, then measure the mainshaft at points A, B, C, D, and E. If any part of the mainshaft is less than the service limit (except E), replace it.

Standard:

A Ball Bearing Contact Area(Transmission Housing Side):

25.987—26.000 mm (1.02311—1.02362 in)

B Distance Collar Contact Area

28.992—29.005 mm (1.14142—1.14193 in)

C Needle Bearing Contact Area

34.984—35.000 mm (1.37732—1.37795 in)

D Ball Bearing Contact Area(Clutch Housing Side):

25.977—25.990 mm (1.02271—1.02323 in)

E Pilot Bearing Contact Area

14.870—14.890 mm (0.58543—0.58622 in)

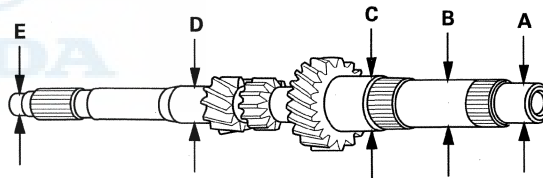
Service Limit:

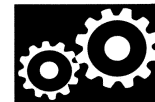
A: 25.93 mm (1.0209 in)

B: 28.93 mm (1.1390 in)

C: 34.93 mm (1.3752 in)

D: 25.92 mm (1.0205 in)

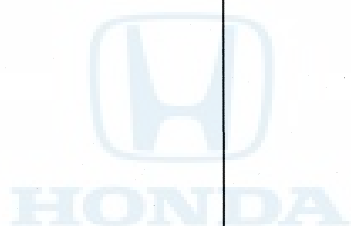
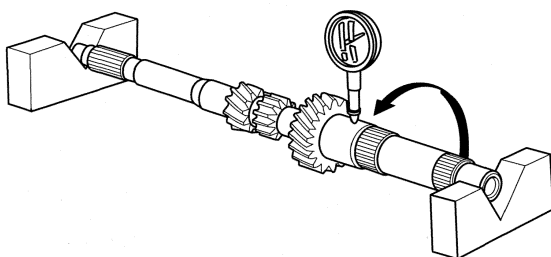




2. Inspect the runout by supporting both ends of the mainshaft. Rotate the mainshaft two complete revolutions when measuring the runout. If the runout is more than the service limit, replace the mainshaft.

Standard: 0.02 mm (0.0008 in) max.

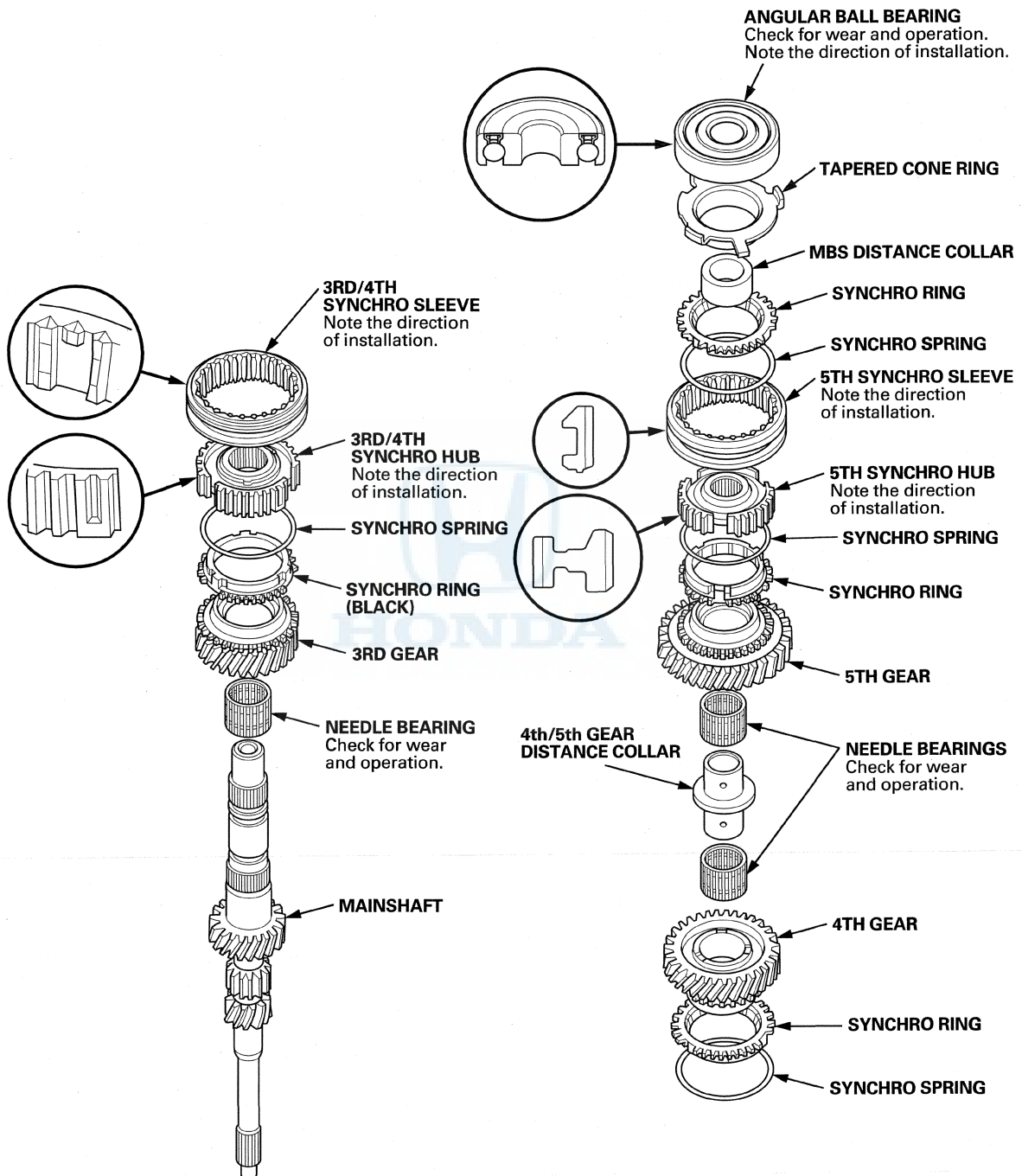
Service Limit: 0.05 mm (0.0020 in)



Manual Transmission

Mainshaft Reassembly

Exploded View



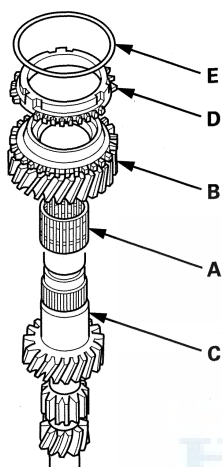


Special Tools Required

- Driver Handle, 40 mm I.D. 07746-0030100
- Bearing Driver Attachment, 30 mm 07746-0030300

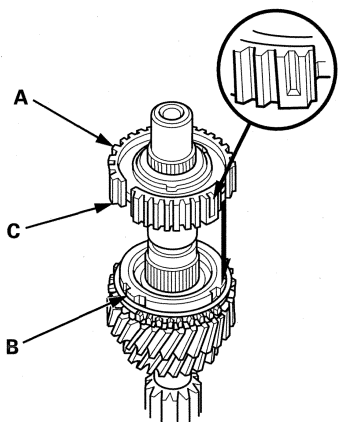
NOTE: Refer to the Exploded Views needed during this procedure.

1. Clean all the parts in solvent, dry them, and apply MTF to all contact surfaces.
2. Install the needle bearing (A) and 3rd gear (B) onto the mainshaft (C).

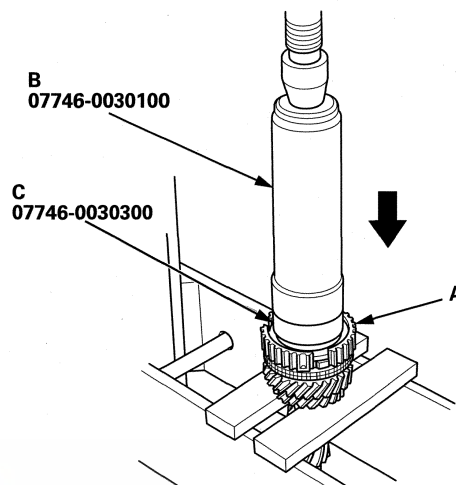


3. Install the synchro ring (D) with the synchro spring (E) onto 3rd gear.
4. Install the 3rd/4th synchro hub (A) by aligning the synchro ring fingers (B) with the grooves (C) in the 3rd/4th synchro hub.

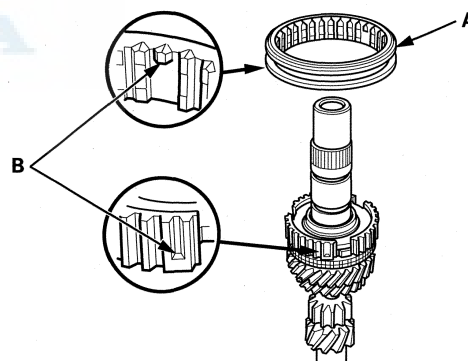
NOTE: Make sure to install the 3rd/4th synchro hub in the direction shown.



5. Press on the 3rd/4th synchro hub (A) using the 40 mm driver handle (B) and the 30 mm bearing driver attachment (C).



6. Install the 3rd/4th synchro sleeve (A) by aligning the stops (B) of the 3rd/4th synchro sleeve and the 3rd/4th synchro hub. After installation, check the operation of the 3rd/4th synchro hub set.

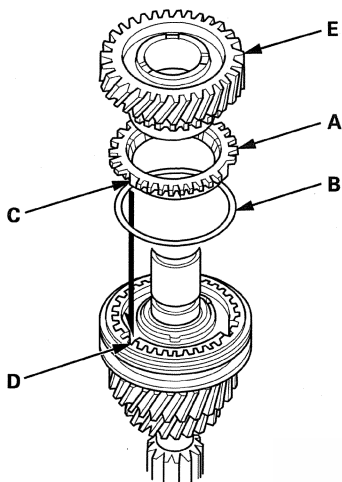


(cont'd)

Manual Transmission

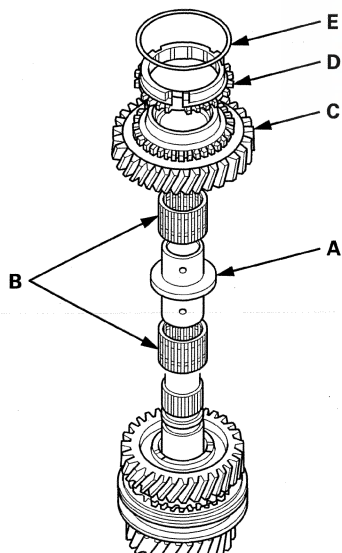
Mainshaft Reassembly (cont'd)

7. Install the synchro ring (A) with the synchro spring (B) by aligning the synchro ring fingers (C) with the grooves (D) in the 3rd/4th synchro hub.



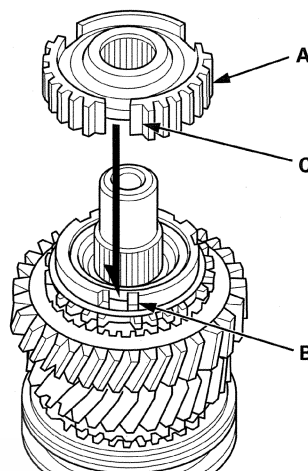
8. Install 4th gear (E) onto the synchro ring.

9. Install the 4th/5th gear distance collar (A) with the needle bearings (B) and 5th gear (C).

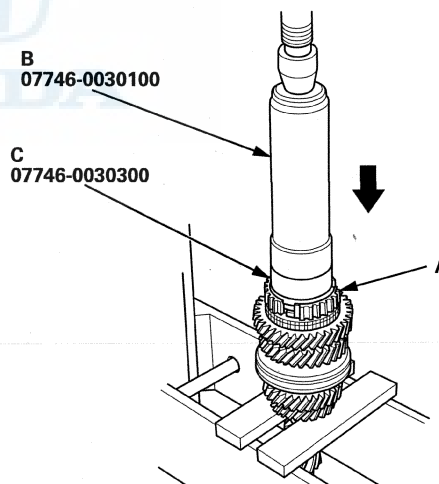


10. Install the synchro ring (D) with the synchro spring (E) onto 5th gear.

11. Install the 5th synchro hub (A) by aligning the synchro ring fingers (B) with the grooves (C) in the 5th synchro hub.



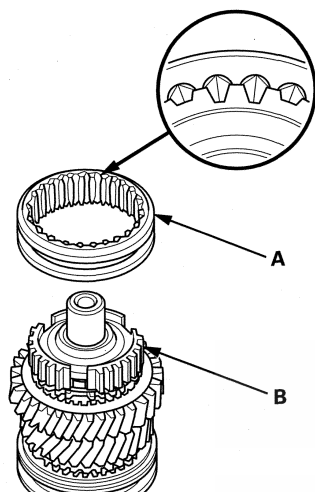
12. Press on the 5th synchro hub (A) using the 40 mm driver handle (B) and the 30 mm bearing driver attachment (C).



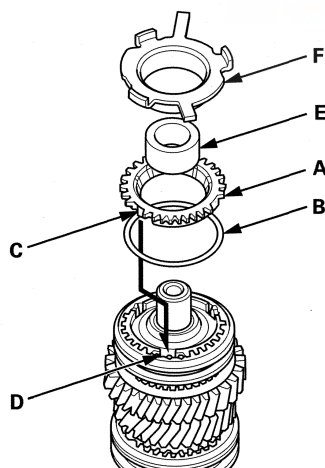


13. Install the 5th synchro sleeve (A) by aligning the slots of the 5th synchro sleeve and the 5th synchro hub (B). After installation, check the operation of the 5th synchro hub set.

NOTE: Make sure to align the slots in the 5th synchro hub as shown.

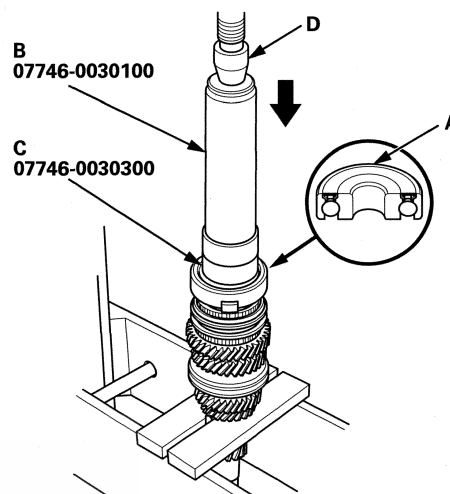


14. Install the synchro ring (A) with the synchro spring (B) by aligning the synchro ring fingers (C) with the grooves (D) in the 5th synchro hub.



15. Install the MBS distance collar (E) and the tapered cone ring (F).

16. Press on a new angular ball bearing (A) using the 40 mm driver handle (B) the 30 mm bearing driver attachment (C), and a press (D).

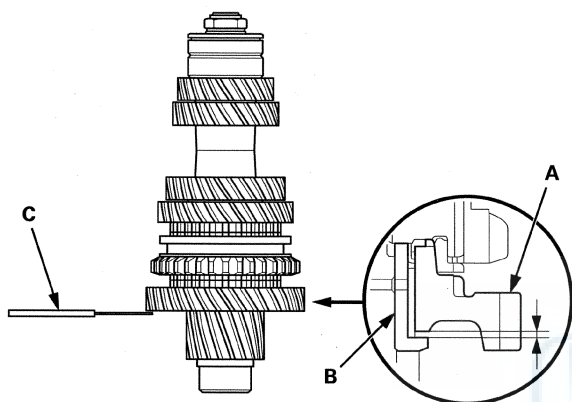


Manual Transmission

Countershaft Assembly Clearance Inspection

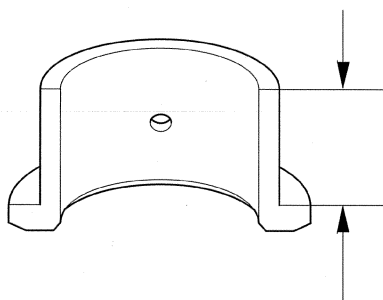
1. Measure the clearance between 1st gear (A) and the distance collar (B) with a feeler gauge (C).
 - If the clearance exceeds the service limit, go to step 2.
 - If the clearance is within the service limit, go to step 4.

Standard: 0.03–0.12 mm (0.002–0.004 in)
Service Limit: 0.24 mm (0.009 in)



2. Measure the length of the 1st gear distance collar as shown.
 - If the length is not within the standard, replace the 1st gear distance collar.
 - If the length is within the standard, go to step 3.

Standard: 26.53–26.58 mm (1.0445–1.0465 in)

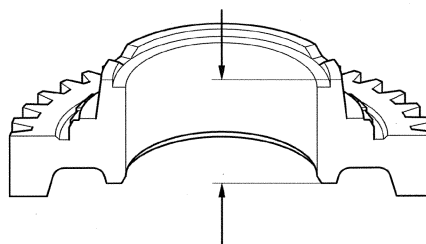


3. Measure the thickness of 1st gear.

- If the thickness is less than the service limit, replace 1st gear.
- If the thickness is within the service limit, replace the 1st/2nd synchro hub and reverse gear as a set.

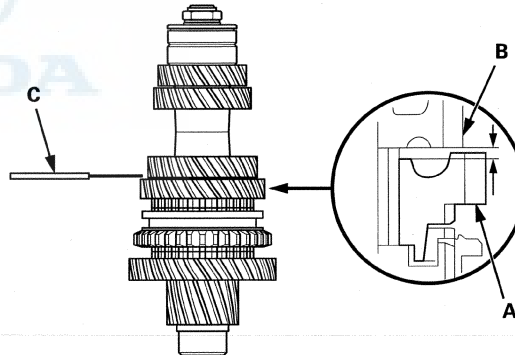
Standard: 27.42–27.47 mm (1.0795–1.0815 in)

Service Limit: 27.39 mm (1.0783 in)



4. Measure the clearance between 2nd gear (A) and 3rd gear (B) with a feeler gauge (C). If the clearance exceeds the service limit, go to step 5.

Standard: 0.04–0.12 mm (0.002–0.004 in)
Service Limit: 0.24 mm (0.009 in)





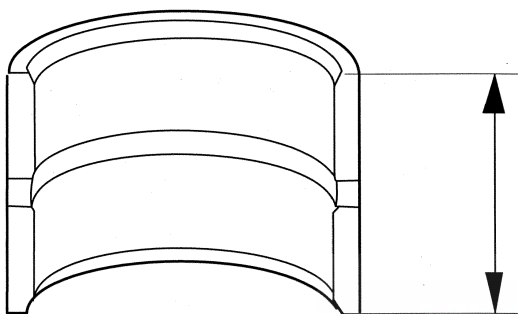
Countershaft Disassembly

5. Measure the length of the 2nd gear distance collar.

- If the length is not within the standard, replace the 2nd gear distance collar.
- If the length is within the standard, go to step 6.

Standard: 27.53–27.56 mm (1.0839–1.0850 in)

Service Limit: 27.51 mm (1.0831 in)

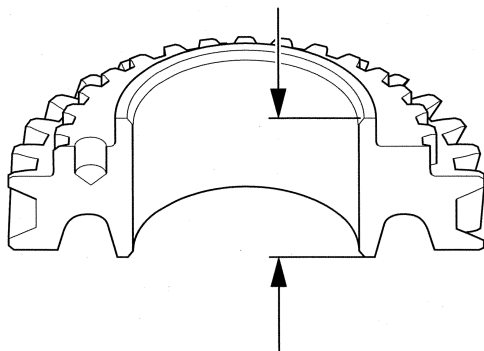


6. Measure the thickness of 2nd gear.

- If the thickness is less than the service limit, replace 2nd gear.
- If the thickness is within the service limit, replace the 1st/2nd synchro hub and reverse gear as a set.

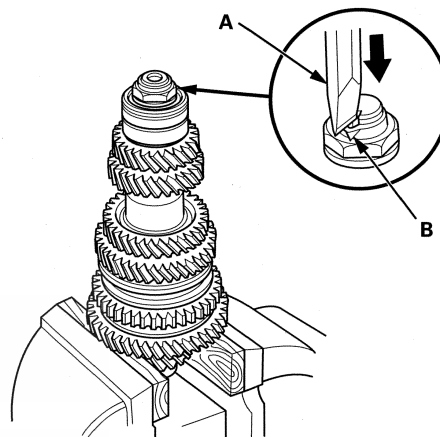
Standard: 27.41–27.46 mm (1.0791–1.0811 in)

Service Limit: 27.36 mm (1.0772 in)

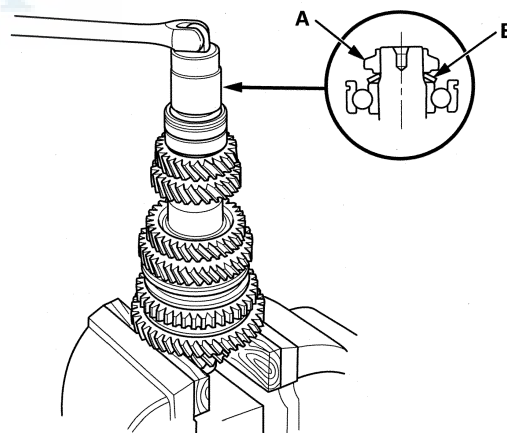


NOTE: Refer to the Exploded View in the countershaft reassembly, as needed, when removing components pressed onto the countershaft (see page 13-38).

1. Securely clamp the countershaft assembly in a bench vise with wood blocks.
2. Use a chisel (A) to raise the locknut tab (B) from the groove in the countershaft.



3. Remove the locknut (left-hand threads) (A) and the spring washer (B).

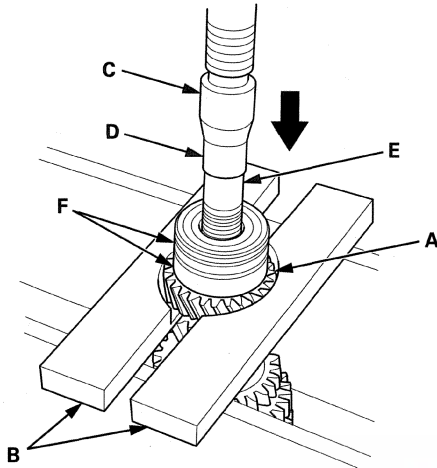


(cont'd)

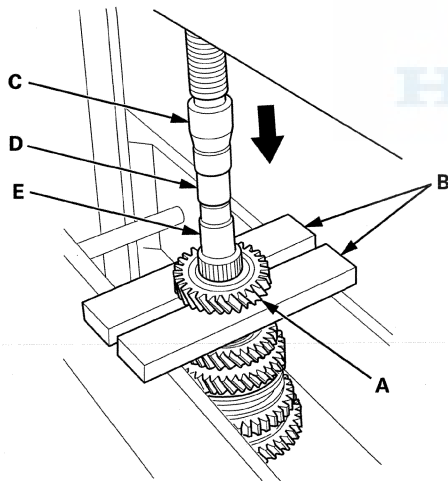
Manual Transmission

Countershaft Disassembly (cont'd)

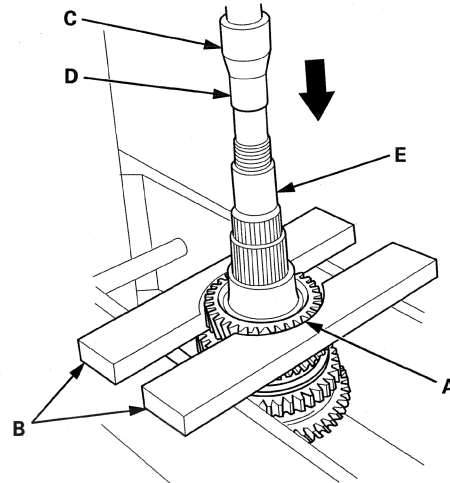
4. Support 5th gear (A) on steel blocks (B), then use a press (C) and an attachment (D) to press the countershaft (E) out of the bearings (F).



5. Support 4th gear (A) on steel blocks (B), then use a press (C) and an attachment (D) to press the countershaft (E) out of 4th gear.



6. Support 3rd gear (A) on steel blocks (B), then use a press (C) and an attachment (D) to press the countershaft (E) out of 3rd gear.





Countershaft Inspection

1. Inspect the gear and bearing contact areas for wear and damage, then measure the countershaft at points A, B, and C. If any part of the countershaft is less than the service limit, replace it.

Standard:

A Ball Bearing Contact Area

(Transmission Housing Side):

24.980—24.993 mm (0.98346—0.98397 in)

B 1st Gear Distance Collar Contact Area:

36.487—36.500 mm (1.43649—1.43700 in)

C Needle Bearing Contact Area

(Clutch Housing Side):

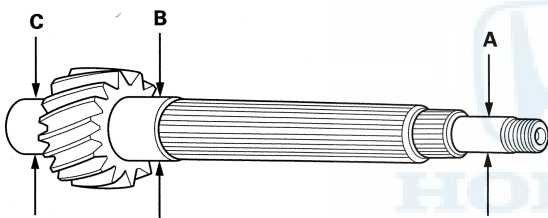
34.000—34.015 mm (1.33858—1.33917 in)

Service Limit:

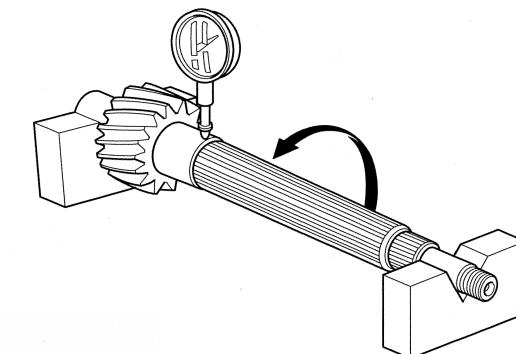
A: 24.93 mm (0.9815 in)

B: 36.44 mm (1.4346 in)

C: 33.95 mm (1.3366 in)



2. Inspect the runout by supporting both ends of the countershaft. Then rotate the countershaft two complete turns while measuring with a dial gauge. If the runout exceeds the service limit, replace the countershaft.



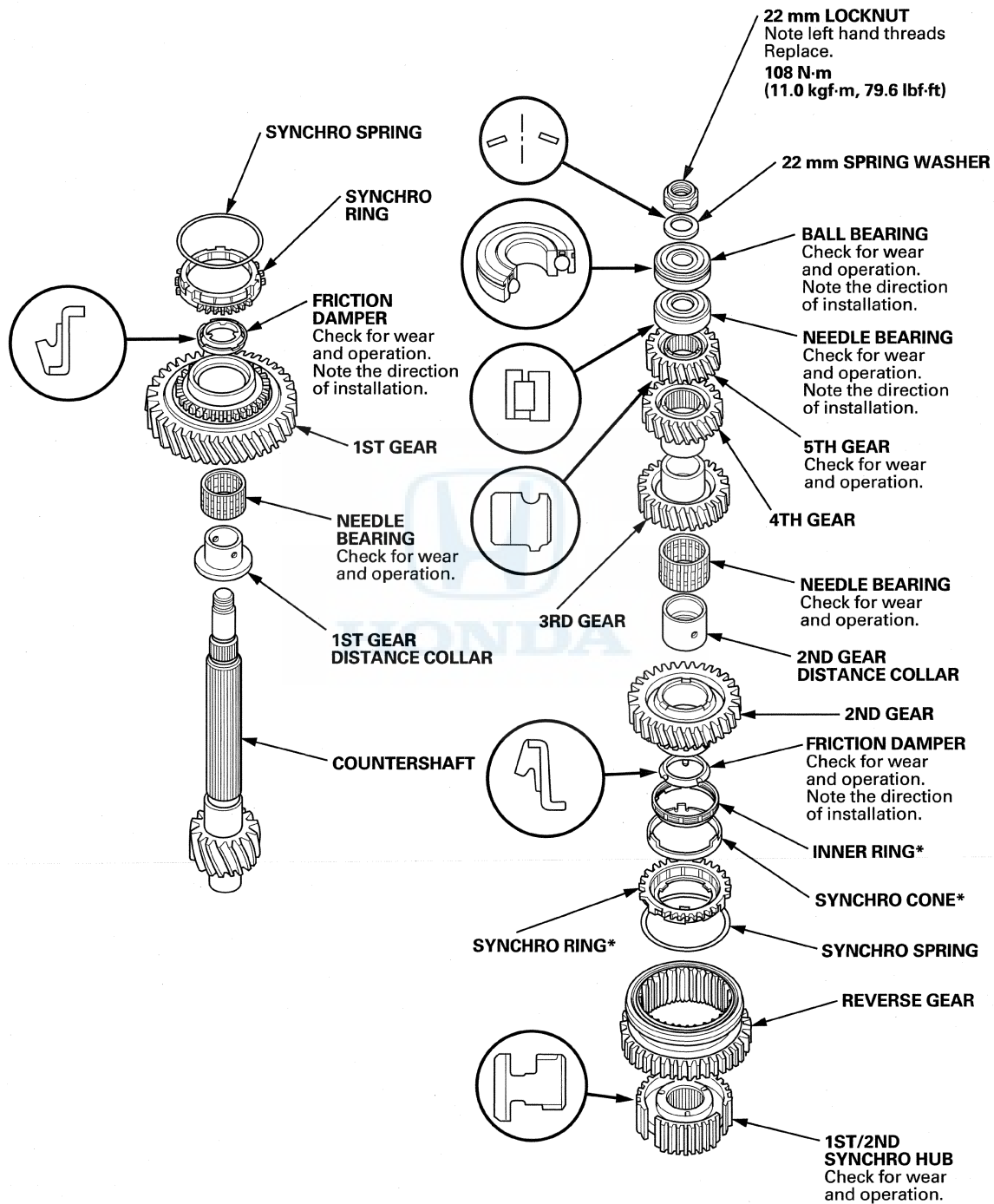
Standard: 0.02 mm (0.0008 in) max.

Service Limit: 0.05 mm (0.0020 in)

Manual Transmission

Countershaft Reassembly

Exploded View



*: The components of the double cone synchro assembly.

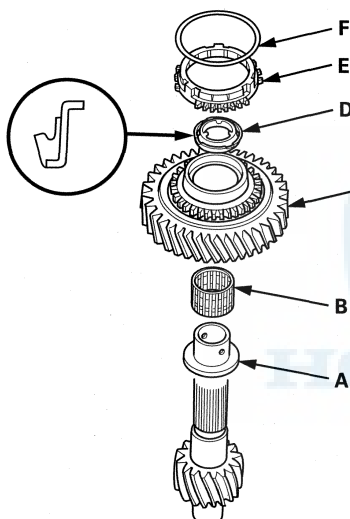


Special Tools Required

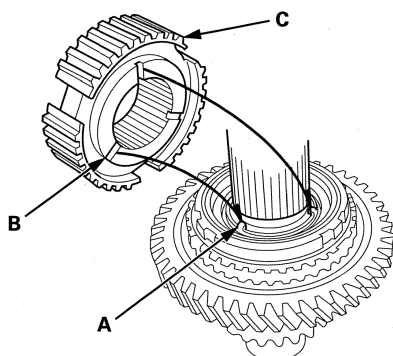
- Driver Handle, 40 mm I.D. 07746-0030100
- Attachment, 25 mm I.D. 07746-0030200
- Bearing Driver Attachment, 30 mm 07746-0030300
- Attachment, 35 mm I.D. 07746-0030400

NOTE: Refer to the Exploded View, as needed, during this procedure.

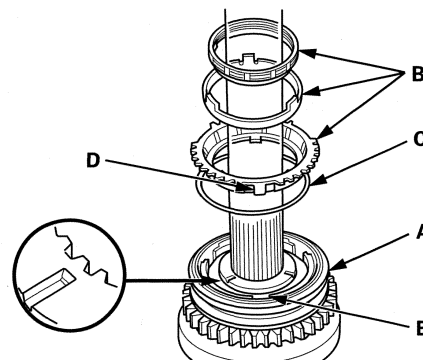
1. Clean all parts in solvent, dry them, and apply MTF to all contact surfaces.
2. Install the 1st gear distance collar (A), with the needle bearing (B), 1st gear (C), and friction damper (D) on the shaft.



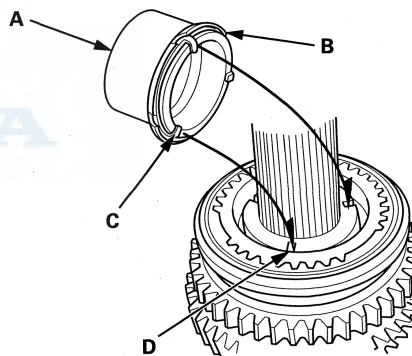
3. Install the 1st gear synchro ring (E) and synchro spring (F) on the shaft.
4. Align the fingers (A) on the friction damper with the grooves (B) on the 1st/2nd synchro hub (C), then install the 1st/2nd synchro hub onto the shaft.



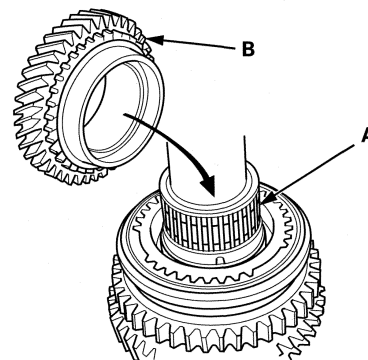
5. Install the reverse gear (A). Install the double cone synchro assembly (B) with the synchro spring (C) by aligning the synchro ring fingers (D) with the 1st/2nd synchro hub grooves (E).



6. Install the 2nd gear distance collar (A) and friction damper (B), then align the fingers (C) on the friction damper and the grooves (D) in the 1st/2nd synchro hub.



7. Install the needle bearing (A) and 2nd gear (B).



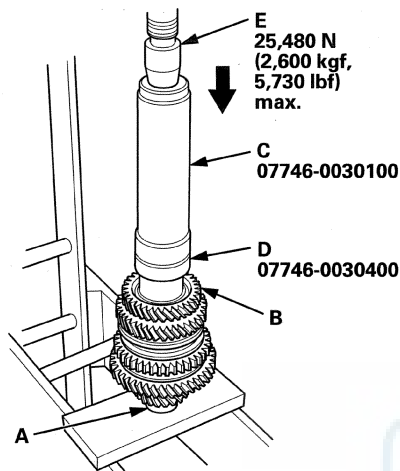
(cont'd)

Manual Transmission

Countershaft Reassembly (cont'd)

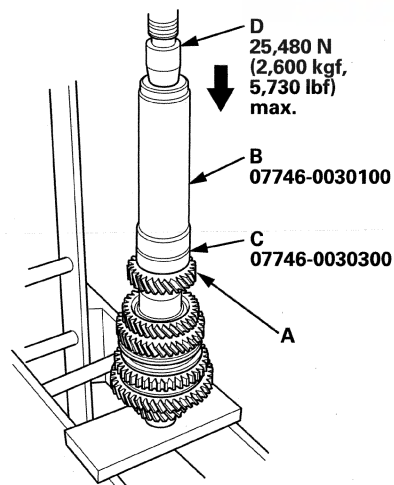
8. Support the countershaft (A) on steel blocks, then press on 3rd gear (B) using the 40 mm driver handle (C), 35 mm bearing driver attachment (D), and a press (E).

NOTE: Do not exceed the maximum pressure.



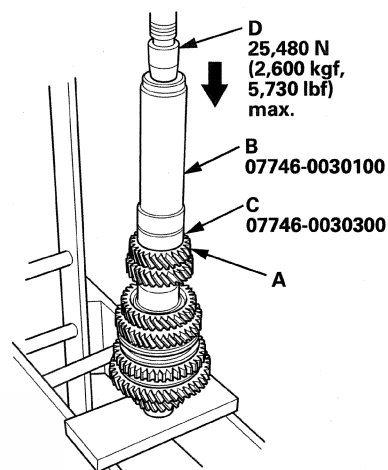
9. Press on 4th gear (A) using the 40 mm driver handle (B), 30 mm bearing driver attachment (C), and a press (D).

NOTE: Do not exceed the maximum pressure.

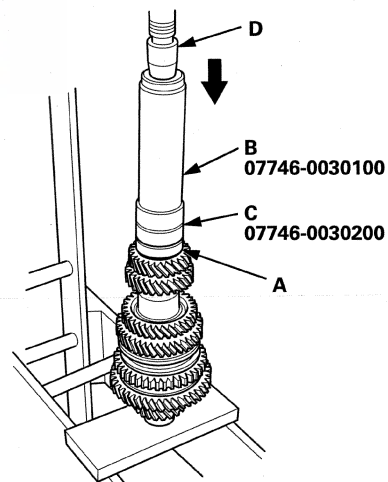


10. Press on 5th gear (A) using the 40 mm driver handle (B), 30 mm bearing driver attachment (C), and a press (D).

NOTE: Do not exceed the maximum pressure.



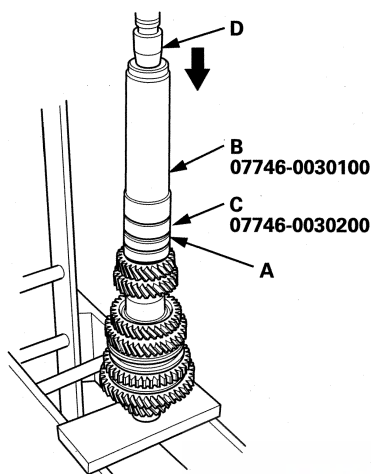
11. Press on the needle bearing (A) using the 40 mm driver handle (B), 25 mm bearing driver attachment (C), and a press (D).



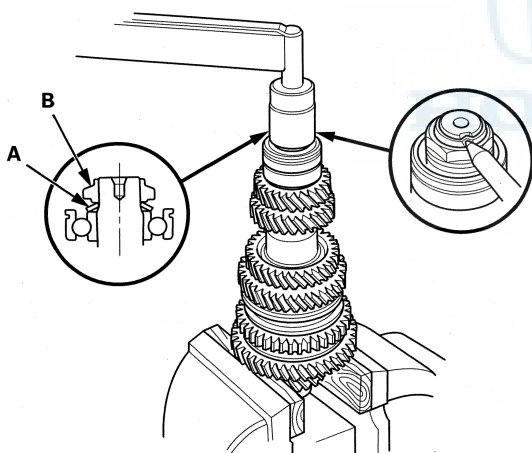


Synchro Sleeve and Hub Inspection and Reassembly

12. Press on the ball bearing (A) using the 40 mm driver handle (B), 25 mm bearing driver attachment (C), and a press (D).



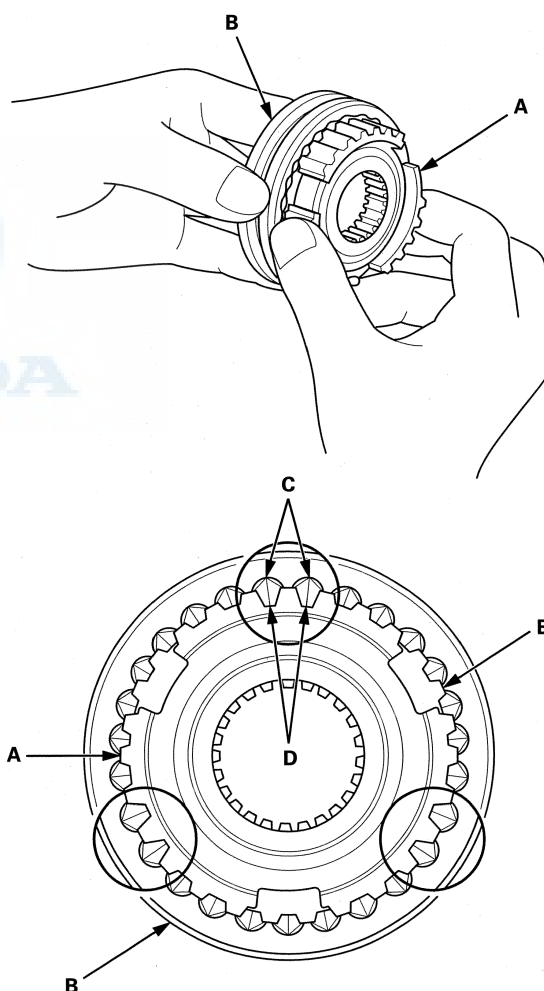
13. Install the 22 mm spring washer (A) and a new 22 mm locknut (left-hand threads) (B).



14. Securely clamp the countershaft assembly in a bench vise with wood blocks.
15. Torque a new locknut to 108 N·m (11.0 kgf·m, 79.6 lbf·ft), then loosen it and torque it again to the same value. Stake the locknut tab into the groove.

1. Inspect gear teeth on all synchro hubs and the synchro sleeves for rounded off corners, which indicate wear.
2. Install each synchro hub (A) in its mating synchro sleeve (B), and check for free movement. Make sure to match the three sets of longer teeth (C) (120 degrees apart) on the synchro sleeve with the three sets of deeper grooves (D) in the synchro hub.

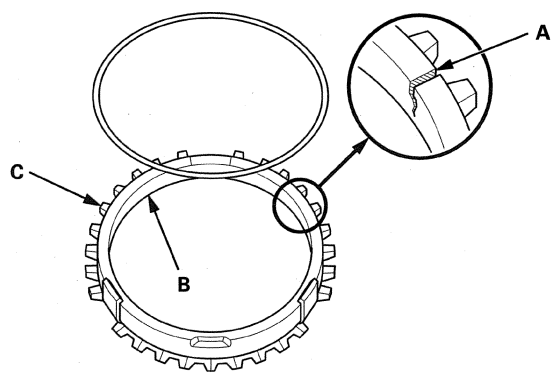
NOTE: Do not install the synchro sleeve with its longer teeth in the synchro hub slots (E) because it will damage the spring ring. If required, always replace the synchro sleeve and the synchro hub as a set.



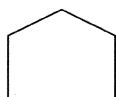
Manual Transmission

Synchro Ring and Gear Inspection

1. Inspect the synchro rings for scoring, cracks, and damage (A).



Example of synchro ring teeth

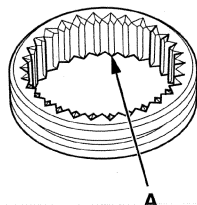


GOOD



WORN

2. Inspect the inside of each synchro ring (B) for wear. Inspect the teeth (C) on each synchro ring for wear (rounded off).
3. Inspect the teeth (A) on each synchro sleeve and the matching teeth on each gear for wear (rounded off).



Example of synchro sleeve teeth and gear teeth

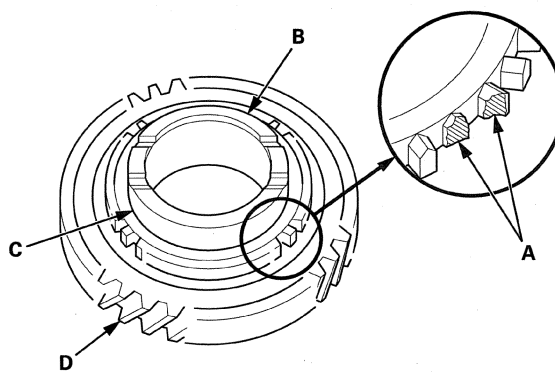


GOOD



WORN

4. Inspect the synchro teeth on gear for scoring, cracks, and damage (A).



5. Inspect the thrust surface (B) on each gear hub for wear.
6. Inspect the cone surface (C) on each gear hub for wear and roughness.
7. Inspect the teeth on all gears (D) for uneven wear, scoring, and cracks.
8. Coat the cone surface of each gear with MTF, and place its synchro ring on it. Rotate the synchro ring, making sure that it does not slip.
9. Measure the clearance between each gear (A) and its synchro ring (B) all around the gear. Hold the synchro ring against the gear evenly while measuring the clearance. If the clearance is less than the service limit, replace the synchro ring and gear.

Synchro Ring-to-Gear Clearance

Standard: 0.85–1.10 mm (0.034–0.043 in)

Service Limit: 0.4 mm (0.016 in)

Double Cone Synchro-to-Gear Clearance

Standard:

①: Outer Synchro Ring (B) to Synchro Cone (C)
0.5–1.0 mm (0.020–0.039 in)

②: Synchro Cone (C) to Gear (A)
0.5–1.0 mm (0.020–0.039 in)

③: Outer Synchro Ring (B) to Gear (A)
0.95–1.68 mm (0.038–0.066 in)

Service Limit:

①: 0.3 mm (0.012 in)

②: 0.3 mm (0.012 in)

③: 0.6 mm (0.024 in)

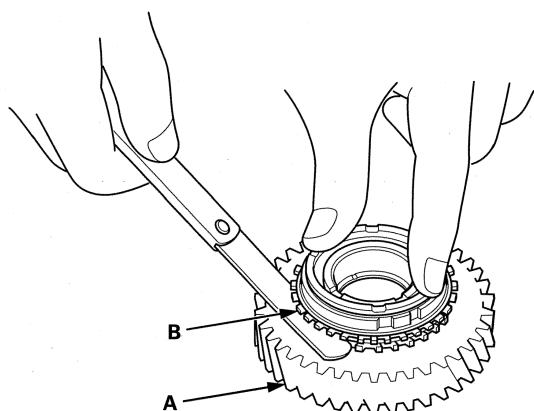


Mainshaft Bearing and Oil Seal Replacement

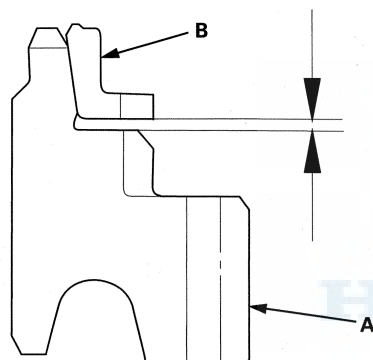
Special Tools Required

- Driver Handle, 15 x 135L 07749-0010000
- Attachment, 37 x 40 mm 07746-0010200
- Attachment, 52 x 55 mm 07746-0010400
- Adjustable Bearing Puller, 25—40 mm 07736-A01000B

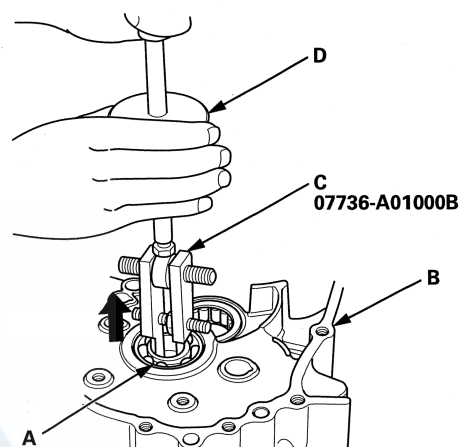
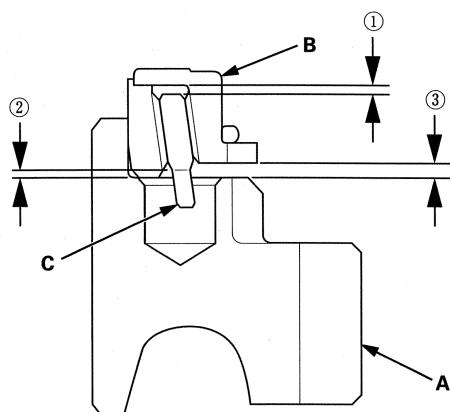
1. Remove the differential assembly.
2. Remove the ball bearing (A) from the clutch housing (B) using the 25—40 mm adjustable bearing puller (C), and a commercially available 3/8"-16 UNF slide hammer (D).



Synchro ring-to-gear

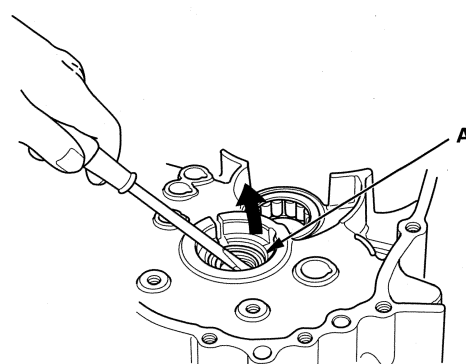


Double cone synchro-to-gear



3. Remove the oil seal (A) from the clutch side.

NOTE: Be careful not to damage the clutch housing while removing the oil seal.

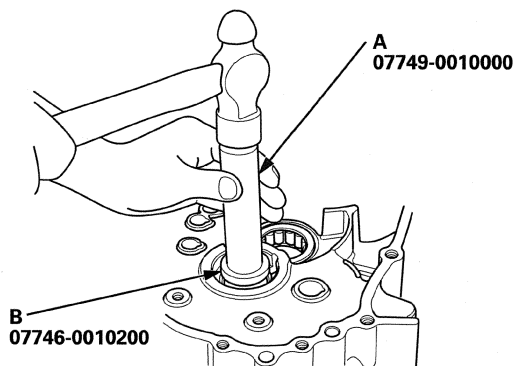


(cont'd)

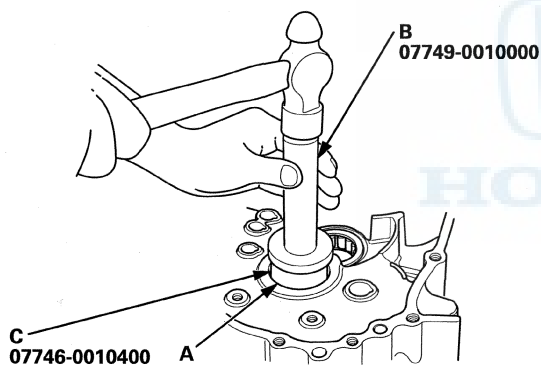
Manual Transmission

Mainshaft Bearing and Oil Seal Replacement (cont'd)

4. Drive in a new oil seal in from the transmission side using the 15 x 135L driver handle (A) and the 37 x 40 mm bearing driver attachment (B).



5. Drive in a new ball bearing (A) in from the transmission side using the 15 x 135L driver handle (B) and the 52 x 55 mm bearing driver attachment (C).

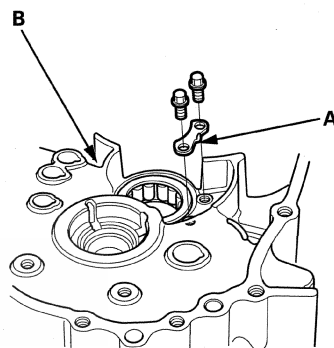


Countershaft Bearing Replacement

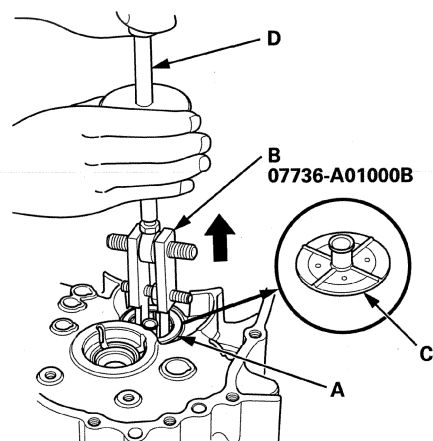
Special Tools Required

- Driver Handle, 15 x 135L 07749-0010000
- Attachment, 52 x 55 mm 07746-0010400
- Adjustable Bearing Puller, 25—40 mm 07736-A01000B

1. Remove the bearing set plate (A) from the clutch housing (B).



2. Remove the needle bearing (A) using the 25—40 mm adjustable bearing remover head (B) and a commercially available 3/8"-16 UNF slide hammer (D), then remove oil guide plate C.



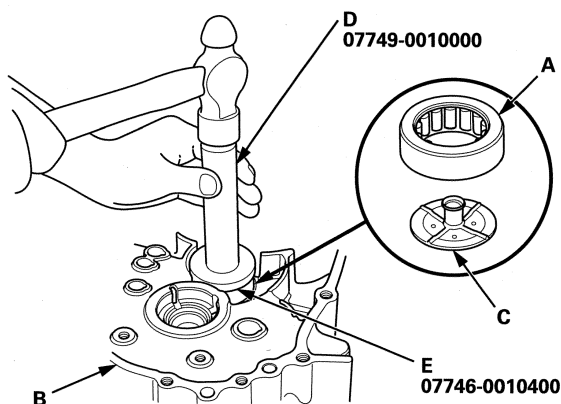


Mainshaft Thrust Clearance Adjustment

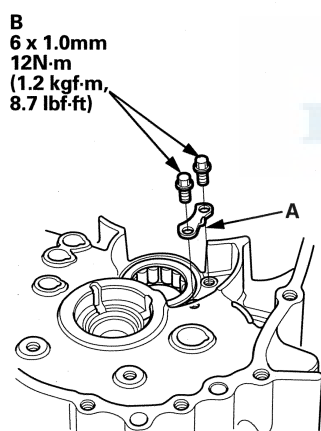
Special Tools Required

- Mainshaft Base 07GAJ-PG20130
- Collar 07GAJ-PG20120
- Mainshaft Holder 07GAJ-PG20110

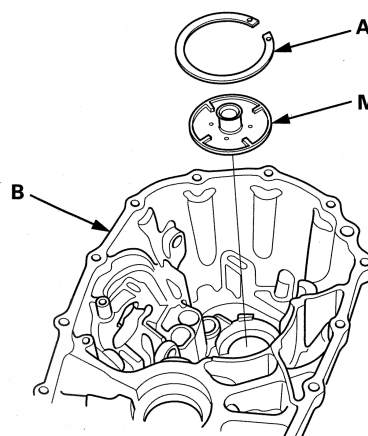
3. Position the oil guide plate C and new needle bearing (A) in the bore of the clutch housing (B).



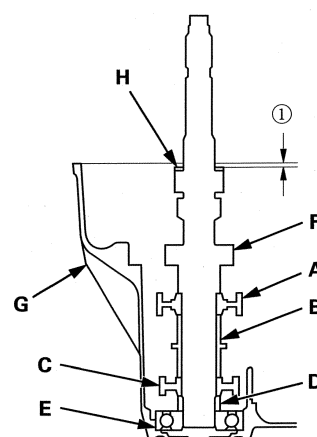
4. Press in the needle bearing using the 15 x 135L driver handle (D) and the 52 x 55 mm bearing driver attachment (E).
5. Install the bearing set plate (A) with bolts (B).



1. Remove the 72 mm shim (A) and oil guide plate M from the transmission housing (B).



2. Install the 3rd/4th synchro hub (A), the distance collar (B), the 5th synchro hub (C), the distance collar (D), and the ball bearing (E) on the mainshaft (F), then install the assembled mainshaft in the transmission housing (G).



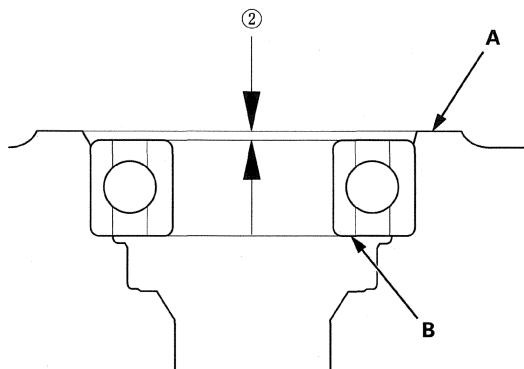
3. Install the washer (H) on the mainshaft.
4. Measure the distance ① between the end of the transmission housing and washer with a straight edge and a vernier caliper. Measure at three locations and average the reading.

(cont'd)

Manual Transmission

Mainshaft Thrust Clearance Adjustment (cont'd)

5. Measure the distance ② between the end of the clutch housing (A) and the bearing inner race (B) with a precision straight edge and a depth gauge. Measure at three locations and average the readings.



Shim Selection Formula

6. Calculate the required size 72 mm shim. Follow the example below, and use the measurements you made in steps 4 and 5:

(Basic Formula)

$$\textcircled{1} + \textcircled{2} - (0.75 + 0.11)$$

= shim thickness (maximum)

$$\textcircled{1} + \textcircled{2} - (0.75 + 0.18)$$

= shim thickness (minimum)

- Add distance ① (step 4) to distance ② (step 5).
- 0.75 mm (0.0295 in): Spring washer, a dimension in the installation.
- 0.11 mm (0.0043 in): Minimum thrust clearance.
- 0.18 mm (0.0071 in): Maximum thrust clearance.

(For example)

$$2.41 + 0.22 - (0.75 + 0.11) = 1.77 \text{ mm (0.0697 in)}$$

$$2.41 + 0.22 - (0.75 + 0.18) = 1.70 \text{ mm (0.0669 in)}$$

7. Take the middle value of the minimum value and the maximum value, and select the 72 mm shim.

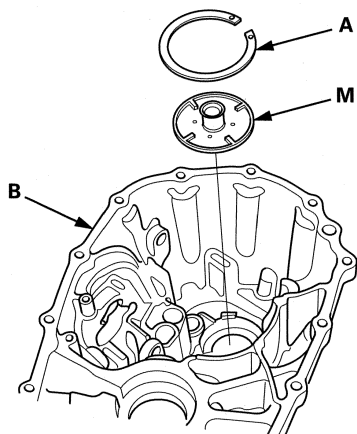
Using the example distances from step 6, the 1.74 mm (0.0685 in) is the correct shim.

72 mm Shim

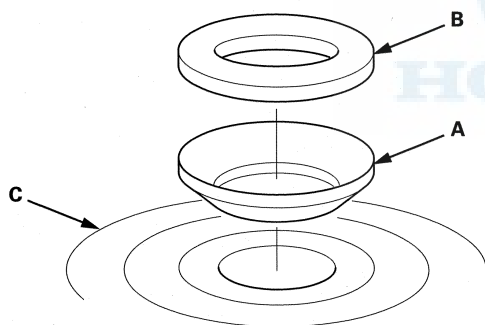
Type	Thickness
A	0.60 mm (0.0236 in)
B	0.63 mm (0.0248 in)
C	0.66 mm (0.0260 in)
D	0.69 mm (0.0272 in)
E	0.72 mm (0.0283 in)
F	0.75 mm (0.0295 in)
G	0.78 mm (0.0307 in)
H	0.81 mm (0.0319 in)
I	0.84 mm (0.0331 in)
J	0.87 mm (0.0343 in)
K	0.90 mm (0.0354 in)
L	0.93 mm (0.0366 in)
M	0.96 mm (0.0378 in)
N	0.99 mm (0.0390 in)
O	1.02 mm (0.0402 in)
P	1.05 mm (0.0413 in)
Q	1.08 mm (0.0425 in)
R	1.11 mm (0.0437 in)
S	1.14 mm (0.0449 in)
T	1.17 mm (0.0461 in)
U	1.20 mm (0.0472 in)
V	1.23 mm (0.0484 in)
W	1.26 mm (0.0496 in)
X	1.29 mm (0.0508 in)
Y	1.32 mm (0.0520 in)
Z	1.35 mm (0.0531 in)
AA	1.38 mm (0.0543 in)
AB	1.41 mm (0.0555 in)
AC	1.44 mm (0.0567 in)
AD	1.47 mm (0.0579 in)
AE	1.50 mm (0.0591 in)
AF	1.53 mm (0.0602 in)
AG	1.56 mm (0.0614 in)
AH	1.59 mm (0.0626 in)
AI	1.62 mm (0.0638 in)
AJ	1.65 mm (0.0650 in)
AK	1.68 mm (0.0661 in)
AL	1.71 mm (0.0673 in)
AM	1.74 mm (0.0685 in)
AN	1.77 mm (0.0697 in)
AO	1.80 mm (0.0709 in)



8. Install the 72 mm shim (A) selected and oil guide plate M in the transmission housing (B).

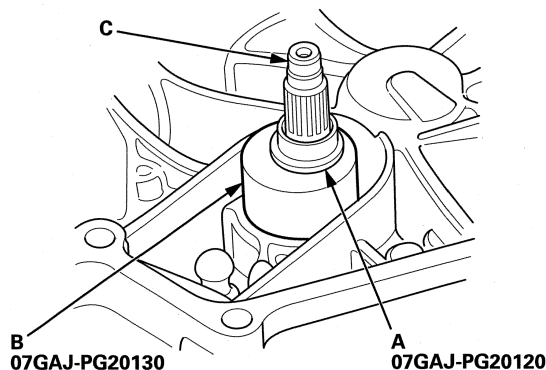


9. Thoroughly clean the spring washer (A) and washer (B) before installing them on the clutch housing side of the ball bearing (C). Note the installation direction of the spring washer.



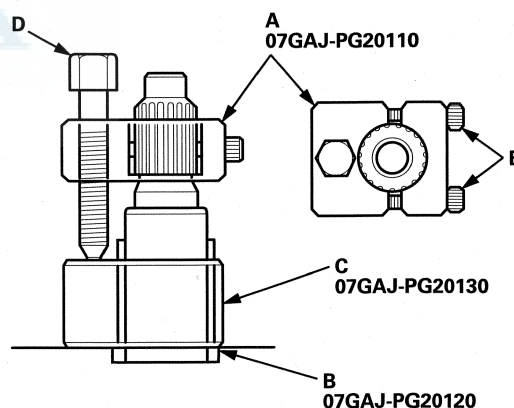
10. Install the mainshaft in the clutch housing.
11. Place the transmission housing over the mainshaft and onto the clutch housing.
12. Tighten the clutch and transmission housings with several 8 mm bolts.
- NOTE:** It is not necessary to use sealing agent between the housings.
13. Tap the mainshaft using a plastic hammer.

14. Slide the collar (A) and the mainshaft base (B) over the mainshaft (C).



15. Attach the mainshaft holder (A), the collar (B), and the mainshaft base (C) to the mainshaft as follows:

- Back out the mainshaft holder bolt (D) and loosen the two hex bolts (E).
- Fit the holder over the mainshaft so its lip is toward the transmission.
- Align the mainshaft holder's lip around the groove at the inside of the mainshaft splines, then tighten the hex bolts.



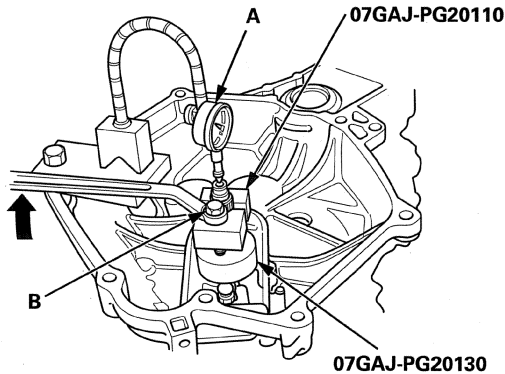
16. Tap on the end of the mainshaft using a plastic hammer to fully seat it.
17. Thread in the mainshaft holder bolt until it just contacts the wide surface of the mainshaft base.

(cont'd)

Manual Transmission

Mainshaft Thrust Clearance Adjustment (cont'd)

18. Zero a dial gauge (A) on the end of the mainshaft.



19. Turn the mainshaft holder bolt (B) clockwise, and stop turning when the dial gauge has reached its maximum movement. The reading on the dial gauge is the amount of mainshaft end play.

Do not turn the mainshaft holder bolt more than 60 degrees after the needle of the dial gauge stops moving. Doing this may damage the transmission.

20. If the reading is within the standard, the clearance is correct. If the reading is not within the standard, recheck the shim thickness.

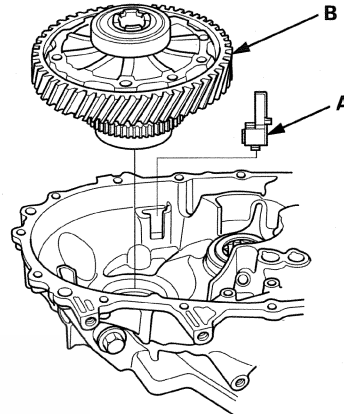
Standard: 0.11–0.18 mm (0.0043–0.0071 in)

Transmission Reassembly

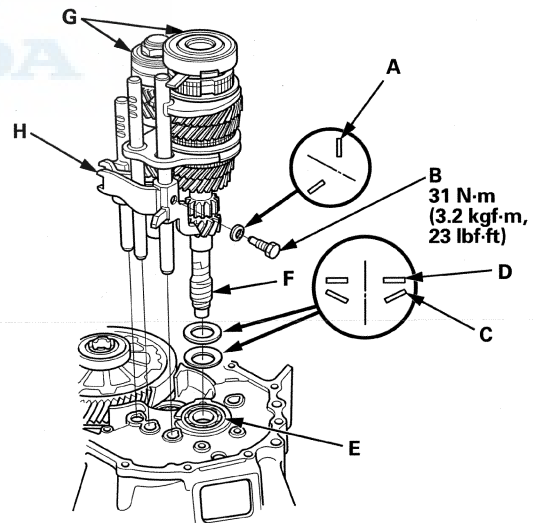
NOTE: Prior to reassembly, clean all the parts in solvent, dry them, and apply MTF to any contact surfaces.

1. Install the magnet (A) and differential assembly (B).

NOTE: Clean the magnet any time the transmission is disassembled.



2. Install the 8 mm spring washer (A) and the 8 mm special bolt (B).



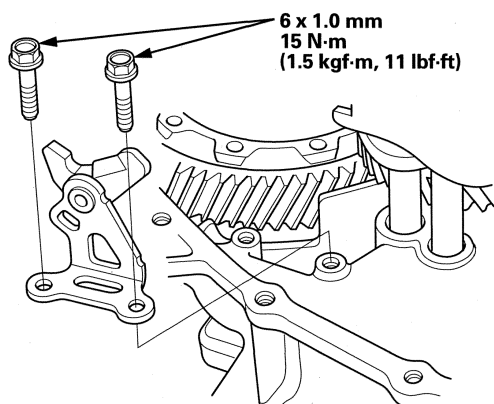
3. Install the 36 mm spring washer (C) and the 26 mm washer (D) over the ball bearing (E). Note the installation direction of the spring washer.

4. Tape the mainshaft splines (F) with vinyl tape to protect the seal. Install the mainshaft and the countershaft (G) into the shift forks (H), and install them as an assembly.

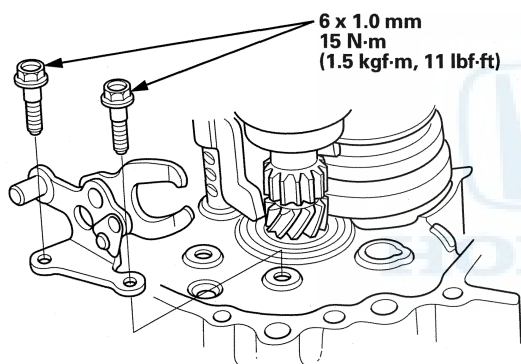
NOTE: Do not apply tape thick to damage the oil seal.



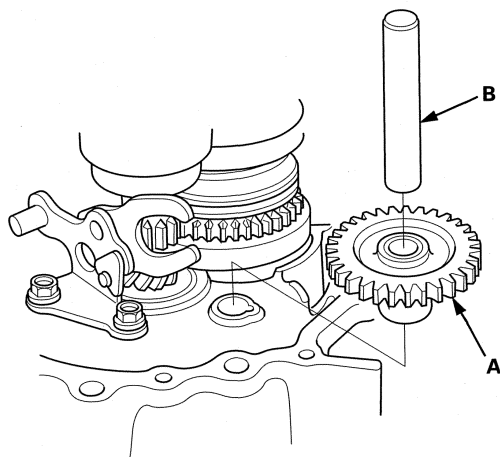
5. Install the reverse lock cam.



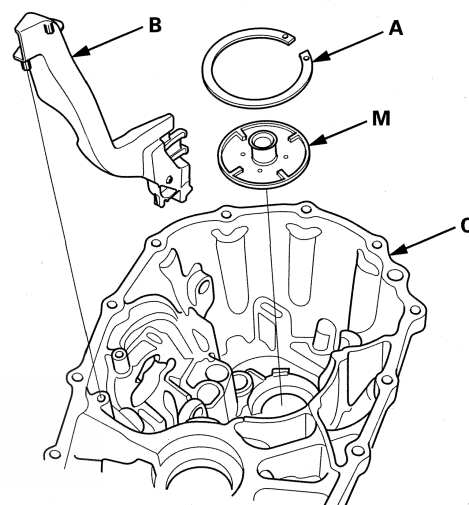
6. Install the reverse shift fork.



7. Install the reverse idler gear (A) and the reverse gear shaft (B).



8. Select the proper size 72 mm shim (A) according to the measurements made during the Mainshaft Thrust Clearance Adjustment (see page 13-45). Install the oil gutter plate (B), oil guide plate M, and the 72 mm shim into the transmission housing (C).

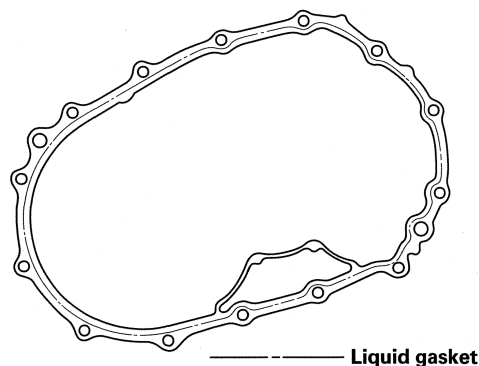


9. Clean any dirt or oil from the transmission housing sealing surface.

10. Apply liquid gasket (P/N 08717-0004, 08718-0001, 08718-0003, 08718-0004, or 08718-0009) evenly to the clutch housing mating surface of the transmission housing. Install the component within 5 minutes of applying the liquid gasket.

NOTE:

- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.



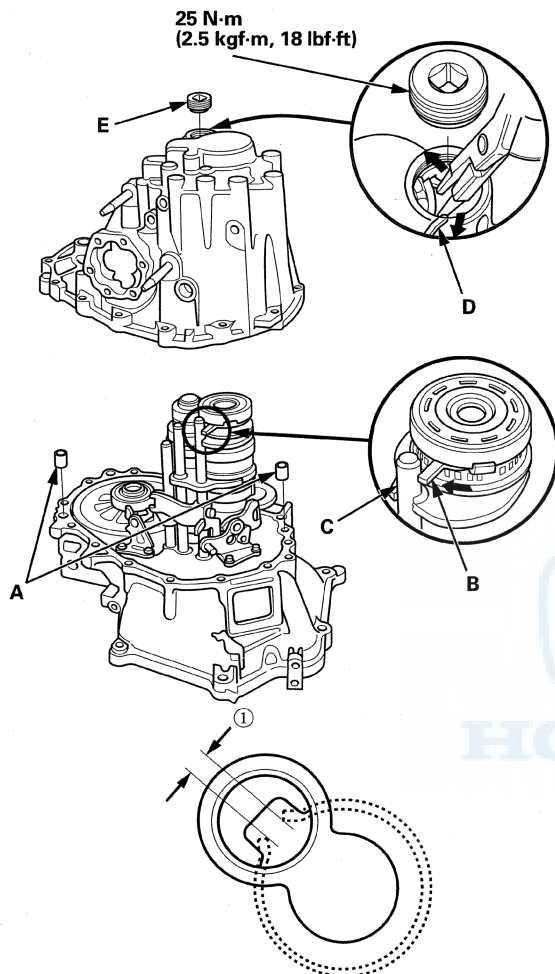
— — — — — Liquid gasket

(cont'd)

Manual Transmission

Transmission Reassembly (cont'd)

11. Install the two 14 x 20 mm dowel pins (A).



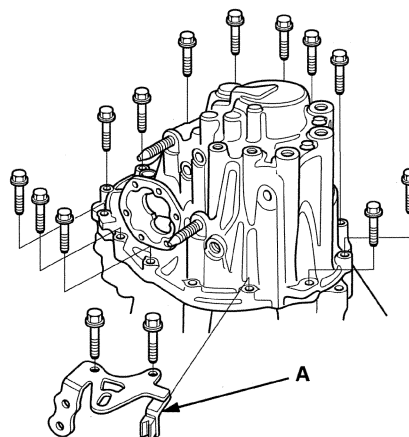
12. Make sure the finger (B) of the tapered cone ring contacts the 5th shift fork (C) as shown.
13. Lower the transmission housing the rest of the way as you expand the 52 mm snap ring (D). Release the snap ring so it seats in the groove of the countershaft bearing.

14. Make sure that the 52 mm snap ring is securely seated in the groove of the countershaft bearing.

Dimension ① as installed: 4.6–8.3 mm (0.181–0.327 in)

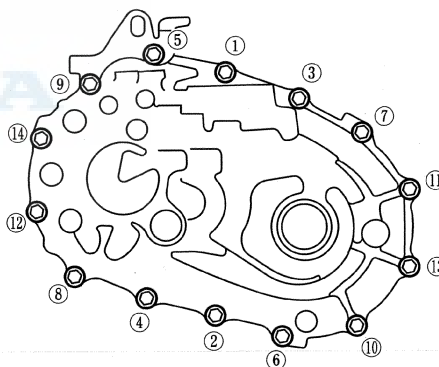
15. Apply liquid gasket (P/N 08717-0004, 08718-0001, 08718-0003, 08718-0004, or 08718-0009) to the threads of the 32 mm sealing screw (E), and install it on the transmission housing.

16. Install the transmission hanger (A) and the 8 mm flange bolts finger-tight.



17. Torque the 8 mm flange bolts in a crisscross pattern in several steps.

**Specified Torque: 8 x 1.25 mm
27 N·m (2.8 kgf·m, 20 lbf·ft)**



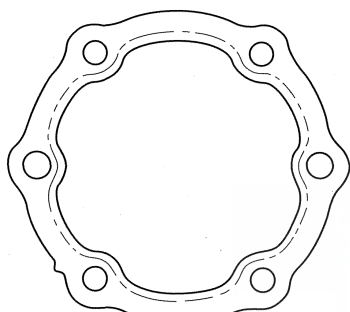
18. Clean any dirt or oil from the change lever assembly sealing surface.



19. Apply liquid gasket (P/N 08717-0004, 08718-0001, 08718-0003, 08718-0004, or 08718-0009) evenly to the transmission housing mating surface of the change lever assembly. Install the component within 5 minutes of applying the liquid gasket.

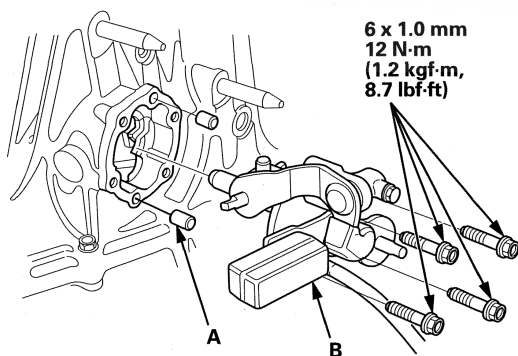
NOTE:

- If you apply liquid gasket P/N 08718-0012, the component must be installed within 4 minutes.
- If too much time has passed after applying the liquid gasket, remove the old liquid gasket and residue, then reapply new liquid gasket.

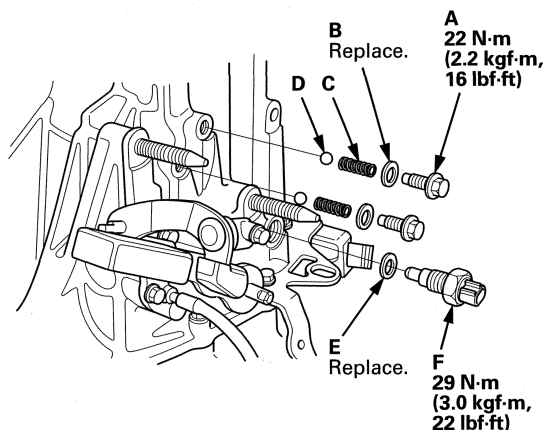


— — — — — Liquid gasket

20. Install the 8 x 10 mm dowel pins (A) and the change lever assembly (B).

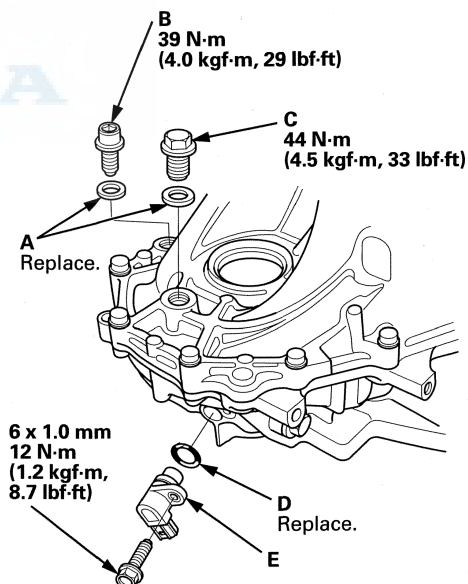


21. Install the detent bolts (A), new 12 mm washers (B), the detent ball springs (C), and the steel balls (D).



22. Install a new washer (E) and the back-up light switch (F).

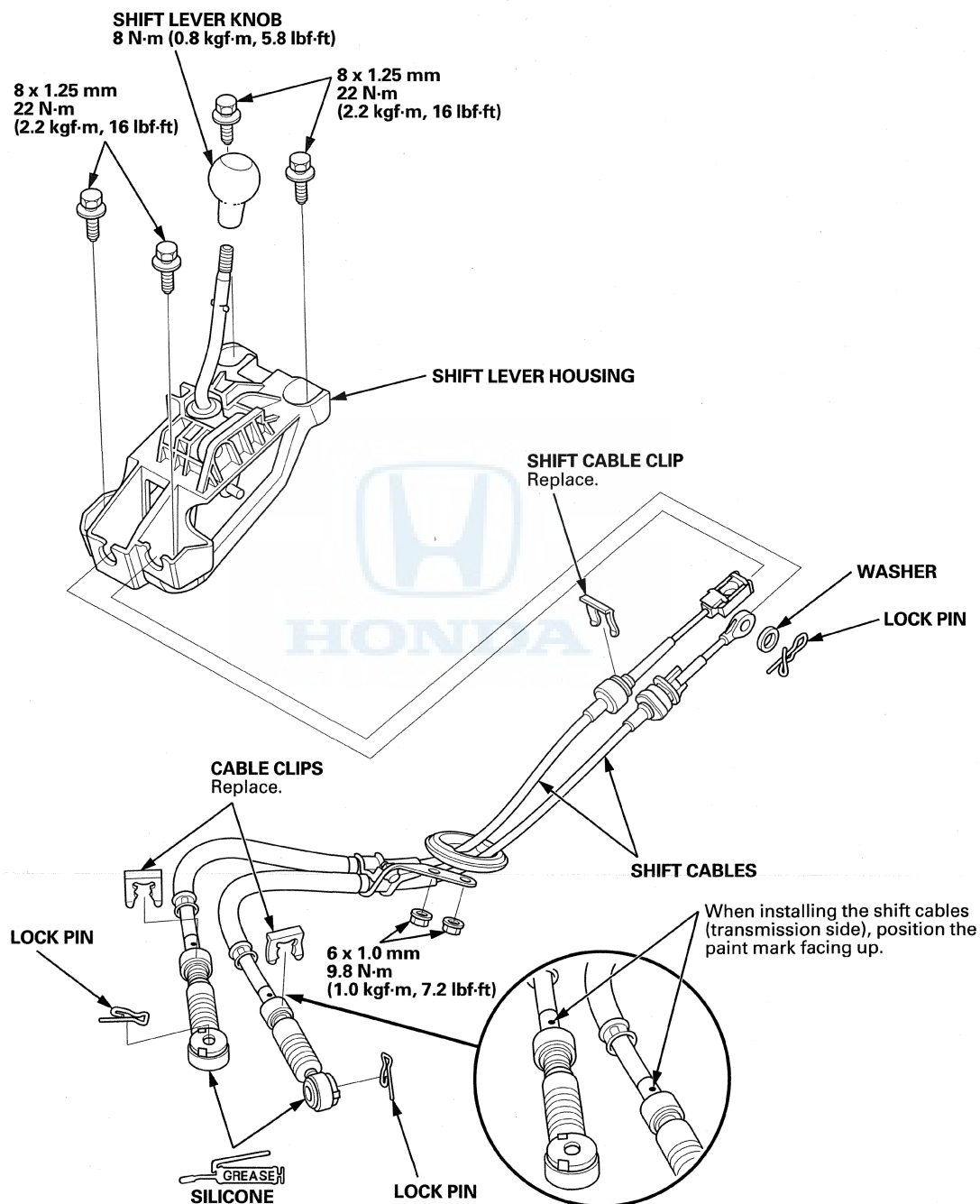
23. Install new washers (A), the drain plug (B), the filler plug (C), a new O-ring (D), and the output shaft (countershaft) speed sensor (E).



Manual Transmission

Gearshift Mechanism Replacement

NOTE: Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands or gloves.

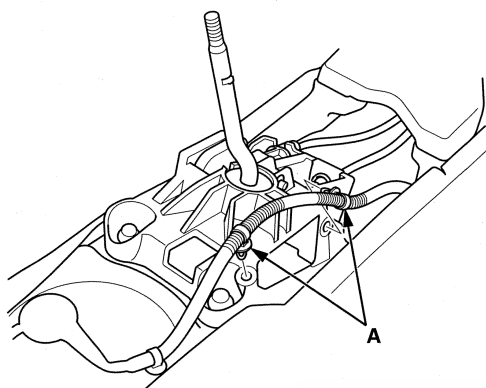




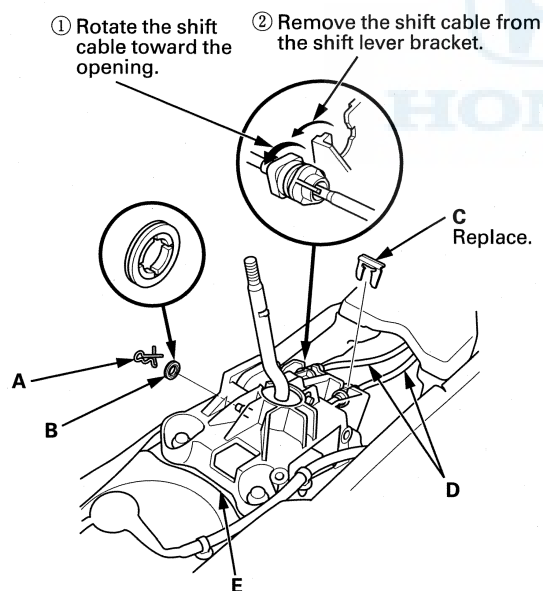
Shift Lever Housing Replacement

NOTE: Take care not to scratch the center console, dashboard, and related parts.

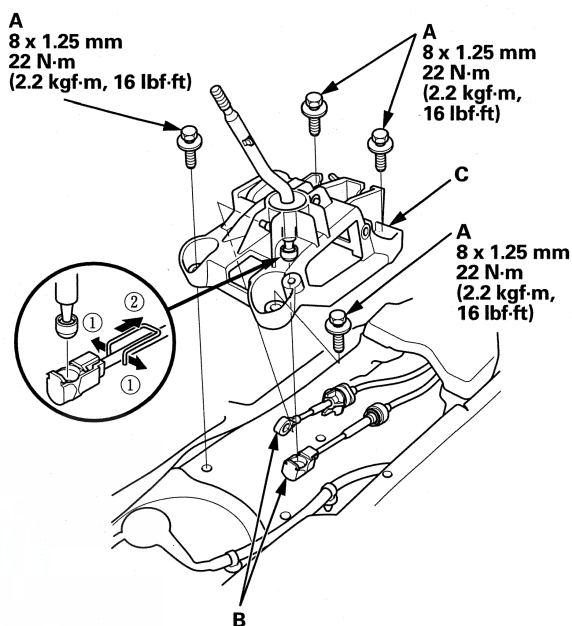
1. Remove the center console (see page 20-93).
2. Remove the harness clamps (A).



3. Remove the lock pin (A), the washer (B), the shift cable clip (C), and the shift cables (D) from the shift lever housing assembly (E).



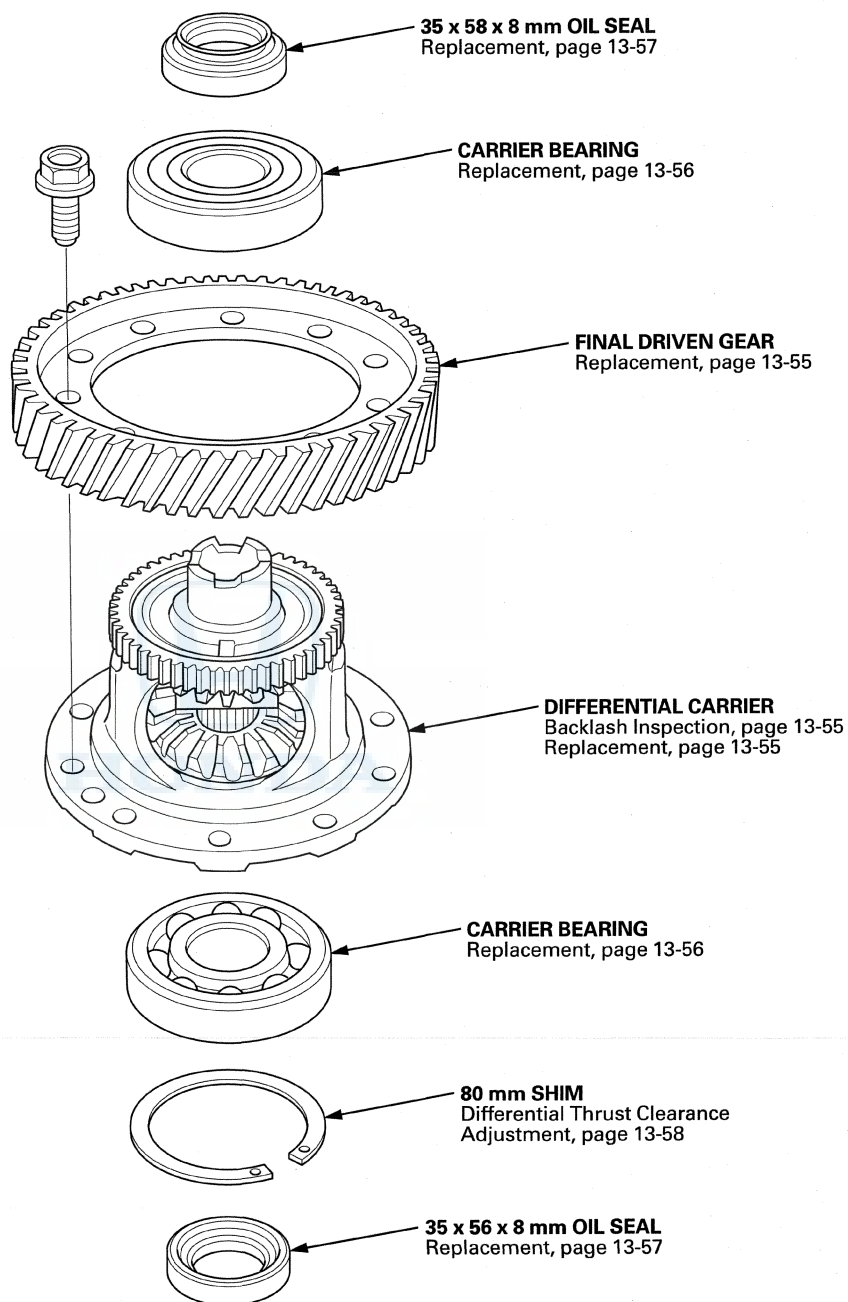
4. Remove the four bolts (A). Disconnect the shift cables (B) from the shift lever, then remove the shift lever housing (C).



5. Install the shift lever housing in the reverse order of removal.

M/T Differential

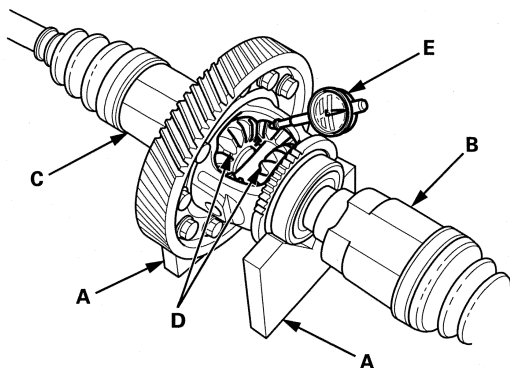
Component Location Index





Backlash Inspection

1. Place the differential assembly on V-blocks (A), and install the right driveshaft (B) and the left driveshaft (C).

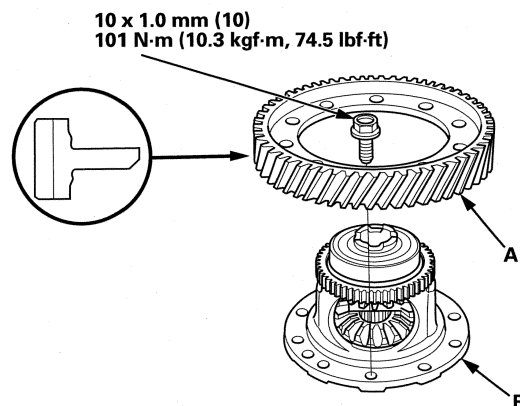


2. Measure the backlash of both pinion gears (D) with a dial indicator (E). If the backlash is not within the standard, replace the differential carrier.

Standard (New): 0.05—0.15 mm (0.0020—0.0059 in)

Differential Carrier/Final Driven Gear Replacement

1. Loosen the bolts in a crisscross pattern in several steps, then remove the final driven gear (A) from the differential carrier (B).



2. Install the final driven gear with the chamfer on the inside diameter facing the carrier. Tighten the bolts in a crisscross pattern in several steps.

M/T Differential

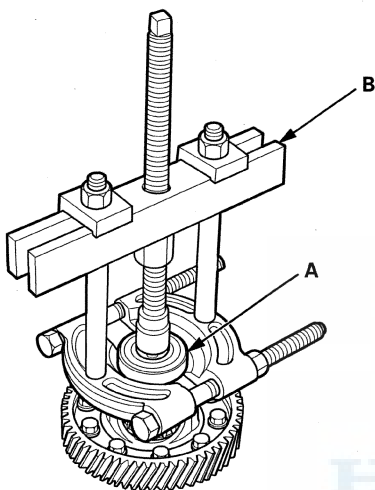
Carrier Bearing Replacement

Special Tools Required

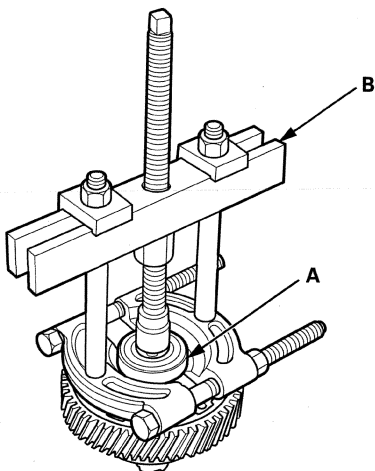
Driver Handle, 40 mm I.D. 07746-0030100

1. Check the carrier bearings for wear and rough rotation. If they rotate smoothly and the rollers show no signs of wear, the bearings are OK.
2. Remove the carrier bearings (A) with a commercially available bearing puller (B).

Clutch housing side

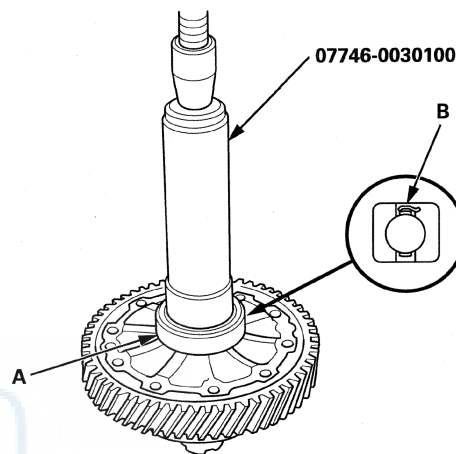


Transmission housing side

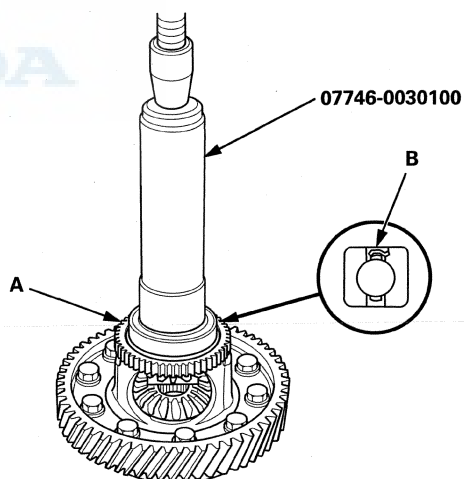


3. Install new bearings (A) with the seal (B) facing away from the differential using the 40 mm driver handle and a press. Press each bearing on until it bottoms. There should be no clearance between the bearings and the carrier.

Transmission housing side



Clutch housing side





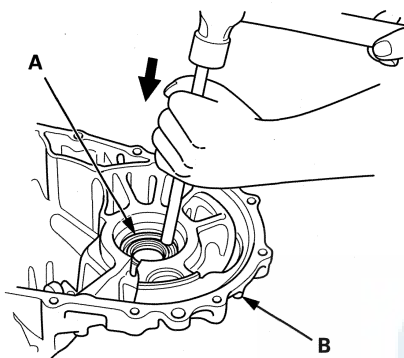
Oil Seal Replacement

Special Tools Required

- Driver Handle, 15 x 135L 07749-0010000
- Oil Seal Driver Attachment, 64 x 72 mm 07JAD-PN00100

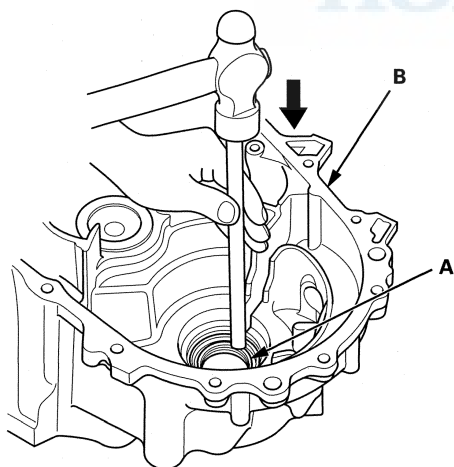
1. Remove the oil seal (A) from the transmission housing (B).

NOTE: Be careful not to damage the transmission housing while removing the oil seal.

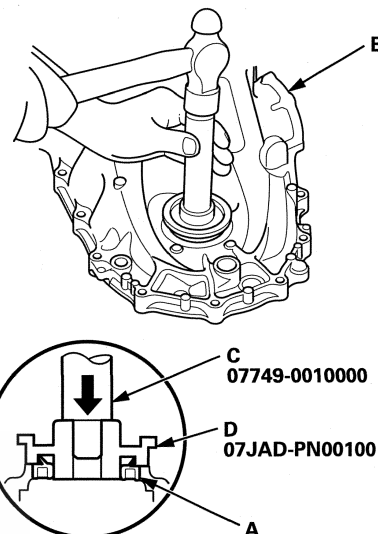


2. Remove the oil seal (A) from the clutch housing (B).

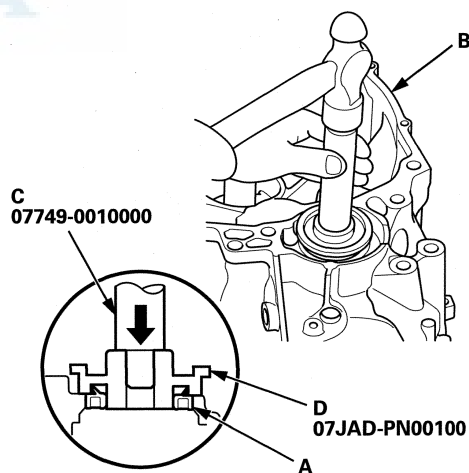
NOTE: Be careful not to damage the clutch housing while removing the oil seal.



3. Install a new oil seal (A) in the transmission housing (B) with the 15 x 135L driver handle (C) and the 64 x 72 mm oil seal driver attachment (D).



4. Install a new oil seal (A) in the clutch housing (B) with the 15 x 135L driver handle (C) and the 64 x 72 mm oil seal driver attachment (D).



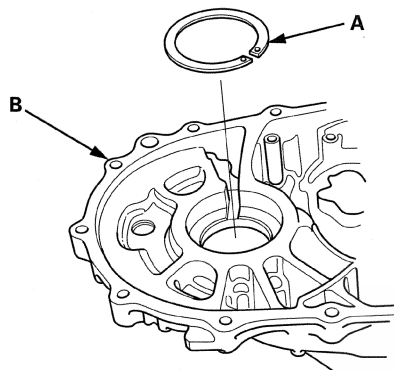
M/T Differential

Differential Thrust Clearance Adjustment

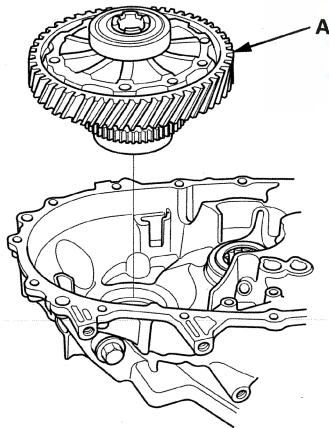
Special Tools Required

Driver Handle, 40 mm I.D. 07746-0030100

1. Remove the left driveshaft side oil seal from the transmission housing (see page 13-57).
2. If you remove the 80 mm shim (A) from the transmission housing (B), reinstall the same sized shim. That's the same size as the one you removed.



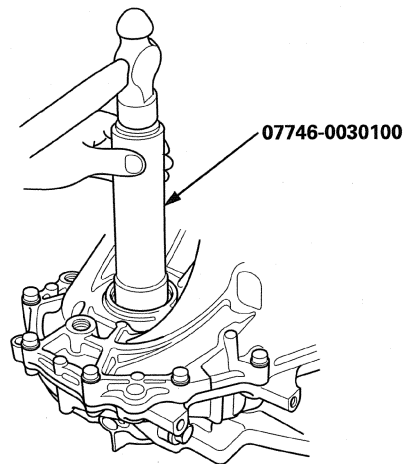
3. Install the differential assembly (A) into the clutch housing.



4. Install the transmission housing onto the clutch housing, then tighten the 8 mm flange bolts in a crisscross pattern in several steps (see step 17 on page 13-50).

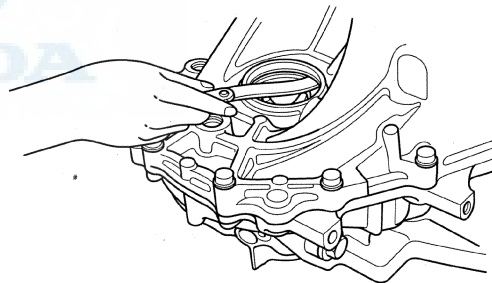
Specified Torque: 8 x 1.25 mm
27 N·m (2.8 kgf·m, 20 lbf·ft)

5. Use the 40 mm driver handle to bottom the differential assembly in the clutch housing.



6. Measure the clearance between the 80 mm shim and the bearing outer race in transmission housing.

Standard: 0.01–0.1 mm (0.0004–0.004 in)





7. If the clearance exceeds the standard, select a new 80 mm shim from the following table. If the clearance measured in step 6 is within the standard, go to step 10.

80 mm Shim:

Type	Thickness
A	1.00 mm (0.0394 in)
B	1.10 mm (0.0433 in)
C	1.20 mm (0.0472 in)
D	1.30 mm (0.0512 in)
E	1.40 mm (0.0551 in)
F	1.50 mm (0.0591 in)
G	1.60 mm (0.0630 in)
H	1.70 mm (0.0669 in)
J	1.80 mm (0.0709 in)
K	1.05 mm (0.0413 in)
L	1.15 mm (0.0453 in)
M	1.25 mm (0.0492 in)
N	1.35 mm (0.0531 in)
P	1.45 mm (0.0571 in)
Q	1.55 mm (0.0610 in)
R	1.65 mm (0.0650 in)
S	1.75 mm (0.0689 in)

8. Remove the bolts and the transmission housing.
9. Replace the thrust shim selected in step 7, then recheck the clearance.
10. Install a new left driveshaft side oil seal (see page 13-57).
11. Reinstall the transmission housing.

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If automatic transmission maintenance is required)

The Fit SRS includes a driver's airbag in the steering wheel hub, a front passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags, side airbags, side curtain airbags, and/or seat belt tensioners.
- Do not bump or impact the SRS unit, front impact sensors, or side impact sensors, especially when the ignition switch is in ON (II), or for at least 3 minutes after the ignition switch is turned to LOCK (0); otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, center console, dashboard, dashboard under cover, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.



Transaxle

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A/T Differential

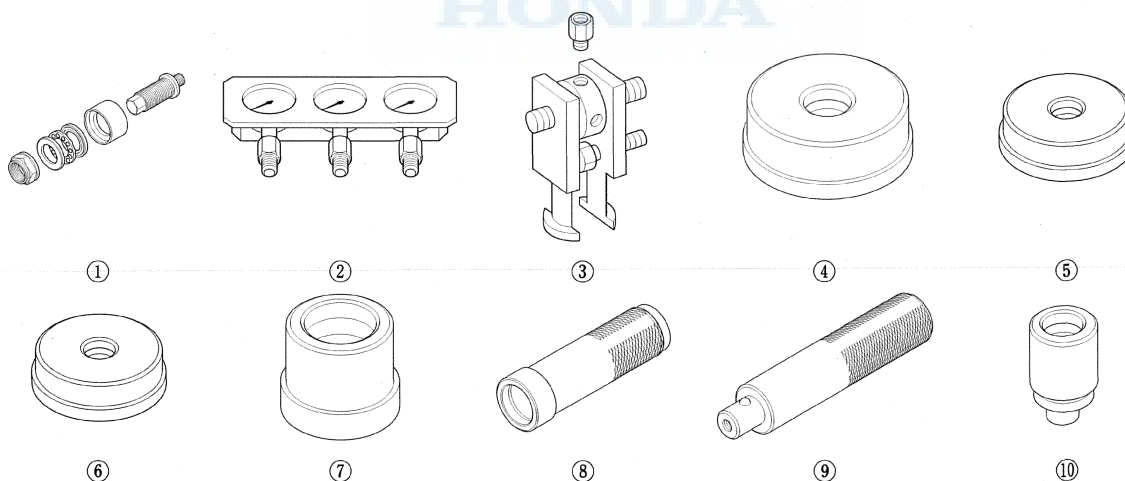
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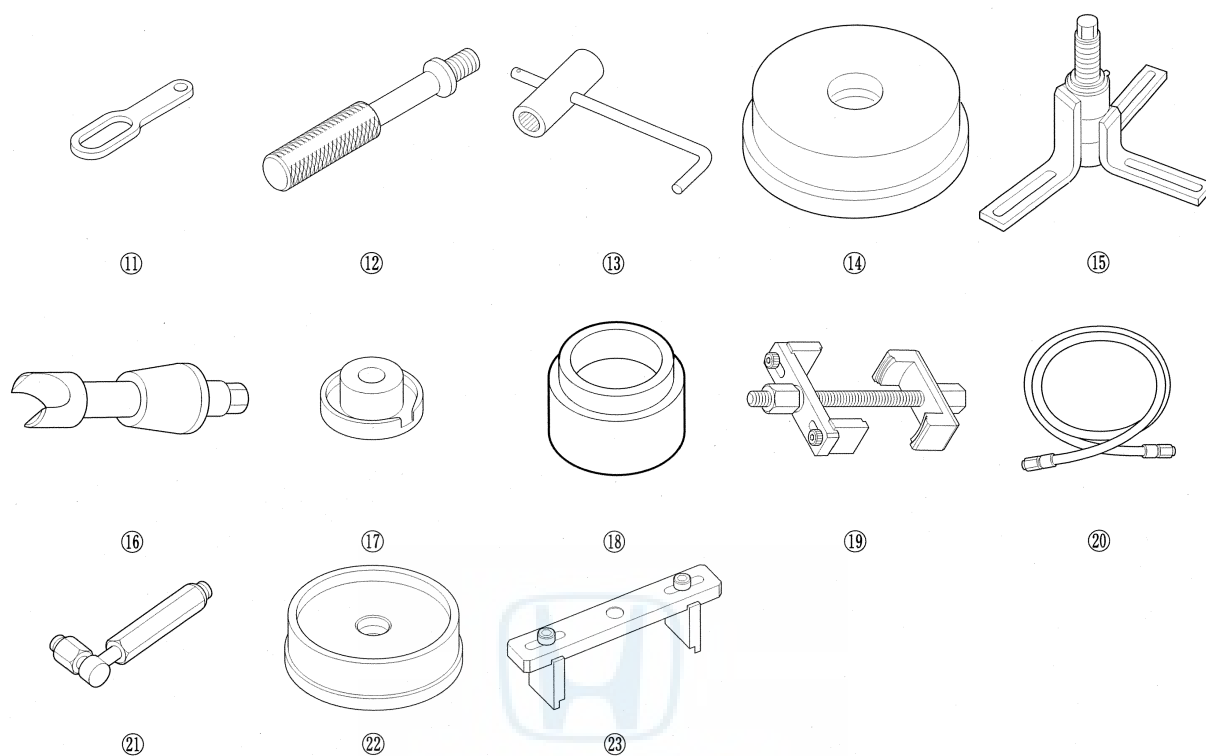


Automatic Transmission

Special Tools

Ref.No.	Tool Number	Description	Qty
①	070AC-XFD0100	Gear Installer Set	1
②	07406-0020400 or 07406-0020401	A/T Oil Pressure Gauge Set	1
③	07736-A01000B	Adjustable Bearing Puller, 25—40 mm	1
④	07746-0010400	Bearing Driver Attachment, 52 x 55 mm	1
⑤	07746-0010500	Bearing Driver Attachment, 62 x 68 mm	1
⑥	07746-0010600	Bearing Driver Attachment, 72 x 75 mm	1
⑦	07746-0010800	Bearing Driver Attachment, 22 x 24 mm	1
⑧	07746-0030100	Driver Handle, 40 mm I.D.	1
⑨	07749-0010000	Driver Handle, 15 x 135L	1
⑩	07947-ZV00100	Oil Seal Driver Attachment	1
⑪	07AAK-SNAA120	Universal Lifting Eyelet	1
⑫	07AAK-SNAA500	1.8 Support Bolt	1
⑬	07GAB-PF50101	Mainshaft Holder	1
⑭	07GAD-SD40101	Attachment, 78 x 90 mm	1
⑮	07HAC-PK40102	Housing Puller	1
⑯	07HAJ-PK40201	Preload Inspection Tool	1
⑰	07JAD-PH80101	Oil Seal Driver Attachment, 58 mm	1
⑱	07LAD-PW50601	Installer Attachment 40 mm	1
⑲	07LAE-PX40000	Clutch Spring Compressor Set	1
⑳	07MAJ-PY4011A	A/T Pressure Hose, 2,210 mm	1
㉑	07MAJ-PY40120	A/T Pressure Adapter	1
㉒	07NAD-PX40100	Bearing Driver Attachment, 78 x 80 mm	1
㉓	07ZAE-PRP0100	Clutch Compressor Attachment	1



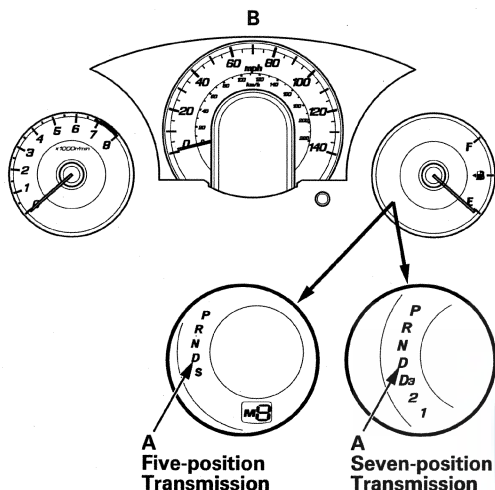


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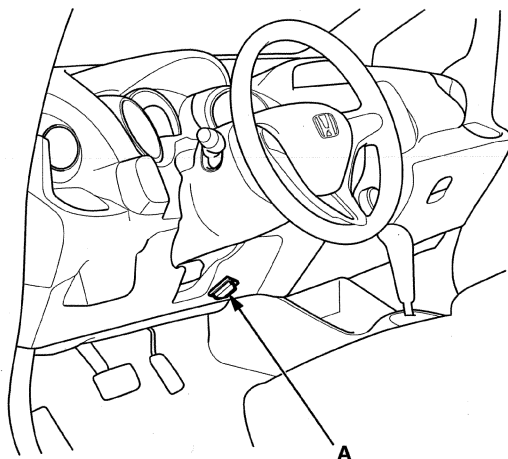
General Troubleshooting Information

How to Check for DTCs with the Honda Diagnostic System (HDS)

When the powertrain control module (PCM) senses an abnormality in the input or output system, the D indicator (A) in the gauge control module (B) will usually blink.



When the Honda Diagnostic System (HDS) is connected to the data link connector (DLC) (A) (located under the driver's dashboard lower cover), it will indicate the diagnostic trouble code (DTC) when the ignition switch is turned to ON (II) and the appropriate menu is selected.



If the D indicator or malfunction indicator lamp (MIL) has been reported on, or if a driveability problem is suspected, follow this procedure:

1. Connect the HDS to the DLC. (See the HDS user's manual for specific instructions.)
2. Turn the ignition switch to ON (II). Make sure the HDS communicates with the PCM. If it does not, go to the DLC circuit troubleshooting (see page 11-193).
3. Check for Pending or Confirmed DTCs with the HDS.
4. Record the freeze data and the on-board snapshots for all fuel and emissions DTCs, and A/T DTCs.
5. If there is a fuel and emissions DTC, first check the fuel and emissions system as indicated by the DTC (except for DTC P0700, which means there is one or more A/T DTCs, and no problem were detected in the fuel and emissions circuit of the PCM).
6. Clear the DTC and data.
7. Drive the vehicle for several minutes under the same conditions as those indicated by the freeze data, and then recheck for a DTC. If the A/T DTC returns, go to the indicated DTC's troubleshooting. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all pins and terminals in the circuit are tight.

Symptom Troubleshooting Versus DTC Troubleshooting

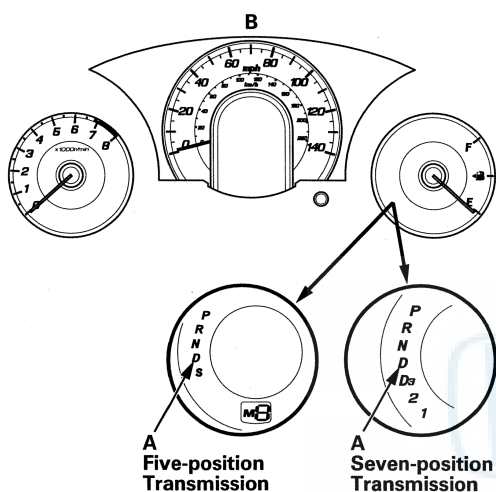
Some symptoms will not set DTCs or cause the D indicator to blink. If the MIL was reported ON or the D indicator has been blinking, check for DTCs. If the vehicle has an abnormal symptom, and there are no DTCs stored, do the symptom troubleshooting. Check the list of probable cause(s) for the symptom until you find the problem.



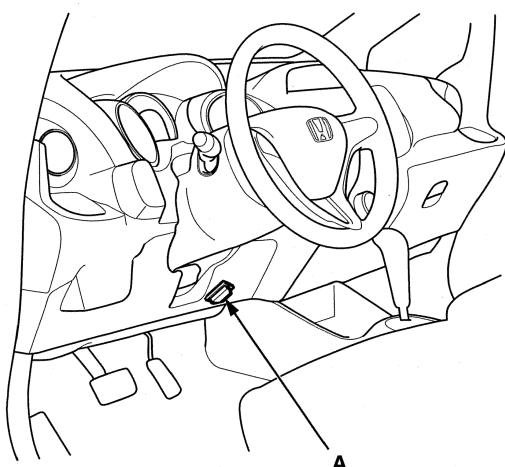
How to Check for DTCs with the SCS Mode (retrieving the flash codes)

NOTE: The preferred method is to use the HDS to retrieve the DTCs.

When the PCM senses an abnormality in the input or output system, the D indicator (A) in the gauge control module (B) will usually blink.



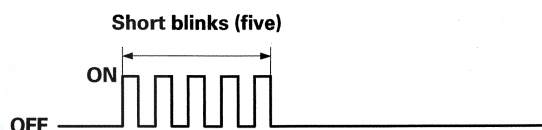
When the D indicator has been reported on, connect the HDS to the DLC (A) (located behind the driver's dashboard lower cover). Turn the ignition switch to ON (II), select SCS mode, then the D indicator will indicate (blink) the DTC.



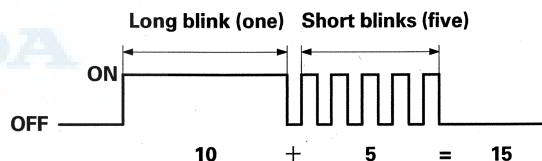
If the D indicator and the MIL come on at the same time, or if a driveability problem is suspected, follow this procedure:

1. Connect the HDS to the DLC. (See the HDS user's manual for specific instructions.)
2. Turn the ignition switch to ON (II). Make sure the HDS communicates with the PCM. If it does not, go to the DLC circuit troubleshooting (see page 11-193).
3. Select SCS mode, then observe the D indicator in the gauge control module. Codes 1 through 9 are indicated by individual short blinks. Code 10 and above are indicated by a series of long and short blinks. One long blink equals 10 short blinks. Add the long and short blinks together to determine the code.

Example: DTC P0705 (5)



Example: DTC P0717 (15)



4. Record all fuel and emissions DTCs and A/T DTCs.
5. If there is a fuel and emissions DTC, first check the fuel and emissions system as indicated by the DTC (except for DTC 70, which means there is one or more A/T DTCs, and no problems were detected in the fuel and emissions circuit of the PCM).
6. Clear the DTC and the data.
7. If the freeze data is available, drive the vehicle for several minutes with period of wide open throttle, steady cruise, and stop and go, and then recheck for DTCs. If the A/T DTC returns, go to the indicated DTC's troubleshooting. If the DTC does not return, there was an intermittent problem within the circuit. Make sure all pins and terminals in the circuit are tight.

(cont'd)

Automatic Transmission

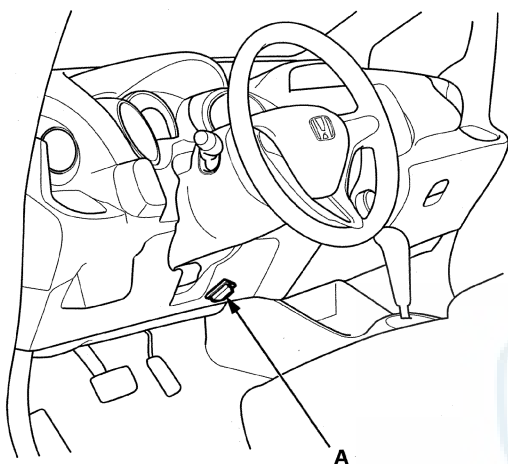
General Troubleshooting Information (cont'd)

Troubleshooting the Circuits at the PCM

Refer to the how to troubleshoot circuits at the PCM connectors (see page 11-6) before getting started with the A/T DTC troubleshooting at the PCM connectors.

How to Clear A/T DTCs

1. Connect the HDS to the DLC (A).



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the PCM. If it does not, go to the DLC circuit troubleshooting (see page 11-193).
4. Clear the DTC(s) with the HDS.

OBD Status

The OBD Status shows the current system status of each DTC and all of the parameters. This function is used to see if the repair was successfully completed. The results of diagnostic tests for the DTC are displayed as:

- **PASSED:** The on-board diagnosis has successfully completed.
- **FAILED:** The on-board diagnosis has finished but failed.
- **NOT COMPLETED:** The on-board diagnosis was running but is out of the enable conditions of the DTC.



PCM/TCM Reset

NOTE: To reset the PCM/TCM, initialize only the automatic transmission memory stored in the PCM or the TCM.

1. Select the A/T system with the HDS.
2. Reset the PCM/TCM with the HDS while the engine is stopped.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II), and wait for 30 seconds.
5. Turn the ignition switch to LOCK (0), and disconnect the HDS from the DLC.

Replacing the PCM

Refer to the PCM replacement (see page 11-215) when replacing the PCM is needed in the DTC troubleshooting.

Updating the A/T Software in the PCM

Refer to the PCM update (see page 11-213) when the A/T software updating is needed in the DTC troubleshooting.

Substituting the PCM

Refer to the substituting the ECM/PCM (see page 11-7) when substituting a known-good PCM is needed in the DTC troubleshooting.

How to End a Troubleshooting Session (required after any troubleshooting)


NOTE: Reset the PCM/TCM with the HDS while the engine is stopped.

1. Do the PCM idle learn procedure (see page 11-268).
2. Turn the ignition switch to LOCK (0).
3. Turn the ignition switch to ON (II), and wait for 30 seconds.
4. Turn the ignition switch to LOCK (0), and disconnect the HDS from the DLC.
5. Start the engine in P or N, and warm it to normal operating temperature (the radiator fan comes on).
6. To verify that the problem is repaired, test-drive the vehicle for several minutes at speeds over 30 mph (50 km/h) or under the same conditions as those indicated by the freeze data.

Automatic Transmission

DTC Troubleshooting Index

NOTE: Record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4) before you troubleshoot.

DTC ^{*(1)}	Two Drive Cycle Detection	D Indicator	MIL 	Detection Item	Page
P062F (-) ^{*(2)*(4)}	——	Blinks	OFF or ON ^{*(3)}	PCM Internal Control Module Keep Alive Memory (KAM) Error	DTC Troubleshooting (see page 14-88)
P062F (-) ^{*(2)*(5)}	——	Blinks	ON	PCM Internal Control Module Keep Alive Memory (KAM) Error	DTC Troubleshooting (see page 14-88)
P0705 (5) ^{*(2)}	——	Blinks	ON	Transmission Range Switch (Multiple Shift-position Input)	DTC Troubleshooting (see page 14-89)
P0706 (6) ^{*(2)}	○	OFF	ON	Transmission Range Switch (Open)	DTC Troubleshooting (see page 14-90)
P0711 (28) ^{*(2)}	○	Blinks	OFF	ATF Temperature Sensor (Range/Performance)	DTC Troubleshooting (see page 14-91)
P0712 (28) ^{*(2)}	○	Blinks	OFF	ATF Temperature Sensor Circuit (Short)	DTC Troubleshooting (see page 14-93)
P0713 (28) ^{*(2)}	○	Blinks	OFF	ATF Temperature Sensor Circuit (Open)	DTC Troubleshooting (see page 14-94)
P0714 (28) ^{*(6)}	○	Blinks	OFF	ATF Temperature Sensor Intermittent Failure	DTC Troubleshooting (see page 14-96)
P0716 (15) ^{*(2)}	——	Blinks	ON	Input Shaft (Mainshaft) Speed Sensor Circuit	DTC Troubleshooting (see page 14-97)
P0717 (15) ^{*(2)}	——	Blinks	ON	Input Shaft (Mainshaft) Speed Sensor Circuit (No Signal Input)	DTC Troubleshooting (see page 14-98)
P0718 (15) ^{*(2)}	○	Blinks	ON	Input Shaft (Mainshaft) Speed Sensor Circuit (Intermittent Failure)	DTC Troubleshooting (see page 14-98)
P0721 (9) ^{*(2)}	——	Blinks	ON	Output Shaft (Countershaft) Speed Sensor Circuit	DTC Troubleshooting (see page 14-97)
P0722 (9) ^{*(2)}	——	Blinks	ON	Output Shaft (Countershaft) Speed Sensor Circuit (No Signal Input)	DTC Troubleshooting (see page 14-100)
P0723 (9) ^{*(2)}	○	Blinks	ON	Output Shaft (Countershaft) Speed Sensor Circuit (Intermittent Failure)	DTC Troubleshooting (see page 14-100)
P0731 (64)	○	Blinks	OFF	1st Gear Incorrect Ratio	DTC Troubleshooting (see page 14-102)
P0732 (64)	○	Blinks	OFF	2nd Gear Incorrect Ratio	DTC Troubleshooting (see page 14-103)
P0733 (64)	○	Blinks	OFF	3rd Gear Incorrect Ratio	DTC Troubleshooting (see page 14-104)
P0734 (64)	○	Blinks	OFF	4th Gear Incorrect Ratio	DTC Troubleshooting (see page 14-105)
P0735 (64)	○	Blinks	OFF	5th Gear Incorrect Ratio	DTC Troubleshooting (see page 14-106)

NOTE:

- * (1): The DTC in parentheses is the flash code the D indicator indicates when the data link connector (DLC) is connected to the HDS, and in the SCS mode.
- * (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- * (3): The MIL comes on when the PGM-FI control system detects the same failure.
- * (4): '09 model
- * (5): '10 - 12 models
- * (6): '11 - 12 model



DTC ^{*(1)}	Two Drive Cycle Detection	D Indicator	MIL 	Detection Item	Page
P0741 (40)	○	OFF	ON	Torque Converter Clutch Circuit Performance or Stuck OFF	DTC Troubleshooting (see page 14-107)
P0746 (76)	○	Blinks	ON	A/T Clutch Pressure Control Solenoid Valve A Stuck OFF	DTC Troubleshooting (see page 14-108)
P0747 (76)	○	Blinks	ON	A/T Clutch Pressure Control Solenoid Valve A Stuck ON	DTC Troubleshooting (see page 14-109)
P0751 (70)	○	Blinks	ON	Shift Solenoid Valve A Stuck OFF	DTC Troubleshooting (see page 14-110)
P0752 (70)	○	Blinks	ON	Shift Solenoid Valve A Stuck ON	DTC Troubleshooting (see page 14-110)
P0756 (71)	○	Blinks	ON	Shift Solenoid Valve B Stuck OFF	DTC Troubleshooting (see page 14-111)
P0757 (71)	○	Blinks	ON	Shift Solenoid Valve B Stuck ON	DTC Troubleshooting (see page 14-111)
P0761 (72)	○	Blinks	ON	Shift Solenoid Valve C Stuck OFF	DTC Troubleshooting (see page 14-112)
P0762 (72)	○	Blinks	ON	Shift Solenoid Valve C Stuck ON	DTC Troubleshooting (see page 14-112)
P0766 (73)	○	Blinks	ON	Shift Solenoid Valve D Stuck OFF	DTC Troubleshooting (see page 14-113)
P0767 (73)	○	Blinks	ON	Shift Solenoid Valve D Stuck ON	DTC Troubleshooting (see page 14-114)
P0776 (77)	○	Blinks	ON	A/T Clutch Pressure Control Solenoid Valve B Stuck OFF	DTC Troubleshooting (see page 14-115)
P0777 (77)	○	Blinks	ON	A/T Clutch Pressure Control Solenoid Valve B Stuck ON	DTC Troubleshooting (see page 14-115)
P0796 (78)	○	Blinks	ON	A/T Clutch Pressure Control Solenoid Valve C Stuck OFF	DTC Troubleshooting (see page 14-116)
P0797 (78)	○	Blinks	ON	A/T Clutch Pressure Control Solenoid Valve C Stuck ON	DTC Troubleshooting (see page 14-116)
P0812 (65)	○	Blinks	ON	Transmission Range Switch ATPR Switch Circuit (Open)	DTC Troubleshooting (see page 14-117)
P0842 (25)	—	Blinks	ON	Transmission Fluid Pressure Switch A (2nd Clutch) Circuit (Short or Stuck ON)	DTC Troubleshooting (see page 14-119)
P0843 (25)	—	Blinks	ON	Transmission Fluid Pressure Switch A (2nd Clutch) Circuit (Open or Stuck OFF)	DTC Troubleshooting (see page 14-121)
P0847 (26)	—	Blinks	ON	Transmission Fluid Pressure Switch B (3rd Clutch) Circuit (Short or Stuck ON)	DTC Troubleshooting (see page 14-123)
P0848 (26)	—	Blinks	ON	Transmission Fluid Pressure Switch B (3rd Clutch) Circuit (Open or Stuck OFF)	DTC Troubleshooting (see page 14-125)
P0962 (16) ^{*(2)}	—	Blinks	ON	A/T Clutch Pressure Control Solenoid Valve A Circuit (Open or Short)	DTC Troubleshooting (see page 14-128)
P0963 (16) ^{*(2)}	—	Blinks	ON	A/T Clutch Pressure Control Solenoid Valve A	DTC Troubleshooting (see page 14-130)

NOTE:


- * (1): The DTC in parentheses is the flash code the D indicator indicates when the data link connector (DLC) is connected to the HDS, and in the SCS mode.
- * (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

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Automatic Transmission

DTC Troubleshooting Index (cont'd)

NOTE: Record all freeze data and any on-board snapshot, and review General Troubleshooting Information (see page 14-4) before you troubleshoot.

DTC ^{*(1)}	Two Drive Cycle Detection	D Indicator	MIL 	Detection Item	Page
P0966 (23) ^{*(2)}	———	Blinks	ON	A/T Clutch Pressure Control Solenoid Valve B Circuit (Open or Short)	DTC Troubleshooting (see page 14-132)
P0967 (23) ^{*(2)}	———	Blinks	ON	A/T Clutch Pressure Control Solenoid Valve B	DTC Troubleshooting (see page 14-135)
P0970 (29) ^{*(2)}	———	Blinks	ON	A/T Clutch Pressure Control Solenoid Valve C Circuit (Open or Short)	DTC Troubleshooting (see page 14-137)
P0971 (29) ^{*(2)}	———	Blinks	ON	A/T Clutch Pressure Control Solenoid Valve C	DTC Troubleshooting (see page 14-139)
P0973 (7) ^{*(2)}	———	Blinks	ON	Shift Solenoid Valve A Circuit (Short)	DTC Troubleshooting (see page 14-141)
P0974 (7) ^{*(2)}	———	Blinks	ON	Shift Solenoid Valve A Circuit (Open)	DTC Troubleshooting (see page 14-143)
P0976 (8) ^{*(2)}	———	Blinks	ON	Shift Solenoid Valve B Circuit (Short)	DTC Troubleshooting (see page 14-145)
P0977 (8) ^{*(2)}	———	Blinks	ON	Shift Solenoid Valve B Circuit (Open)	DTC Troubleshooting (see page 14-148)
P0979 (22) ^{*(2)}	———	Blinks	ON	Shift Solenoid Valve C Circuit (Short)	DTC Troubleshooting (see page 14-150)
P0980 (22) ^{*(2)}	———	Blinks	ON	Shift Solenoid Valve C Circuit (Open)	DTC Troubleshooting (see page 14-153)
P0982 (60)	———	Blinks	ON	Shift Solenoid Valve D Circuit (Short)	DTC Troubleshooting (see page 14-155)
P0983 (60)	———	Blinks	ON	Shift Solenoid Valve D Circuit (Open)	DTC Troubleshooting (see page 14-157)
P16C0 (—)	———	OFF	ON	PCM A/T Control System Incomplete Update	DTC Troubleshooting (see page 14-159)
P1717 (62)	○	Blinks	ON	Transmission Range Switch ATPRVS Switch Circuit (Open)	DTC Troubleshooting (see page 14-160)
P1746 (45)	○	Blinks	OFF	Hydraulic Control System (Cut Valve A Stuck OFF or Cut Valve B Stuck ON)	DTC Troubleshooting (see page 14-162)
P1747 (45)	○	Blinks	OFF	Hydraulic Control System (Cut Valve A Stuck ON or Cut Valve B Stuck OFF)	DTC Troubleshooting (see page 14-162)
P1780 (49)	○	Blinks	ON	Shift Control System (Transmission Default Mode)	DTC Troubleshooting (see page 14-163)
U0029 (107)	———	Blinks	OFF	F-CAN Malfunction (PCM bus OFF)	DTC Troubleshooting (see page 14-163)
U0121 (107) ^{*(3)}	———	Blinks	OFF	F-CAN Malfunction (PCM-ABS Modulator-Control Unit)	DTC Troubleshooting (see page 14-164)
U0122 (107) ^{*(4)}	———	Blinks	OFF	F-CAN Malfunction (PCM-VSA Modulator-Control Unit)	DTC Troubleshooting (see page 14-165)
U0155 (107)	———	Blinks	OFF	F-CAN Malfunction (PCM-to-Gauge Control Module)	DTC Troubleshooting (see page 14-166)

NOTE:

- * (1): The DTC in parentheses is the flash code the D indicator indicates when the data link connector (DLC) is connected to the HDS, and in the SCS mode.
- * (2): This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- * (3): ABS model
- * (4): VSA model



Symptom Troubleshooting Index

Symptom	Probable cause(s)	Notes
When you turn the ignition switch to ON (II), the D indicator comes on and stays on in all shift lever positions, or it never comes on at all	<ul style="list-style-type: none"> F-CAN communication line error Gauge control module defective PCM defective 	<ul style="list-style-type: none"> Check the F-CAN communication line for a DTC (see page 22-284). Check the indicator drive circuit in the gauge control module by using the gauge control module self-diagnostic function (see page 22-274).
A/T gear position indicator does not come on while the shift lever is in that position	<ul style="list-style-type: none"> F-CAN communication line error Gauge control module defective PCM defective Transmission range switch defective 	<ul style="list-style-type: none"> Check the F-CAN communication line for a DTC (see page 22-284). Check the indicator drive circuit in the gauge control module by using the gauge control module self-diagnostic function (see page 22-274). Inspect the transmission range switch (see page 14-226).
Shift lever cannot be moved from P while pressing on the brake pedal	<ul style="list-style-type: none"> Accelerator pedal position sensor circuit Accelerator pedal position sensor defective Brake pedal position switch circuit Brake pedal position switch defective Shift lock solenoid defective Shift lock solenoid control circuit Shift lock mechanism defective Throttle body defective Transmission range switch ATPP switch stuck OFF Transmission range switch ATPP switch line open 	<ul style="list-style-type: none"> Inspect the APP sensor signal (see page 11-250). Troubleshoot the shift lock system circuit (see page 14-237). Test the shift lock solenoid (see page 14-240). Inspect the transmission range switch (see page 14-226).
Ignition switch cannot be moved from ACCESSORY (I) to LOCK (0) (key is pushed in, the shift lever in P)	<ul style="list-style-type: none"> Interlock control system circuit Key interlock solenoid stuck ON Park pin switch stuck ON Transmission range switch 	<ul style="list-style-type: none"> Troubleshoot the key interlock system circuit (see page 22-80). Inspect the transmission range switch (see page 14-226).
HDS does not communicate with the PCM	DLC circuit error	Troubleshoot the DLC circuit (see page 11-193).
Shift indicator does not work	<ul style="list-style-type: none"> F-CAN communication line error Gauge control module defective PCM defective Transmission range switch defective 	<ul style="list-style-type: none"> Check the F-CAN communication line for a DTC (see page 22-284). Check the F-CAN communication line by using the gauge control module self-diagnostic function (see page 22-274). Check the indicator drive circuit in the gauge control module by using the gauge control module self-diagnostic function (see page 22-274).
When you press the paddle shifter + (upshift switch) in D and S, the transmission does not upshift	A problem in the paddle shifter + (upshift switch) circuit	Check the paddle shifter + (upshift switch) circuit (see page 14-230).

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Automatic Transmission

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
When you press the paddle shifter — (downshift switch) in D and S, the transmission does not downshift	A problem in the paddle shifter — (downshift switch) circuit	Check the paddle shifter — (downshift switch) circuit (see page 14-231).
M indicator does not come on even when the paddle shifter + (upshift switch) or paddle shifter — (downshift switch) is operated in sequential sportshift mode	<ul style="list-style-type: none"> • F-CAN communication line error • Gauge control module defective • PCM defective 	<ul style="list-style-type: none"> • Check the F-CAN communication line for a DTC (see page 22-284). • Check the indicator drive circuit in the gauge control module by using the gauge control module self-diagnostic function (see page 22-274).
Engine runs, but vehicle does not move in any gear	<ul style="list-style-type: none"> • Low ATF level • Shift cable broken or out of adjustment • Connection between shift cable and transmission or body is worn • ATF pump worn or binding • Regulator valve stuck or spring worn • ATF strainer clogged • Mainshaft worn or damaged • Final gears worn or damaged • Transmission-to-engine assembly error • Axle disengaged 	<ul style="list-style-type: none"> • Check the ATF level, and check the ATF cooler lines for leaks and loose connections. If necessary, clean the ATF cooler lines. • Check for a loose shift cable at the shift lever and the transmission control lever. • Check the stall speed. • Check the line pressure. • Improper alignment of ATF pump and torque converter housing may cause the ATF pump to seize. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Be careful not to damage the torque converter housing when replacing the main ball bearing. You may also damage the ATF pump when you torque down the main valve body. This will cause the ATF pump to seize. • Install the main seal flush with the torque converter housing when replacing the main seal. If you push it into the torque converter housing until it bottoms out, it will block the fluid return passage and result in damage. • Check the regulator valve in the regulator valve body for free movement, and check the valve spring for wear and damage. • Check the ATF strainer for debris. If the strainer is clogged, find the damaged components that caused the debris. If no cause for contamination is found, replace the torque converter. • Inspect the differential pinion gears for wear. If the differential pinion gears are worn, replace the differential assembly, replace the ATF strainer, thoroughly clean the transmission, and clean the ATF cooler and cooler lines. • Replace the torque converter. • Inspect the countershaft and secondary shaft for wear and damage. • Check for a misinstalled transmission.



Symptom	Probable cause(s)	Notes
Vehicle moves in 2 and R, but not in D, D3, S, or 1	<ul style="list-style-type: none"> • 1st accumulator defective • 1st gears worn or damaged • 1st clutch defective 	<ul style="list-style-type: none"> • Check the 1st clutch pressure. • Inspect the 1st accumulator piston, O-ring, and spring for wear and damage in the servo body. • Inspect the countershaft, secondary shaft, and 1st clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
Vehicle moves in D, D3, S, 1, and R, but not in 2, or in 2nd in S	<ul style="list-style-type: none"> • 2nd accumulator defective • 2nd gears worn or damaged • 2nd clutch defective 	<ul style="list-style-type: none"> • Check the 2nd clutch pressure. • Inspect the 2nd accumulator piston, O-ring, and spring for wear and damage in the servo body. • Inspect the countershaft, secondary shaft, and 2nd clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the 2nd clutch feed pipe. If the 2nd clutch feed pipe is scored, replace the end cover. • Replace the secondary shaft if the bushing for the 2nd clutch feed pipe is loose or damaged.

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Automatic Transmission

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Vehicle moves in D, D3, S, 2, and 1, but not in R	<ul style="list-style-type: none"> Shift solenoid valve D defective Shift fork shaft stuck Shift valve D defective 5th/reverse accumulator defective 5th clutch defective Reverse gears worn or damaged 	<ul style="list-style-type: none"> Check for a stored DTC, and check for loose connections. Test the shift solenoid valve function with the HDS. Inspect the O-rings, and check the shift solenoid valve for seizure. Check the 5th clutch pressure. Check for a missing shift fork bolt on the shift fork shaft. Inspect the servo valve O-ring. Check the shift fork shaft detent for wear and damage. Inspect the 5th accumulator piston, O-ring, and spring for wear and damage in the servo body. Inspect the mainshaft and 5th clutch for wear and damage. Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. Inspect the reverse selector gear teeth chamfers, and inspect the engagement teeth chamfers of the countershaft 5th gear and reverse gear. Replace the reverse gears and the reverse selector if they are worn or damaged. If the transmission makes a clicking, grinding, or whirring noise, also replace the mainshaft 5th gear, reverse idler gear, and countershaft 5th gear.
Poor acceleration; engine revs up abnormally high when starting off in D, D3, S, 2, 1, and R; stall speed high in D, D3, S, 2, and 1 (D, D3, and S in 1st and 2nd)	<ul style="list-style-type: none"> Low ATF level Shift cable broken or out of adjustment ATF pump worn or binding Regulator valve stuck or spring worn ATF strainer clogged Torque converter check valve defective 	<ul style="list-style-type: none"> Check the line pressure. Check the ATF level and check the ATF lines for leaks and loose connections. If necessary, clean the ATF lines. Check for a loose shift cable at the shift lever and the transmission control lever. Improper alignment of ATF pump and torque converter housing may cause the ATF pump to seize. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. Check the ATF strainer for debris. If the strainer is clogged, find the damaged components that caused the debris. If no cause for contamination is found, replace the torque converter. Inspect the differential pinion gears for wear. If the differential pinion gears are worn, replace the differential assembly, replace the ATF strainer, thoroughly clean the transmission, and clean the ATF cooler and ATF lines. Check the torque converter check valve in the main valve body for free movement, and check the valve spring for wear and damage.



Symptom	Probable cause(s)	Notes
Poor acceleration; engine revs up abnormally high when starting off in D, D3, S, 2, and R; stall speed high when starting off in 2, and in 2nd in S	2nd clutch defective	<ul style="list-style-type: none"> • Check the 2nd clutch pressure. • Inspect the secondary shaft and 2nd clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the 2nd clutch feed pipe. If the 2nd clutch feed pipe is scored, replace the end cover. • Replace the secondary shaft if the bushing for the 2nd clutch feed pipe is loose or damaged.
Poor acceleration; engine revs up abnormally high when starting off in D, D3, S, 2, 1, and R; stall speed high in R	<ul style="list-style-type: none"> • Shift cable broken or out of adjustment • 5th clutch defective 	<ul style="list-style-type: none"> • Check for a loose shift cable at the shift lever and the transmission control lever. • Check the 5th clutch pressure. • Inspect the mainshaft and 5th clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
Poor acceleration; stall speed low in D, D3, S, 2, and 1 (D, D3, and S in 1st and 2nd)	<ul style="list-style-type: none"> • Shift solenoid valve D defective • Torque converter one-way clutch defective • Engine output low • Torque converter clutch piston defective • Lock-up shift valve defective 	<ul style="list-style-type: none"> • Check for a stored DTC, and check for loose connections. • Test the shift solenoid valve function with the HDS. • Inspect the O-rings, and check the shift solenoid valve for seizure. • Replace the torque converter assembly. • Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage. • Check the engine control system.
Poor acceleration; stall speed low in R	<ul style="list-style-type: none"> • Torque converter one-way clutch defective • Engine output low • Torque converter clutch piston defective • Lock-up shift valve defective 	<ul style="list-style-type: none"> • Check the engine control system. • Replace the torque converter assembly. • Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.

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Automatic Transmission

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Engine idle vibration	<ul style="list-style-type: none">• Low ATF level• Shift solenoid valve D defective• Drive plate defective or transmission misassembled• Engine output low• Torque converter clutch piston defective• ATF pump worn or damaged• Lock-up shift valve defective• Misassembled engine or transmission mount	<ul style="list-style-type: none">• Check the ATF level and check the ATF lines for leaks and loose connections. If necessary, clean the ATF lines.• Check for a stored DTC, and check for loose connections.• Test the shift solenoid valve function with the HDS.• Inspect the O-rings, and check the shift solenoid valve for seizure.• Check for a misinstalled/damaged drive plate, replace the drive plate if it is worn or damaged.• Check the engine control system.• Replace the torque converter assembly.• Check the line pressure.• Improper alignment of ATF pump and torque converter housing may cause the ATF pump to seize. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak.• Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.• Adjust the transmission and engine mounts.





Symptom	Probable cause(s)	Notes
Vehicle moves in N	<ul style="list-style-type: none"> Excessive ATF Foreign material in separator plate orifice Relief valve defective 1st clutch defective 2nd clutch defective 3rd clutch defective 4th clutch defective 5th clutch defective Clearance between the clutch end-plate and the top disc is incorrect Needle bearing seized, worn, or damaged Thrust washer seized, worn, or damaged 	<ul style="list-style-type: none"> Check the ATF level, and drain the ATF if it is over-filled. Check the 1st, 2nd, 3rd, 4th, and 5th clutch pressures. Check for a clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. Check the ATF strainer for debris. If the strainer is clogged with particles of steel or aluminum, inspect the ATF pump. If the ATF pump is OK, find the damaged components that caused the debris. If no cause for contamination is found, replace the torque converter. Check the relief valve in the main valve body for free movement, and check the valve spring for wear and damage. Inspect the mainshaft, secondary shaft, 1st, 2nd, 3rd, 4th, and 5th clutches for wear and damage. Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. Inspect the 2nd, 3rd, and 4th clutch feed pipes. If the 2nd clutch feed pipe is scored, replace the end cover. If the 3rd or 4th clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange. Replace the secondary shaft if the bushing for the 2nd clutch feed pipe or 4th clutch feed pipe is loose or damaged. Replace the mainshaft if the bushing for the 3rd clutch feed pipe is loose or damaged.

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Automatic Transmission

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Late shift after shifting from N to D, D3, and S, or excessive shock when shifted into D, D3, and S	<ul style="list-style-type: none"> Shift solenoid valve D defective A/T clutch pressure control solenoid valve A defective A/T clutch pressure control solenoid valve B defective A/T clutch pressure control solenoid valve C defective Shift cable broken or out of adjustment Connection between shift cable and transmission or body is worn Input shaft (mainshaft) speed sensor defective Output shaft (countershaft) speed sensor defective ATF temperature sensor defective Foreign material in separator plate orifice Servo control valve defective 1st accumulator defective 1st check ball stuck Lock-up shift valve defective 1st clutch defective 	<ul style="list-style-type: none"> Check for a stored DTC, and check for loose connections. Test the solenoid valve function with the HDS. Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings, for wear and damage. Inspect the shift solenoid valve O-rings, and check for shift solenoid valve seizure. Check for a loose shift cable at the shift lever and the transmission control lever. Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation. Inspect the sensor O-ring for wear and damage. Check for a clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. Check the 1st clutch pressure. Check the servo control valve in the main valve body for free movement, and check the valve spring for wear and damage. Inspect the 1st accumulator piston, O-ring, and spring for wear and damage in the regulator valve body. Check the 1st check ball for being stuck in the main valve body. Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage. Inspect the secondary shaft and 1st clutch for wear and damage. Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.



Symptom	Probable cause(s)	Notes
Late shift after shifting from N to R, or excessive shock when shifted into R	<ul style="list-style-type: none"> Shift solenoid valve D defective A/T clutch pressure control solenoid valve A defective Shift cable broken or out of adjustment Connection between shift cable and transmission or body is worn Input shaft (mainshaft) speed sensor defective Output shaft (countershaft) speed sensor defective ATF temperature sensor defective Shift fork shaft stuck Foreign material in separator plate orifice Shift valve D defective 5th/reverse accumulator defective Lock-up shift valve defective 5th clutch defective 	<ul style="list-style-type: none"> Check for a stored DTC, and check for loose connections. Test the solenoid valve function with the HDS. Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings, for wear and damage. Inspect the shift solenoid valve O-rings, and check for shift solenoid valve for seizure. Check for a loose shift cable at the shift lever and the transmission control lever. Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation. Inspect the sensor O-ring for wear and damage. Check for a missing shift fork bolt on the shift fork shaft. Inspect the servo valve O-ring. Check the shift fork shaft detent for wear and damage. Check for a clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. Check the 5th clutch pressure. Check the shift valve D in the main valve body for free movement, and check the valve spring for wear and damage. Inspect the 5th accumulator piston, O-ring, and spring for wear and damage in the servo body. Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage. Inspect the mainshaft and 5th clutch for wear and damage. Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate.
Transmission does not shift	<ul style="list-style-type: none"> Input shaft (mainshaft) speed sensor defective Output shaft (countershaft) speed sensor defective 	<ul style="list-style-type: none"> Check for a stored DTC, and check for loose connections. Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation. Inspect the sensor O-ring for wear and damage.

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Automatic Transmission

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Excessive shock or engine revs up abnormally high on all upshifts and downshifts	<ul style="list-style-type: none"> • A/T clutch pressure control solenoid valve B defective • A/T clutch pressure control solenoid valve C defective • Input shaft (mainshaft) speed sensor defective • Output shaft (countershaft) speed sensor defective • ATF temperature sensor defective • Foreign material in separator plate orifice 	<ul style="list-style-type: none"> • Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. • Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation. • Inspect the sensor O-ring for wear and damage. • Check for a clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice.
Excessive shock or engine revs up abnormally high on 1-2 upshift or 2-1 downshift	<ul style="list-style-type: none"> • Shift solenoid valve D defective • A/T clutch pressure control solenoid valve A defective • A/T clutch pressure control solenoid valve B defective • A/T clutch pressure control solenoid valve C defective • Transmission fluid pressure switch A (2nd clutch) defective • Foreign material in separator plate orifice • 1st accumulator defective • 2nd accumulator defective • 1st check ball stuck • 2nd check ball stuck • Lock-up shift valve defective • 1st clutch defective • 2nd clutch defective 	<ul style="list-style-type: none"> • Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. • Inspect the shift solenoid valve O-rings, and check for shift solenoid valve for seizure. • Check for a clogged orifice in the transmission fluid pressure switch A (2nd clutch). If the orifice is clogged, remove it and clean the pressure switch. • Check for a clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. • Check the 1st and 2nd clutch pressures. • Inspect the 1st accumulator piston, O-ring, and spring for wear and damage in the servo body. • Inspect the 2nd accumulator piston, O-ring, and spring for wear and damage in the servo body. • Check the 1st check ball and 2nd check ball for being stuck in the main valve body. • Inspect the secondary shaft, 1st clutch, and 2nd clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the 2nd clutch feed pipe. If the 2nd clutch feed pipe is scored, replace the end cover. • Replace the secondary shaft if the bushing for the 2nd clutch feed pipe is loose or damaged. • Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage.



Symptom	Probable cause(s)	Notes
Excessive shock or engine revs up abnormally high on 2-3 upshift or 3-2 downshift	<ul style="list-style-type: none"> • A/T clutch pressure control solenoid valve B defective • A/T clutch pressure control solenoid valve C defective • Transmission fluid pressure switch B (3rd clutch) defective • Foreign material in separator plate orifice • 2nd accumulator defective • 3rd accumulator defective • 2nd check ball stuck • 2nd clutch defective • 3rd clutch defective 	<ul style="list-style-type: none"> • Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. • Check for a clogged orifice in the transmission fluid pressure switch B (3rd clutch). If the orifice is clogged, remove it and clean the pressure switch. • Check for a clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. • Check the 2nd and 3rd clutch pressures. • Inspect the 2nd and 3rd accumulator pistons, O-rings, and springs for wear and damage in the servo body. • Check the 2nd check ball for being stuck in the main valve body. • Inspect the secondary shaft, mainshaft, 2nd clutch, and 3rd clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the 2nd and 3rd clutch feed pipes. • If the 2nd clutch feed pipe is scored, replace the end cover. • If the 3rd clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange. • Replace the secondary shaft if the bushing for the 2nd clutch feed pipe is loose or damaged. • Replace the mainshaft if the bushing for the 3rd clutch feed pipe is loose or damaged.

(cont'd)

Automatic Transmission

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Excessive shock or engine revs up abnormally high on 3-4 upshift or 4-3 downshift	<ul style="list-style-type: none"> • A/T clutch pressure control solenoid valve B defective • A/T clutch pressure control solenoid valve C defective • Foreign material in separator plate orifice • 3rd accumulator defective • 4th accumulator defective • 3rd clutch defective • 4th clutch defective 	<ul style="list-style-type: none"> • Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. • Check for a clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. • Check the 3rd and 4th clutch pressures. • Inspect the 3rd and 4th accumulator pistons, O-rings, and springs for wear and damage in the servo body. • Inspect the mainshaft, secondary shaft, 3rd clutch, and 4th clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the 3rd and 4th clutch feed pipes. • If the 3rd clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange. • If the 4th clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange. • Replace the secondary shaft if the bushing for the 4th clutch feed pipe is loose or damaged. • Replace the mainshaft if the bushing for the 3rd clutch feed pipe is loose or damaged.



Symptom	Probable cause(s)	Notes
Excessive shock or engine revs up abnormally high on 4-5 upshift or 5-4 downshift	<ul style="list-style-type: none"> • A/T clutch pressure control solenoid valve B defective • A/T clutch pressure control solenoid valve C defective • Foreign material in separator plate orifice • 4th accumulator defective • 5th accumulator defective • 4th clutch defective • 5th clutch defective 	<ul style="list-style-type: none"> • Check for a stored DTC, and check for loose connections. • Test the solenoid valve function with the HDS. • Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. • Check for a clogged orifice in the separator plate. If the orifice is clogged, remove it and clean the separator plate orifice. • Check the 4th and 5th clutch pressures. • Inspect the 4th and 5th accumulator pistons, O-rings, and springs for wear and damage in the servo body. • Inspect the mainshaft, secondary shaft, 4th clutch, and 5th clutch for wear and damage. • Inspect the clutch piston, clutch piston check valve, and O-rings. Check the spring retainer for wear and damage. Inspect the clearance between the clutch end-plate and the top disc. If the clearance is out of tolerance, inspect the clutch discs and plates for wear and damage, and inspect the clutch wave-plate height. If the discs and plates are worn or damaged, replace them as a set. If the wave-plate height is out of tolerance, replace the wave-plate. If they are OK, adjust the clearance with the clutch end-plate. • Inspect the 4th clutch feed pipes. If the 4th clutch feed pipe is scored, replace it and the O-rings under the feed pipe flange. • Replace the secondary shaft if the bushing for the 4th clutch feed pipe is loose or damaged.
Noise from transmission in all shift lever positions	<ul style="list-style-type: none"> • ATF pump worn or damaged • Mainshaft bearing, countershaft bearing, or secondary shaft bearing defective 	<ul style="list-style-type: none"> • Check the line pressure. • Improper alignment of ATF pump and torque converter housing may cause the ATF pump to seize. The symptoms are mostly an rpm-related ticking noise or a high pitched squeak. • Be careful not to damage the torque converter housing when replacing the main ball bearing. Not torquing the valve body to specification could also damage the ATF pump. This could cause the pump to seize. • Install the main seal flush with the torque converter housing when replacing the main seal. If you push it into the torque converter housing until it bottoms out, it will block the fluid return passage and result in damage. • Inspect the mainshaft, countershaft, and secondary shaft bearing for wear and damage.
Vehicle does not accelerate above 31 mph (50 km/h)	Torque converter one-way clutch defective	Replace the torque converter assembly.
Vibration in all shift lever positions	Drive plate defective or transmission misassembled	<ul style="list-style-type: none"> • Check for a misinstalled/damaged drive plate, replace the drive plate if it is worn or damaged. • Check the engine idle control system.

(cont'd)

Automatic Transmission

Symptom Troubleshooting Index (cont'd)

Symptom	Probable cause(s)	Notes
Shift lever does not operate smoothly	<ul style="list-style-type: none"> Transmission range switch defective or out of adjustment Shift cable broken or out of adjustment Connection between shift cable and transmission or body is worn 	<ul style="list-style-type: none"> Check for a stored DTC, and check for loose connections. Inspect the transmission range switch. If the transmission range switch is faulty, replace it. If the transmission range switch is out of adjustment, adjust it and shift cable. Check for a loose shift cable at the shift lever and the transmission control lever.
Transmission does not shift into P	<ul style="list-style-type: none"> Shift cable broken or out of adjustment Connection between shift cable and transmission or body is worn Park mechanism defective 	<ul style="list-style-type: none"> Check for a loose shift cable at the shift lever and the transmission control lever. Check the park pawl spring installation and the park lever spring installation. If installation is incorrect, install the spring correctly. Make sure that the park lever stop is not installed upside down. Check the distance between the park pawl shaft and park lever pin. If the distance is out of tolerance, adjust the distance with the park lever stop.
Torque converter clutch does not disengage	<ul style="list-style-type: none"> Shift solenoid valve D defective A/T clutch pressure control solenoid valve A defective Torque converter clutch piston defective Lock-up shift valve defective Lock-up control valve defective 	<ul style="list-style-type: none"> Check for a stored DTC, and check for loose connections. Test the solenoid valve function with the HDS. Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. Inspect the O-rings, and check the shift solenoid valve for seizure. Replace the torque converter assembly. Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage. Check the lock-up control valve in the main valve body for free movement, and check the valve spring for wear and damage.
Torque converter clutch does not operate smoothly	<ul style="list-style-type: none"> Shift solenoid valve D defective A/T clutch pressure control solenoid valve A defective Torque converter clutch piston defective Torque converter check valve defective Lock-up shift valve defective Lock-up control valve defective 	<ul style="list-style-type: none"> Check for a stored DTC, and check for loose connections. Test the solenoid valve function with the HDS. Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. Inspect the O-rings, and check the shift solenoid valve for seizure. Replace the torque converter assembly. Check the torque converter check valve in the regulator valve body for free movement, and check the valve spring for wear and damage. Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage. Check the lock-up control valve in the main valve body for free movement, and check the valve spring for wear and damage.

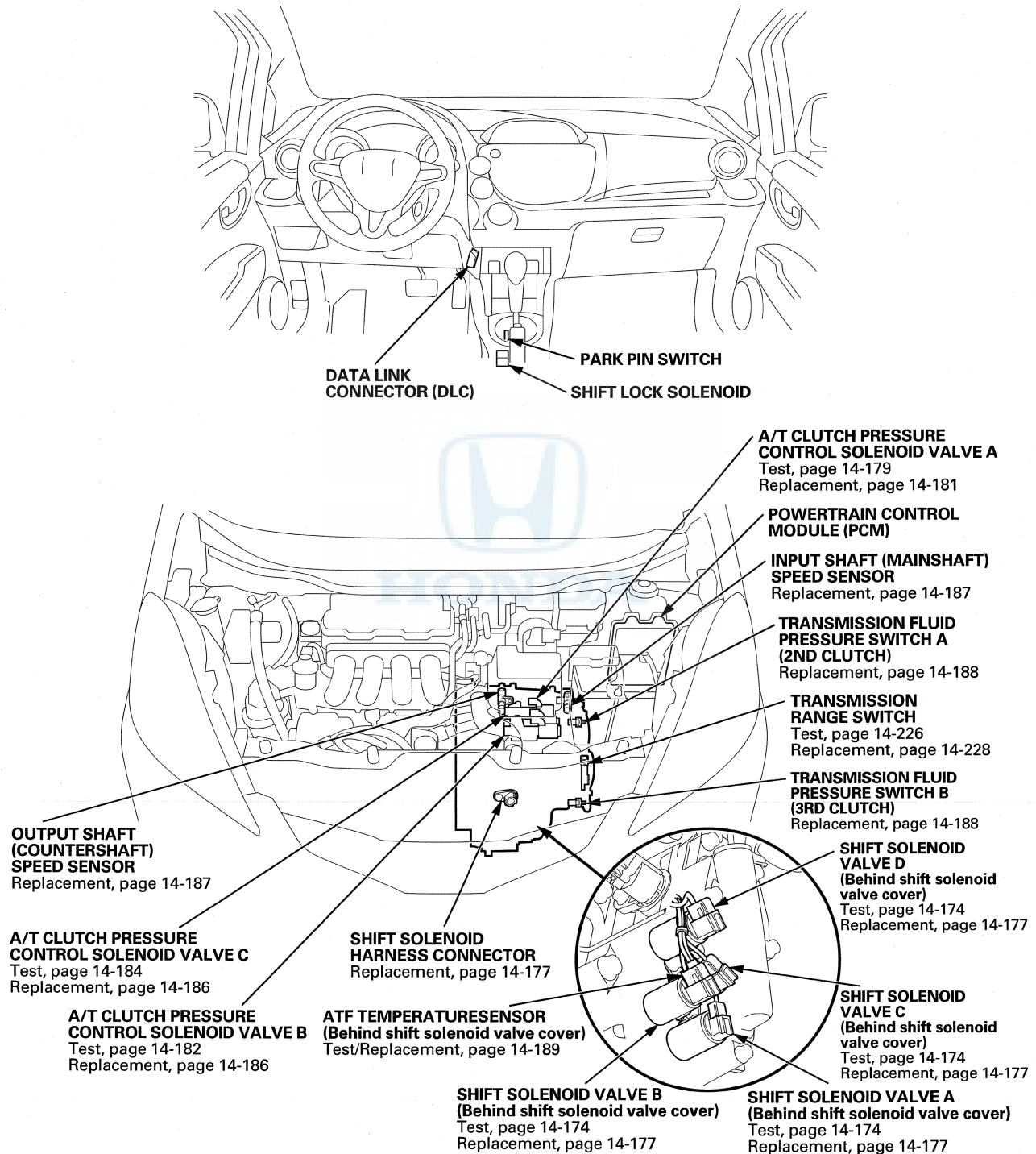


Symptom	Probable cause(s)	Notes
Torque converter clutch does not engage	<ul style="list-style-type: none"> Shift solenoid valve D defective A/T clutch pressure control solenoid valve A defective Input shaft (mainshaft) speed sensor defective Output shaft (countershaft) speed sensor defective Torque converter clutch piston defective Torque converter check valve defective Lock-up shift valve defective Lock-up control valve defective 	<ul style="list-style-type: none"> Check for a stored DTC, and check for loose connections. Test the solenoid valve function with the HDS. Inspect the A/T clutch pressure control solenoid valve body gasket, ATF feed pipes, and O-rings for wear and damage. Inspect the shift solenoid valve O-rings, and check for shift solenoid valve for seizure. Check the input shaft (mainshaft) speed sensor and output shaft (countershaft) speed sensor installation. Inspect the sensor O-ring for wear and damage. Replace the torque converter assembly. Check the torque converter check valve in the regulator valve body for free movement, and check the valve spring for wear and damage. Check the lock-up shift valve in the regulator valve body for free movement, and check the valve spring for wear and damage. Check the lock-up control valve in the main valve body for free movement, and check the valve spring for wear and damage.
A/T gear position indicator does not indicate shift lever positions	<ul style="list-style-type: none"> Transmission range switch defective or out of adjustment Shift cable broken or out of adjustment Connection between shift cable and transmission or body worn 	<ul style="list-style-type: none"> Check for a stored DTC, and check for loose connections. Inspect the transmission range switch. If the transmission range switch is faulty, replace it. If the transmission range switch is out of adjustment, adjust it and the shift cable. Check for a loose shift cable at the shift lever and the transmission control lever.
Speedometer and odometer do not work	Output shaft (countershaft) speed sensor defective	<ul style="list-style-type: none"> Check for a stored DTC, and check for loose connections. Check the output shaft (countershaft) speed sensor installation. Inspect the sensor O-ring.
Engine does not rev to high rpm, and the transmission upshifts at low rpm (engine at normal operating temperature)	Engine rocker arm defective	<ul style="list-style-type: none"> Check the engine rocker arms. Check for a restricted or damaged exhaust system.

Automatic Transmission

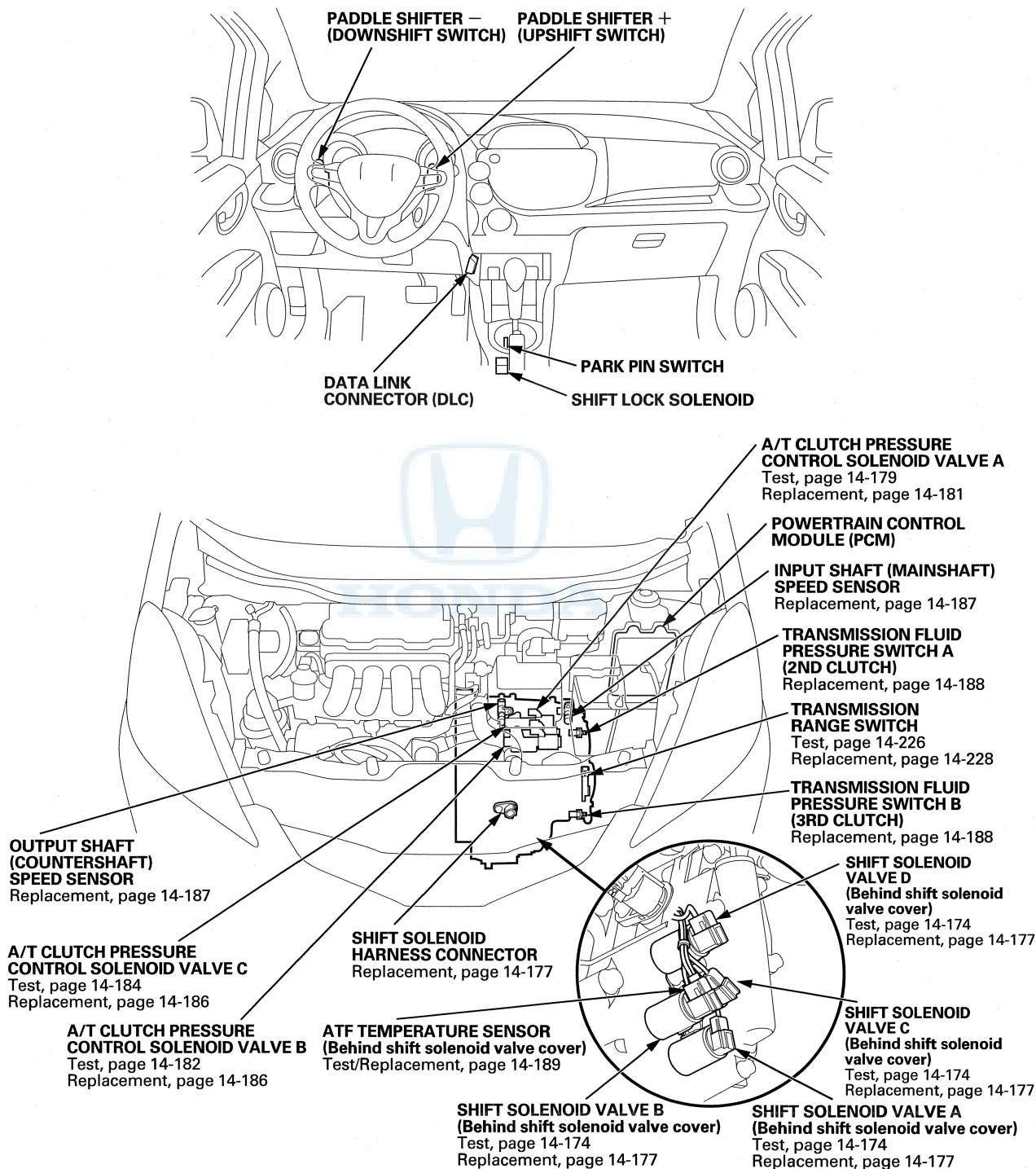
Component Location Index

Seven-position Transmission





Five-position Transmission



Automatic Transmission

System Description

General Operation

The automatic transmission is a combination of a three-element torque converter and a three-shaft electronically controlled unit which provides five speeds forward and one reverse. The entire unit is positioned in line with the engine.

Torque Converter, Shafts, Gears, and Clutches

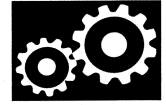
The torque converter consists of a pump, turbine, and stator assembly in a single unit. The converter housing (pump) is connected to the engine crankshaft and turns as the engine runs. Around the outside of the torque converter is a ring gear which meshes with the starter drive gear when the engine is being started. The entire torque converter assembly serves as a flywheel while transmitting power to the transmission mainshaft. The transmission has three parallel shafts; the mainshaft, the countershaft and the secondary shaft. The mainshaft is in line with the engine crankshaft, and includes the 3rd and 5th clutches, and gears for 3rd, 5th, reverse, and idler. The mainshaft reverse gear is integral with the mainshaft 5th gear. The countershaft includes the gears for 1st, 2nd, 3rd, 4th-5th, reverse, park, and the final drive. The countershaft 4th-5th gear enables the shared use of the secondary shaft 4th gear and the mainshaft 5th gear. The countershaft 4th-5th gear and the countershaft reverse gear can be locked to the countershaft providing the 4th, 5th or reverse gear, depending on which way the selector is moved. The final drive gear is integral with the countershaft. The secondary shaft includes the 1st, 2nd, and 4th clutches, and gears for 1st, 2nd, 4th, and idler. The idler gear shaft is located between the mainshaft and secondary shaft, and the idler gear transmits power between the mainshaft and the secondary shaft. The gears on the mainshaft and the secondary shaft are in constant mesh with those on the countershaft. When certain combinations of gears in the transmission are engaged by the clutches, power is transmitted through the mainshaft, to the secondary shaft, then to the countershaft to provide drive.

Electronic Control

The electronic control system consists of the powertrain control module (PCM), sensors, and seven solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions. The PCM is located in the engine compartment.

Hydraulic Control

The valve bodies include the main valve body, the regulator valve body, and the servo body. They are bolted to the torque converter housing. The main valve body contains the manual valve, cut valve B, shift valves A, C, and D, the relief valve, the lock-up control valve, the cooler check valve, the servo control valve, and the ATF pump gears. The regulator valve body contains the regulator valve, the torque converter check valve, the lock-up shift valve, the 1st accumulator, and the 4th accumulator. The servo body contains the servo valve, shift valve B, cut valve A, accumulators for 2nd, 3rd, and 5th, and shift solenoid valves A, B, C, and D. Fluid from the regulator passes through the manual valve to the various control valves. The 2nd, 3rd, and 4th clutches receive fluid from their respective feed pipes, and the 1st and the 5th clutches receive fluid from the internal hydraulic circuit.



Shift Control Mechanism

To shift gears, the PCM controls shift solenoid valves A, B, C, and D, and A/T clutch pressure control solenoid valves A, B, and C, while receiving input signals from various sensors and switches located throughout the vehicle. The shift solenoid valves shift the positions of the shift valves to switch the port to send hydraulic pressure to the clutches. A/T clutch pressure control solenoid valves A, B, and C regulate their respective pressures and pressurize the clutches to engage them and their corresponding gears.

Lock-up Mechanism

The lock-up mechanism operates in all five gears in D, in 3rd gear in D3, and in 3rd and 4th gears in S. The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the torque converter cover. As this takes place, the mainshaft rotates at the same speed as the engine crankshaft. Together with hydraulic control, the PCM optimizes the timing and degree of the lock-up mechanism. While shift solenoid valve D is turned on and off by the PCM, shift solenoid valve D pressure switches the lock-up shift valve on and off. A/T clutch pressure control solenoid valve A and the lock-up control valve control the degree of the lock-up.

Gear Selection - Seven-position Transmission

The shift lever has seven positions; P: PARK, R: REVERSE, N: NEUTRAL, D: DRIVE 1st through 5th gear ranges, D3: DRIVE 1st through 3rd gear ranges, 2: SECOND, and 1: FIRST.

Position	Description
P: PARK	Front wheels locked; park pawl engaged with park gear on countershaft. All clutches are released.
R: REVERSE	Reverse; reverse selector engaged with countershaft reverse gear and 5th clutch engaged.
N: NEUTRAL	All clutches are released.
D: DRIVE (1st through 5th gears)	General driving; starts off in 1st, shifts automatically to 2nd, 3rd, 4th, then 5th, depending on vehicle speed and accelerator pedal position. Downshifts through 4th, 3rd, 2nd, and 1st on deceleration to stop. The lock-up mechanism operates in all five gears.
D3: DRIVE (1st through 3rd gears)	Used for rapid acceleration at highway speeds and general driving, up-hill and down-hill driving; starts off in 1st, shifts automatically to 2nd, then 3rd, depending on vehicle speed and accelerator pedal position. Downshifts through 2nd and 1st on deceleration to stop. The lock-up mechanism operates in 3rd gear.
2: SECOND	Used for engine braking or better traction starting off on loose or slippery surfaces; stays in 2nd gear, does not shift up and down.
1: FIRST	Used for engine braking; stays in 1st gear, does not shift up.

Starting the engine is possible only in P and N because of a neutral-safety switch.

(cont'd)

Automatic Transmission

System Description (cont'd)

General Operation (cont'd)

Gear Selection - Five-position Transmission

The shift lever has five positions; P: PARK, R: REVERSE, N: NEUTRAL, D: DRIVE 1st through 5th gear ranges, and S: DRIVE 1st through 4th gear ranges with automatic shift mode and 1st through 5th gear ranges with sequential sportshift mode.

Position		Description
P: PARK		Front wheels locked; park pawl engaged with park gear on countershaft. All clutches are released.
R: REVERSE		Reverse; reverse selector engaged with countershaft reverse gear and 5th clutch engaged.
N: NEUTRAL		All clutches are released.
D: DRIVE (1st through 5th gears)		General driving; starts off in 1st, shifts automatically to 2nd, 3rd, 4th, then 5th, depending on vehicle speed and accelerator pedal position. Downshifts through 4th, 3rd, 2nd, and 1st on deceleration to stop. D-paddle shift mode is also equipped; the transmission can be shifted manually with steering wheel-mounted upshift and downshift paddle shifters under certain particular conditions. The lock-up mechanism operates in all five gears.
S: DRIVE	Automatic shift mode (1st through 4th gears)	Used for rapid acceleration at highway speeds and general driving, up-hill and down-hill driving; starts off in 1st, shifts automatically to 2nd, 3rd then 4th, depending on vehicle speed and accelerator pedal position. Downshifts through 3rd, 2nd, and 1st on deceleration to stop. The lock-up mechanism operates in 3rd and 4th gears.
	Sequential sportshift mode (1st through 5th gears)	Manual gear shift driving with steering wheel-mounted upshift and downshift paddle shifters; vehicle can start off in 1st gear, and does not upshift automatically. Vehicle can also start off in 2nd gear, and does not upshift and downshift automatically. Downshifts automatically to 1st on deceleration to stop. The lock-up mechanism operates in 2nd, 3rd, 4th, and 5th gears.

Starting the engine is possible only in P and N because of a neutral-safety switch.

Automatic Transmission (A/T) Gear Position Indicator

The A/T gear position indicator in the gauge control module shows which shift lever position has been selected.

Shift Indicator and M indicator - Five-position Transmission

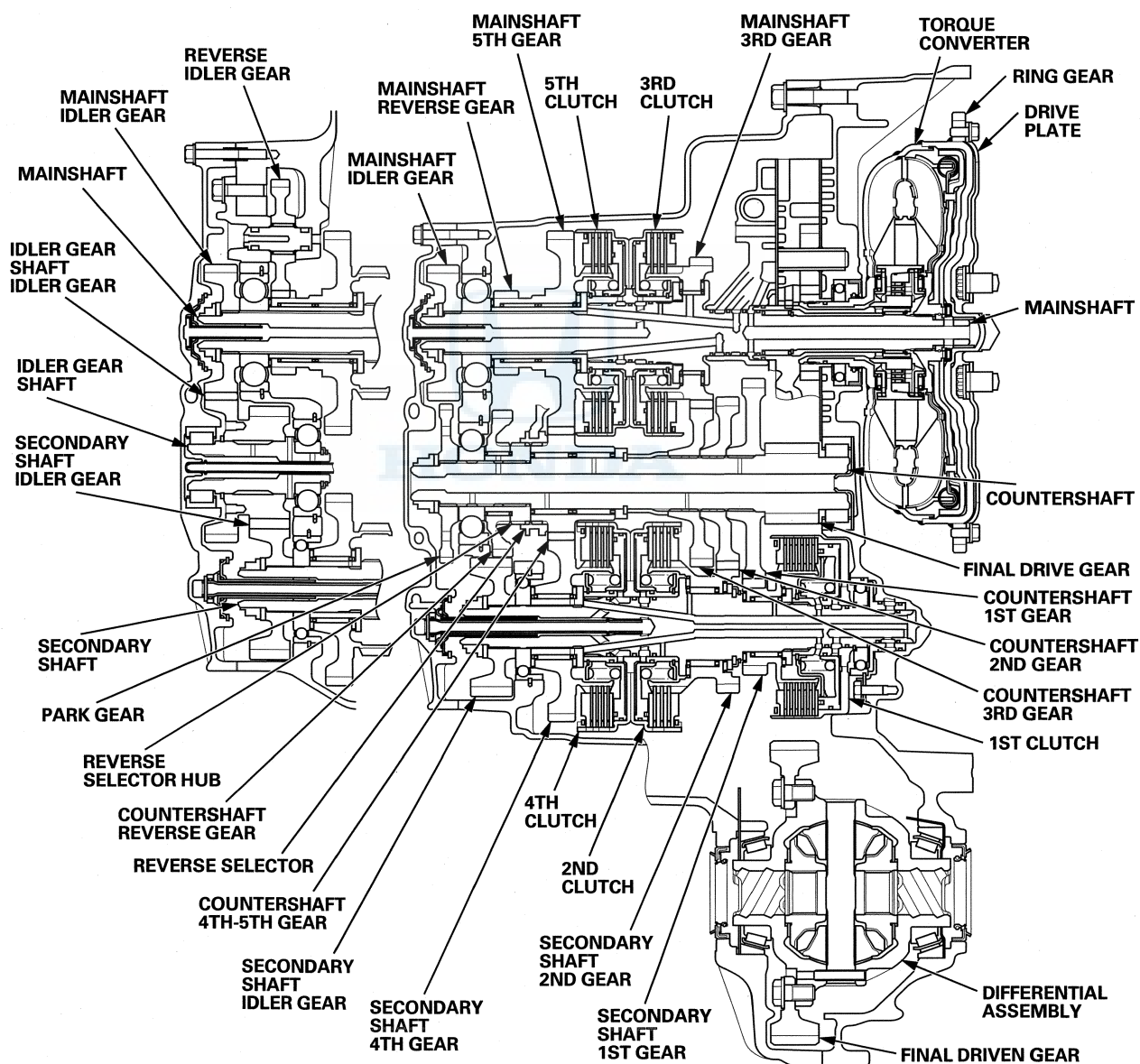
When the transmission is switched into the sequential sportshift mode, the shift indicator in the gauge control module displays the gear selected, and the M indicator next to the shift indicator comes on. The shift indicator also displays the gear selected in the D-paddle shift mode, but the M indicator does not come on.



Clutches and Gears

The five-speed automatic transmission uses hydraulically-actuated clutches to engage or disengage the transmission gears. When hydraulic pressure is introduced into the clutch drum, the clutch piston moves. This presses the friction discs and steel plates together, locking them so they do not slip. Power is then transmitted through the engaged clutch pack to its hub-mounted gear. Likewise, when the hydraulic pressure is bled from the clutch pack, the piston releases the friction discs and the steel plates, and they are free to slide past each other. This allows the gear to spin independently on its shaft, transmitting no power.

Transmission Cutaway View



(cont'd)

Automatic Transmission

System Description (cont'd)

Clutches and Gears (cont'd)

1st Clutch

The 1st clutch engages/disengages 1st gear, and is located at the left end of the secondary shaft, opposite the end cover. The 1st clutch is supplied hydraulic pressure through the mainshaft by a circuit connected to the internal hydraulic circuit.

2nd Clutch

The 2nd clutch engages/disengages 2nd gear, and is located at the middle of the secondary shaft. The 2nd clutch is joined back-to-back to the 4th clutch. The 2nd clutch is supplied hydraulic pressure by its ATF feed pipe within the secondary shaft.

3rd Clutch

The 3rd clutch engages/disengages 3rd gear, and is located at the middle of the mainshaft. The 3rd clutch is joined back-to-back to the 5th clutch. The 3rd clutch is supplied hydraulic pressure through the mainshaft by its ATF feed pipe within the mainshaft.

4th Clutch

The 4th clutch engages/disengages 4th gear, and is located at the middle of the secondary shaft. The 4th clutch is joined back-to-back to the 2nd clutch, and is supplied hydraulic pressure by its ATF feed pipe within the secondary shaft.

5th Clutch

The 5th clutch engages/disengages 5th gear, as well as reverse gear, and is located at the middle of the mainshaft. The 5th clutch is joined back-to-back to the 3rd clutch. The 5th clutch is supplied hydraulic pressure through the mainshaft by a circuit connected to the internal hydraulic circuit.

Gear Operation

Gears on the mainshaft:

- 3rd gear is engaged/disengaged with the mainshaft by the 3rd clutch.
- 5th gear is engaged/disengages with the mainshaft by the 5th clutch.
- Reverse gear is engaged/disengaged with the mainshaft by the 5th clutch.
- Idler gear is splined with the mainshaft, and rotates with the mainshaft.

Gears on the countershaft:

- Final drive gear is integral with the countershaft.
- 1st gear, 2nd gear, and park gear are splined with the countershaft, and rotate with the countershaft.
- 4th-5th gear and reverse gear rotate freely from the countershaft. The reverse selector engages 4th-5th gear and reverse gear with the reverse selector hub. The reverse selector hub is splined to the countershaft so 4th-5th gear and reverse gear engage with the countershaft.

Gears on the secondary shaft:

- 1st gear is engaged/disengaged with the secondary shaft by the 1st clutch.
- 2nd gear is engaged/disengaged with the secondary shaft by the 2nd clutch.
- 4th gear is engaged/disengaged with the secondary shaft by the 4th clutch.
- Idler gear is splined with the secondary shaft, and rotates with the secondary shaft.

The idler gear on the idler gear shaft transmits power between the mainshaft and the secondary shaft.

The reverse idler gear transmits power from the mainshaft reverse gear to the countershaft reverse gear, and changes rotational direction of the countershaft reverse.



Power Flow

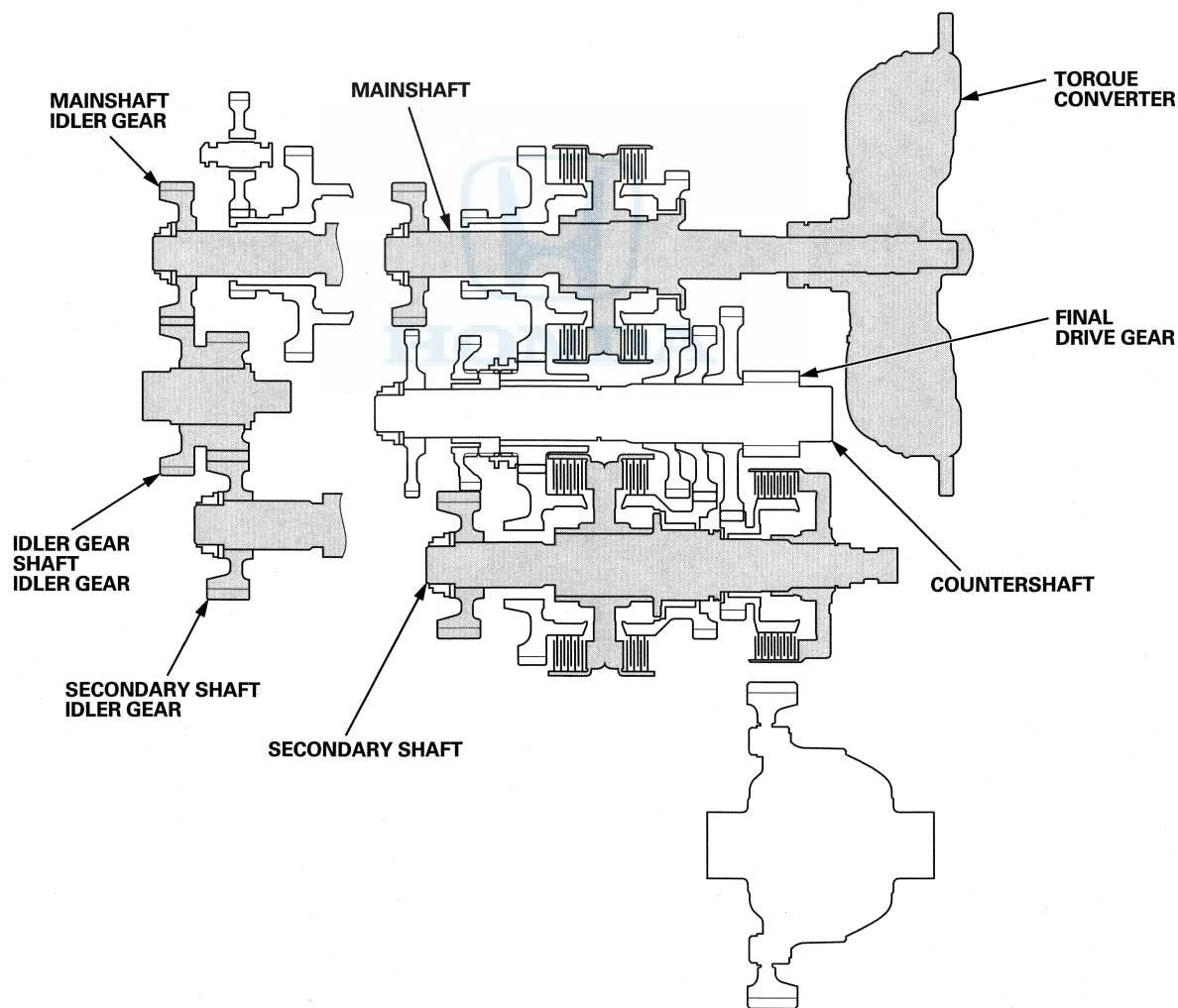
P Position

Hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft. The countershaft is locked by the park pawl, interlocking the park gear.

N Position

Engine power transmitted from the torque converter drives the mainshaft idler gear, the idler gear shaft idler gear, and the secondary shaft idler gear, but hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft. In this position, the position of the reverse selector differs according to whether the shift lever was shifted from D or R:

- When shifted from D, the reverse selector engages with the countershaft 4th-5th gear and the reverse selector hub, and 4th-5th gear engages with the countershaft.
- When shifted from R, the reverse selector engages with the countershaft reverse gear and the reverse selector hub, and the reverse gear engages with the countershaft.



(cont'd)

Automatic Transmission

System Description (cont'd)

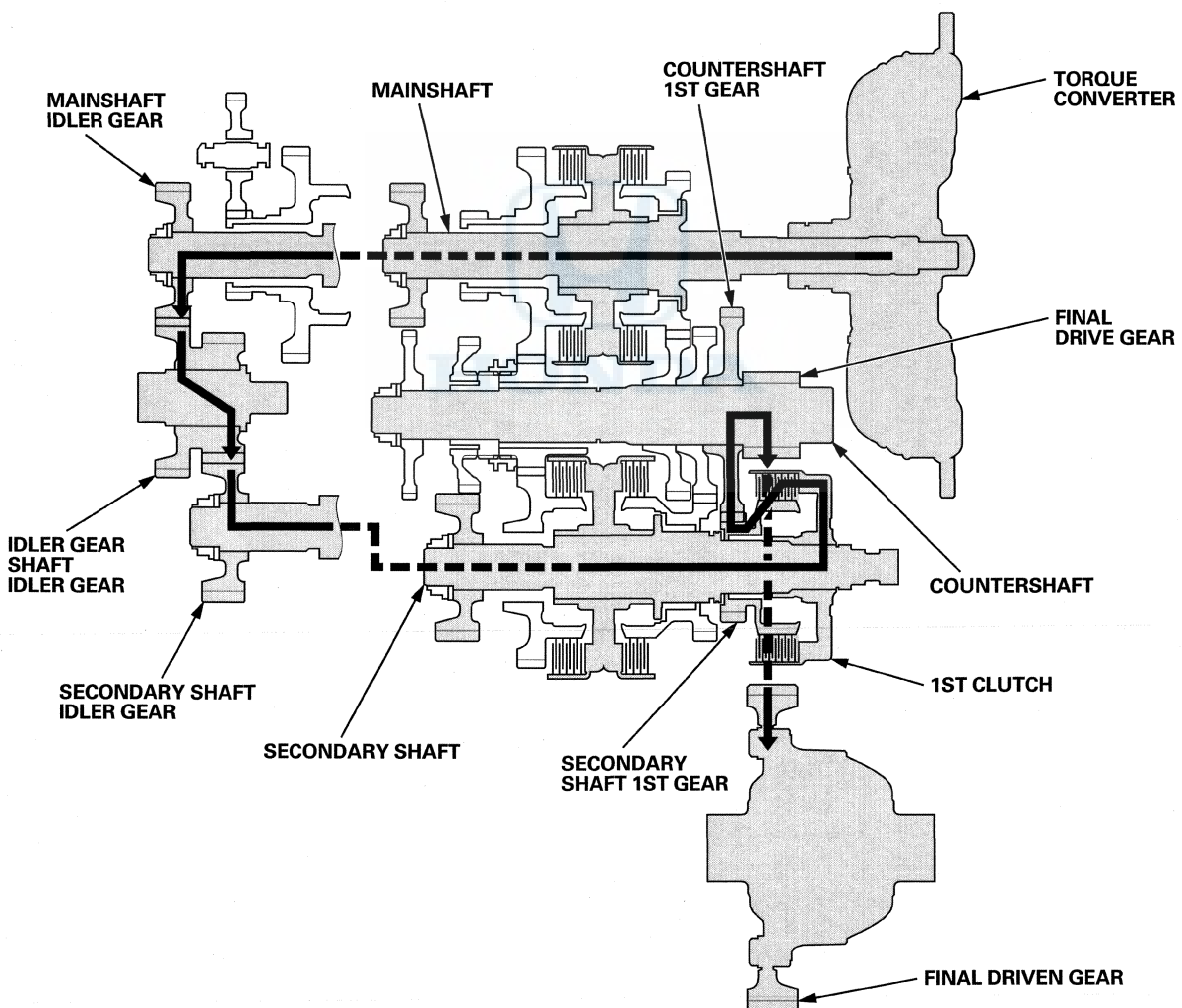
Power Flow (cont'd)

D, D3, and S Position

In D, D3, and S, the optimum gear is automatically selected from 1st, 2nd, 3rd, 4th, and 5th gears in D; 1st, 2nd, and 3rd gears in D3; 1st, 2nd, 3rd, and 4th gears in S in automatic shift mode according to conditions such as the balance between the throttle opening (engine loading) and vehicle speed.

In 1st Gear and 1 Position

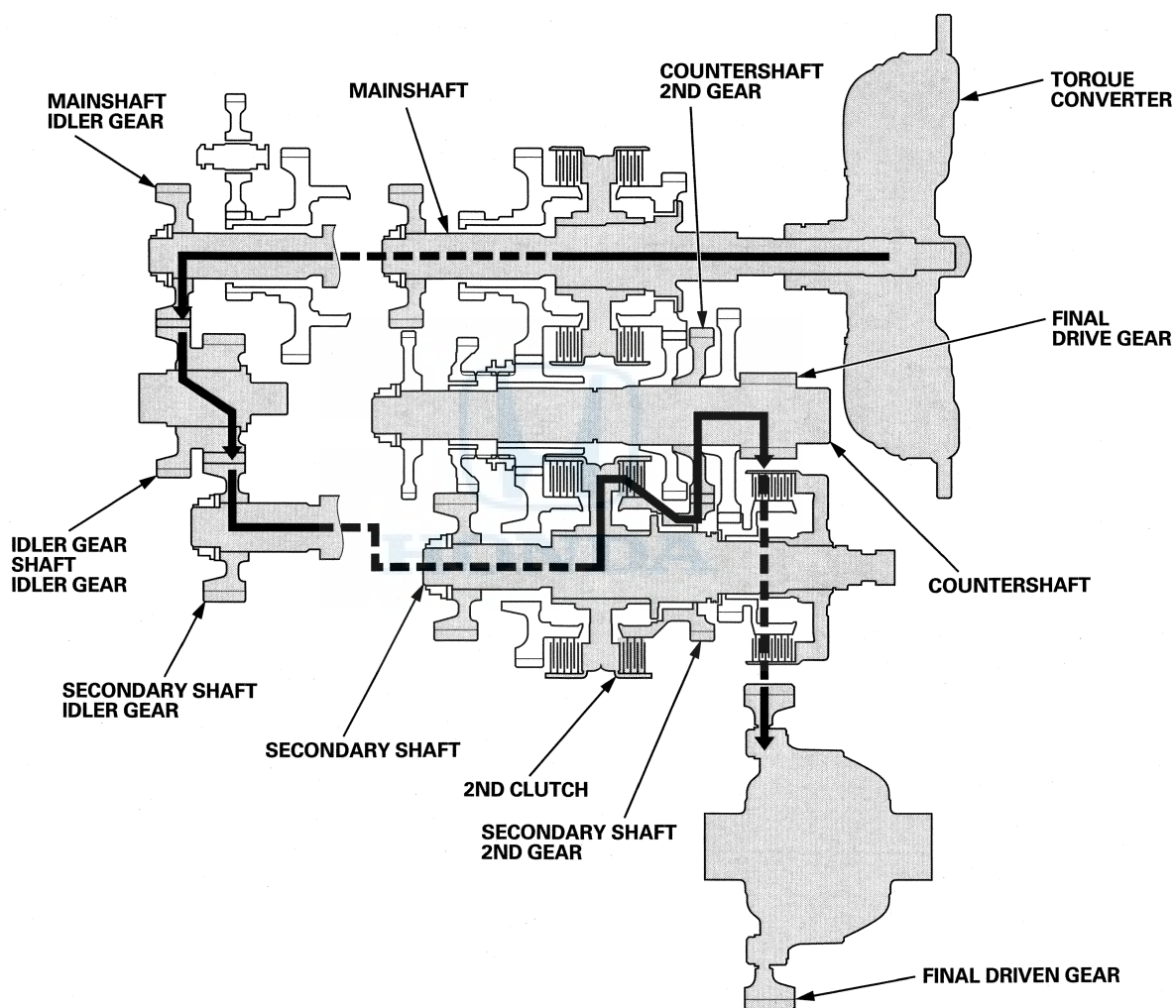
- Hydraulic pressure is applied to the 1st clutch, then the 1st clutch engages the secondary shaft 1st gear with the secondary shaft.
- The mainshaft idler gear drives the secondary shaft via the idler gear shaft idler gear and the secondary shaft idler gear.
- The secondary shaft 1st gear drives the countershaft 1st gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.





In 2nd Gear and 2 Position

- Hydraulic pressure is applied to the 2nd clutch, then the 2nd clutch engages the secondary shaft 2nd gear with the secondary shaft.
- The mainshaft idler gear drives the secondary shaft via the idler gear shaft idler gear and the secondary shaft idler gear.
- The secondary shaft 2nd gear drives the countershaft 2nd gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



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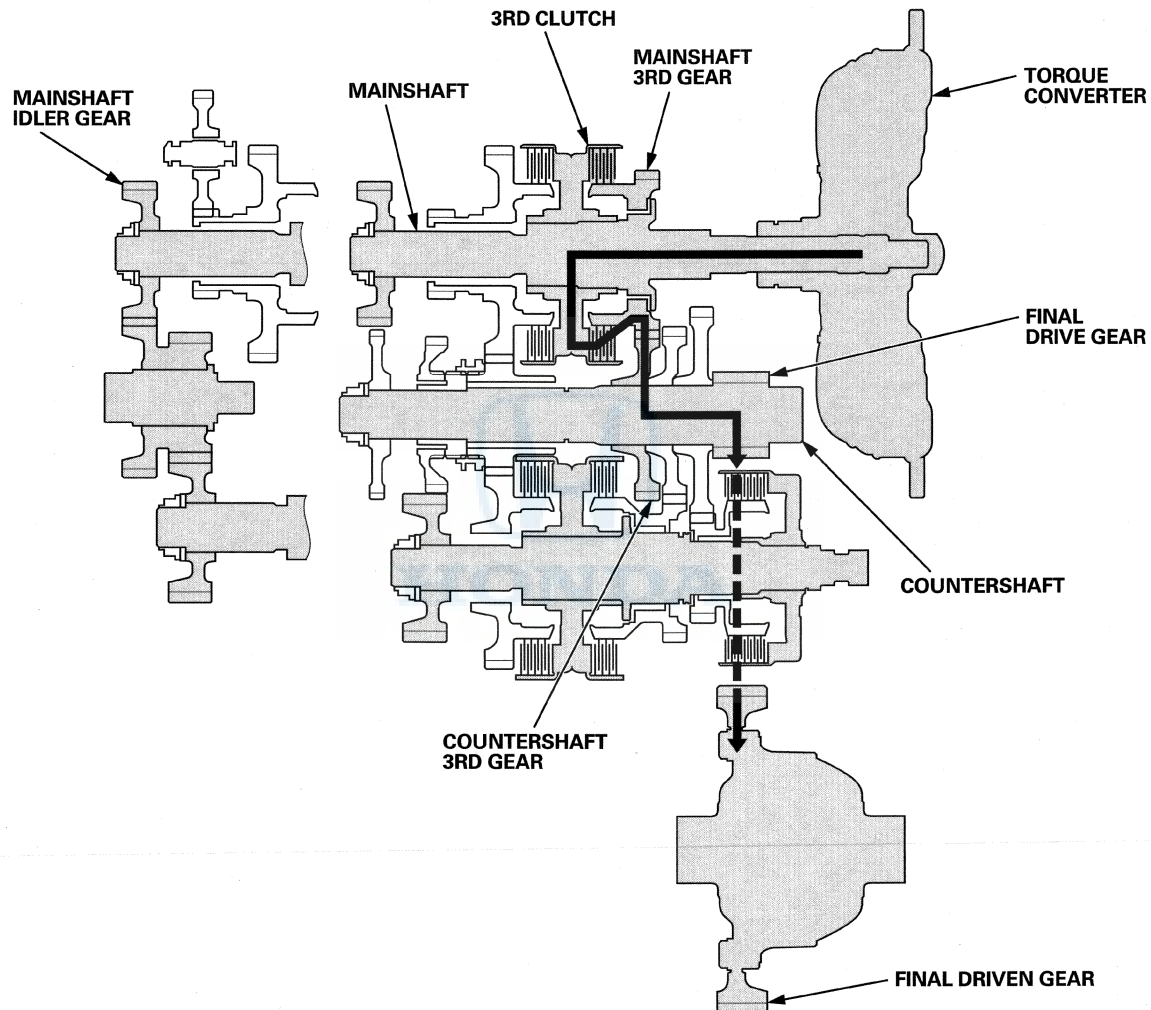
Automatic Transmission

System Description (cont'd)

Power Flow (cont'd)

In 3rd Gear

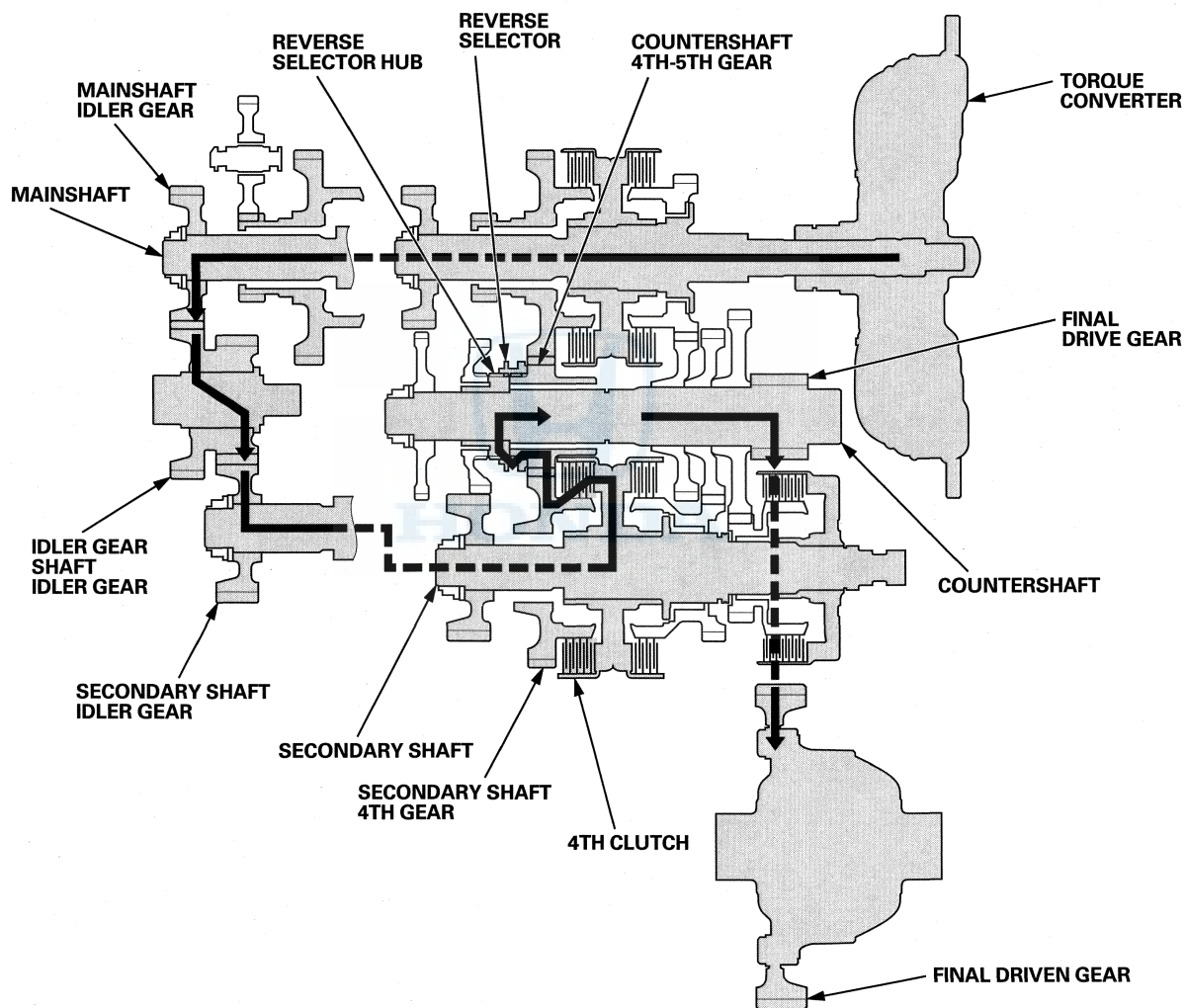
- Hydraulic pressure is applied to the 3rd clutch, then the 3rd clutch engages the mainshaft 3rd gear with the mainshaft.
- The mainshaft 3rd gear drives the countershaft 3rd gear and the countershaft.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.





In 4th Gear

- Hydraulic pressure is applied to the 4th clutch, then the 4th clutch engages the secondary shaft 4th gear with the secondary shaft.
- The mainshaft idler gear drives the secondary shaft via the idler gear shaft idler gear and the secondary shaft idler gear.
- The secondary shaft 4th gear drives the countershaft 4th-5th gear.
- The countershaft 4th-5th gear drives the countershaft via the reverse selector, which drives the reverse selector hub.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



(cont'd)

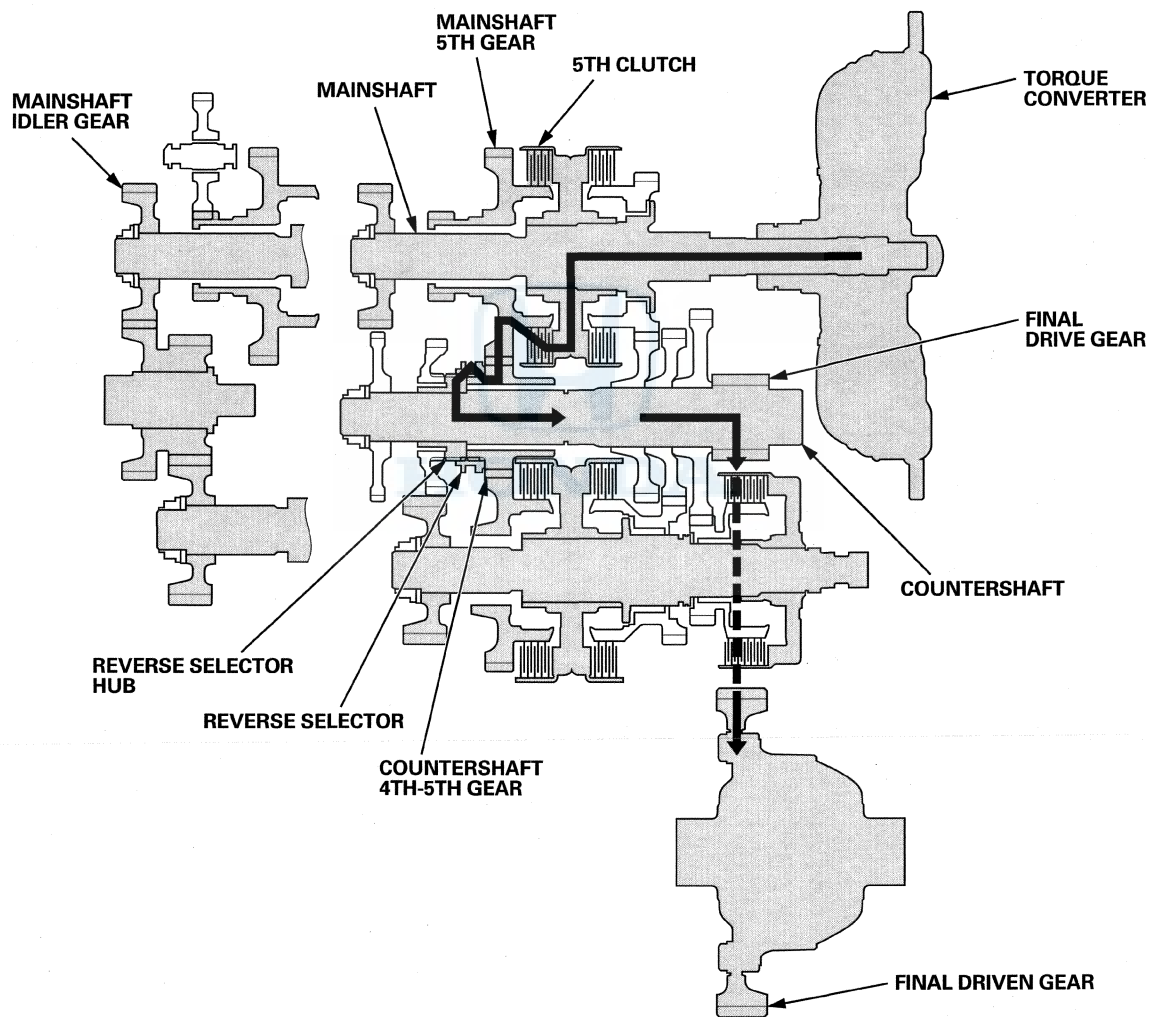
Automatic Transmission

System Description (cont'd)

Power Flow (cont'd)

In 5th Gear

- Hydraulic pressure is applied to the servo valve to engage the reverse selector with the countershaft 4th-5th gear and reverse selector hub while the shift lever is in forward range; D, D3, S, 2, and 1.
- Hydraulic pressure is also applied to the 5th clutch, then the 5th clutch engages the mainshaft 5th gear with the mainshaft.
- The mainshaft 5th gear drives the countershaft 4th-5th gear.
- The countershaft 4th-5th gear drives the countershaft via the reverse selector, which drives the reverse selector hub.
- Power is transmitted to the final drive gear, which in turn drives the final driven gear.



Automatic Transmission

System Description (cont'd)

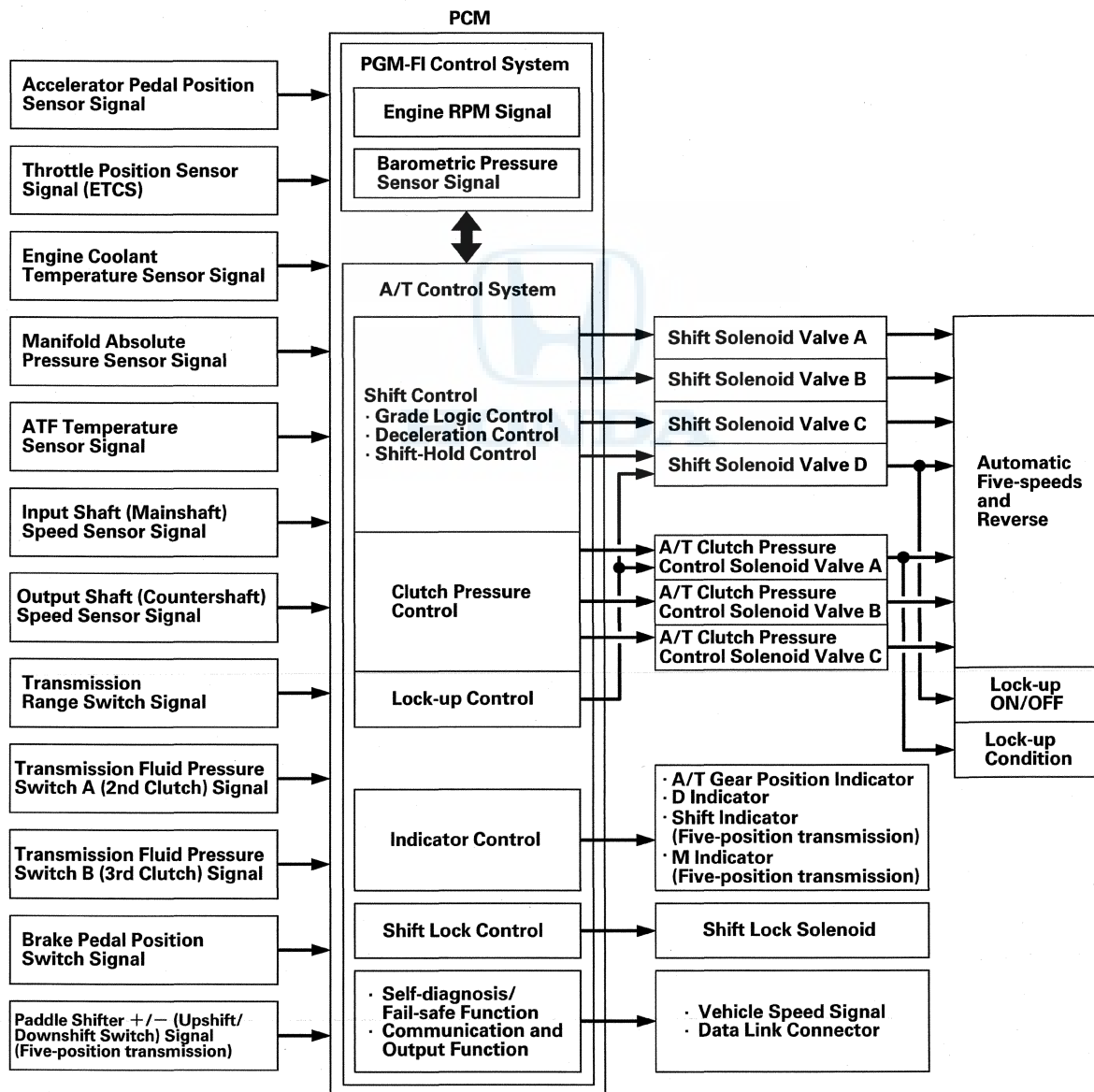
Electronic Control System

Electronic Control

The electronic control system consists of the powertrain control module (PCM), sensors, and seven solenoid valves. Shifting and lock-up are electronically controlled for comfortable driving under all conditions.

Functional Diagram

The PCM receives input signals from the sensors, switches, and other control units, processes data, and outputs signals for the engine control system and A/T control system. The A/T control system includes shift control, clutch pressure control, and lock-up control. The PCM switches the shift solenoid valves and the A/T clutch pressure control solenoid valves ON and OFF to control gear selection and torque converter clutch lock-up.



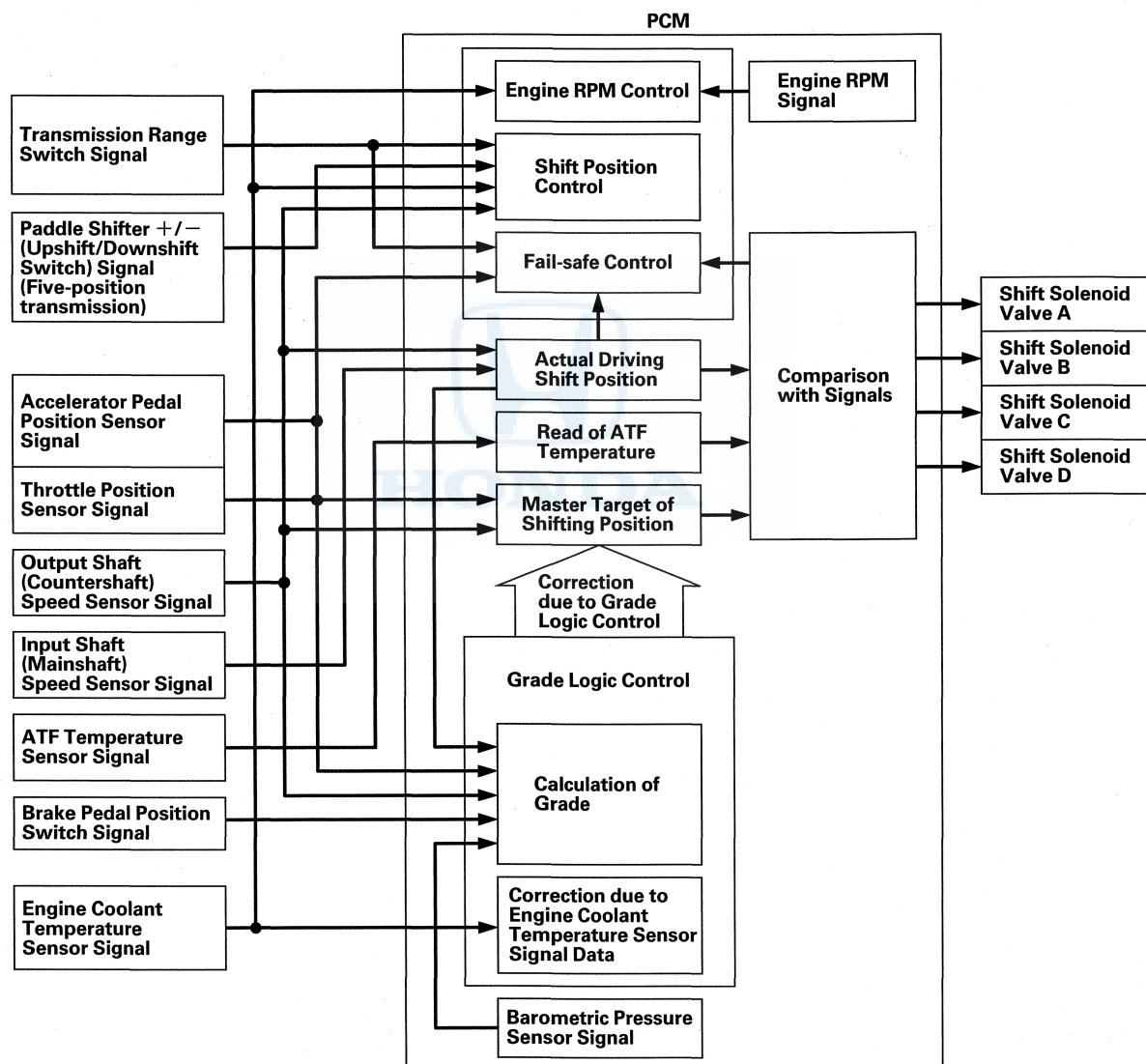


Shift Control

The PCM instantly determines which gear should be selected by various signals sent from sensors and switches, and it actuates the shift solenoid valves A, B, C, and D to control gear selection.

The shift control on the seven-position transmission includes the automatic shift control in D (1st through 5th gears) and D3 (1st through 3rd gears), the grade logic control, and the shift-hold control.

The shift control on the five-position transmission includes the automatic shift control in D (1st through 5th gears) and S (1st through 4th gears), manual shift mode control in D (D-paddle shift mode) and S (sequential sportshift mode), the grade logic control, and the shift-hold control.



(cont'd)

Automatic Transmission

System Description (cont'd)

Electronic Control System (cont'd)

Shift Control - Shift Solenoid Valves

Shift solenoid valves use the ON-OPEN/OFF-CLOSE type; the shift solenoid valve opens the port for shift solenoid valve pressure while the shift solenoid valve is turned ON by the PCM, and closes the port when shift solenoid valve is OFF.

The combination of driving signals to shift solenoid valves A, B, C, and D are shown in the table.

Position	Gear Position	Shift Solenoid Valve			
		A	B	C	D
D, D3, and S	Shifting from N	OFF	OFF	OFF	OFF
	Stays in 1st	OFF	ON	OFF	OFF or ON
	Shifting gears between 1st and 2nd	ON	ON	OFF	OFF or ON
	Stays in 2nd	ON	OFF	OFF	OFF or ON
	Shifting gears between 2nd and 3rd	OFF	OFF	OFF	OFF or ON
	Stays in 3rd	OFF	OFF	ON	OFF or ON
D and S	Shifting gears between 3rd and 4th	ON	OFF	ON	OFF or ON
	Stays in 4th	ON	ON	ON	OFF or ON
D	Shifting gears between 4th and 5th	OFF	ON	ON	OFF or ON
	Stays in 5th	OFF	ON	OFF	OFF or ON
S with sequential sportshift mode	1st	OFF	ON	OFF	OFF or ON
	2nd	ON	OFF	OFF	OFF or ON
	3rd	OFF	OFF	ON	OFF or ON
	4th	ON	ON	ON	OFF or ON
	5th	OFF	ON	OFF	OFF or ON
2	2nd	ON	OFF	OFF	OFF
1	1st	OFF	ON	OFF	OFF
N	Neutral	OFF	OFF	OFF	OFF
R	Shifting from P and N	OFF	OFF	ON	ON
	Stays in reverse	OFF	ON	ON	ON
	Reverse inhibit control	ON	OFF	ON	OFF
P	Park	OFF	OFF	OFF	ON



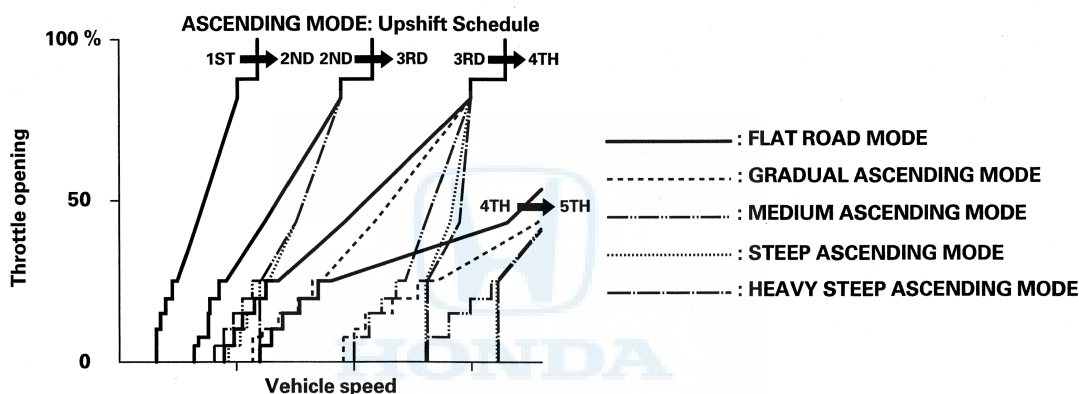
Shift Control - Grade Logic Control

The grade logic control system is used to control shifting in D, D3 (seven-position transmission), and S with automatic shift mode (five-position transmission). The PCM compares actual driving conditions with programmed driving conditions, based on the input from the throttle position sensor, the accelerator pedal position sensor, the engine coolant temperature sensor, the barometric pressure sensor, the brake pedal position switch signal, and the shift lever position signal, to control shifting while the vehicle is ascending or descending a slope.

Grade Logic Control: Ascending Control

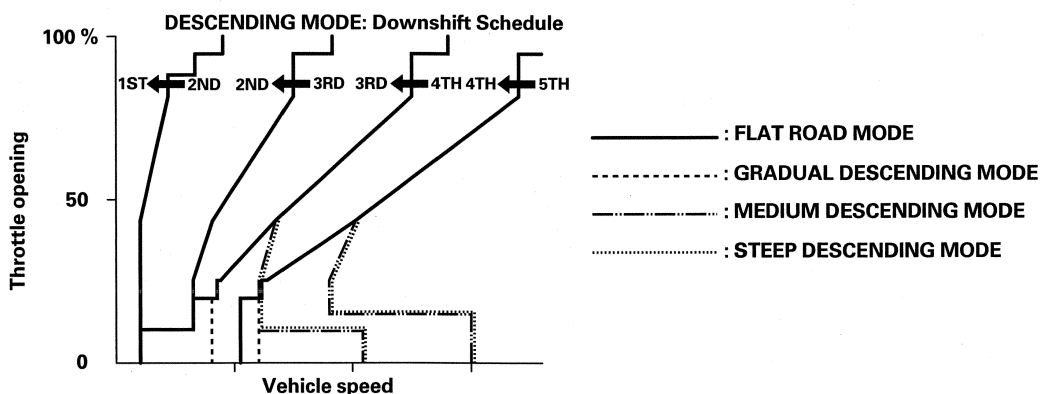
When the PCM determines that the vehicle is climbing a hill in D, D3 (seven-position transmission), and S with automatic shift mode (five-position transmission), the system extends the engagement area of 2nd gear, 3rd gear, and 4th gear to prevent the transmission from frequently shifting between 2nd and 3rd gears, between 3rd and 4th gears, and between 4th and 5th gears, so the vehicle can run smoothly, and have more power when needed.

NOTE: Shift commands stored in the PCM between 2nd and 3rd gears, between 3rd and 4th gears, and between 4th and 5th gears, enable the PCM to automatically select the most suitable gear based on the steepness of the grade.



Graded Logic Control: Descending Control

When the PCM determines that the vehicle is going down a hill in D, D3 (seven-position transmission), and S with automatic shift mode (five-position transmission), the upshift speed from 4th to 5th gear, 3rd to 4th gear, and from 2nd to 3rd (when the throttle is closed) becomes higher than the set speed for flat road driving to extend the 4th gear, 3rd gear, and 2nd gear driving areas. This, in combination with engine braking from the deceleration lock-up, achieves smooth driving when the vehicle is descending. There are three descending modes stored in the PCM with different 4th gear, 3rd gear, and 2nd gear driving areas, based on the steepness of the grade. When the vehicle is in 5th or 4th gear and you are decelerating while applying the brakes on a steep hill, the transmission downshifts to a lower gear. When you accelerate, the transmission then returns to a higher gear.



(cont'd)

Automatic Transmission

System Description (cont'd)

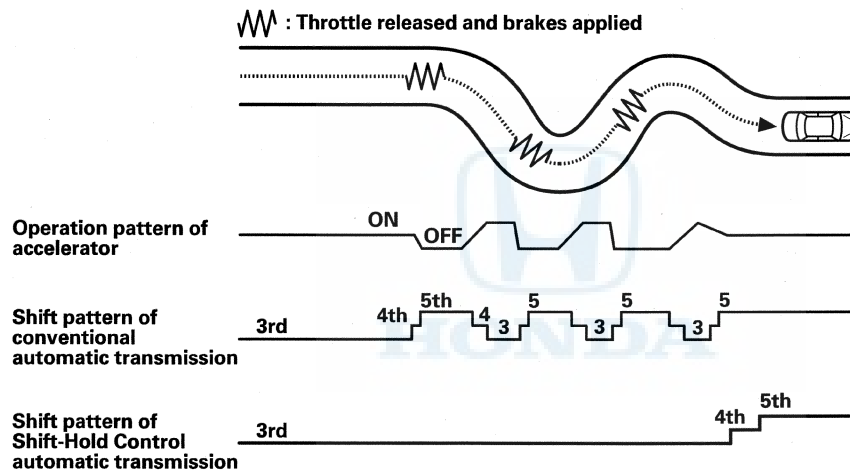
Electronic Control System (cont'd)

Shift-Hold Control

When negotiating winding roads, if the throttle is suddenly released and the brakes are applied, as is the case when decelerating at the entrance of a corner. The Shift-Hold Control keeps the transmission in its current (lower) gear as the driver negotiates the corner and accelerates out.

When the vehicle is driven aggressively on a winding road, the PCM extends the engagement time of 3rd gear and 4th gear to prevent the transmission from frequently shifting between 3rd, 4th, and 5th gears. This allows the driver to have more control for both acceleration and deceleration.

The PCM monitors the average change in vehicle speed, throttle, and differences in the rotational speed of the rear left and the rear right wheels over time. When these values exceed those for normal driving conditions, the upshift from 3rd to 4th gear and 4th to 5th gear is delayed. This gives more control over power, and engine braking when the driver is driving aggressively around winding roads. The transmission resumes the normal shift-up pattern after the PCM determines that normal driving has resumed.





Shift Control - Manual Shift Mode

The five-position transmission is provided with a D-paddle shift mode in D, and with a sequential sportshift mode in S.

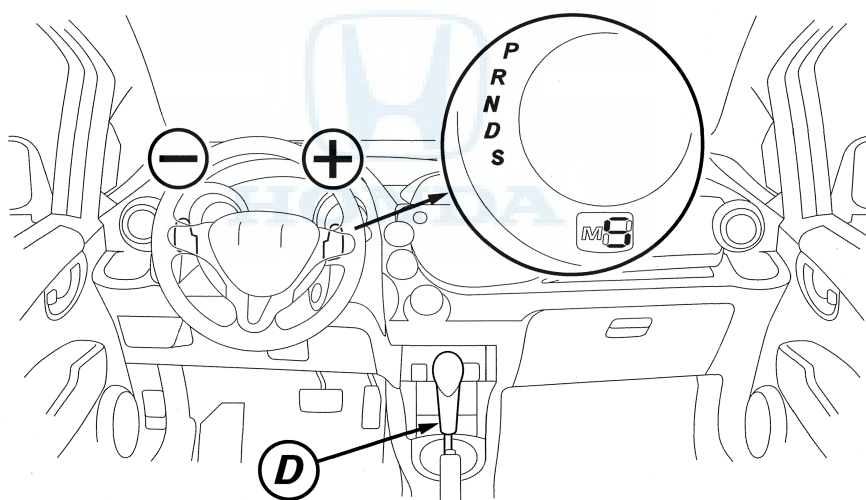
Either mode can be activated by pulling the paddle shifter + (upshift switch) or paddle shifter - (downshift switch) while driving with the shift lever in D or S.

D-Paddle Shift Mode

When the transmission is switched into the D-paddle shift mode by pulling the paddle shifters while driving in D, the transmission can shift into a lower gear by pulling the paddle shifter - (downshift switch), and it can shift into a higher gear by pulling the paddle shifter + (upshift switch). When the transmission shifts into a lower gear or a higher gear by pulling the paddle shifters, the shift indicator in the gauge control module displays the number of the currently selected gear. This number goes off when the transmission downshifts automatically, when the transmission upshifts automatically while coasting, or when pressing and holding the paddle shifter + (upshift switch) for about 2 seconds.

The transmission stays in 5th gear if the paddle shifter + (upshift switch) is pulled when driving in 5th gear, and the shift indicator displays "5" for 2 seconds, then goes off. The transmission stays in 1st gear if the paddle shifter - (downshift switch) is pulled when driving in 1st gear, and the shift indicator displays "1" for 2 seconds, then goes off.

The transmission stays in the current gear and does not upshift to the next higher gear if the paddle shifter + (upshift switch) is pulled while driving below the minimum allowable speed, and the shift indicator blinks the number of the next higher gear several times, then returns to the number of the current gear.



(cont'd)

Automatic Transmission

System Description (cont'd)

Electronic Control System (cont'd)

S Position Automatic Shift Mode and Sequential Sportshift Mode

The S position has two shifting modes; the automatic shift mode and the sequential sportshift mode. In the S position automatic shift mode, the transmission upshifts and downshifts automatically from 1st through 4th gear, and the paddle shifters are ready to be activated to switch to the sequential sportshift mode. In the automatic shift mode, the shift indicator and the M indicator in the gauge control module do not come on.

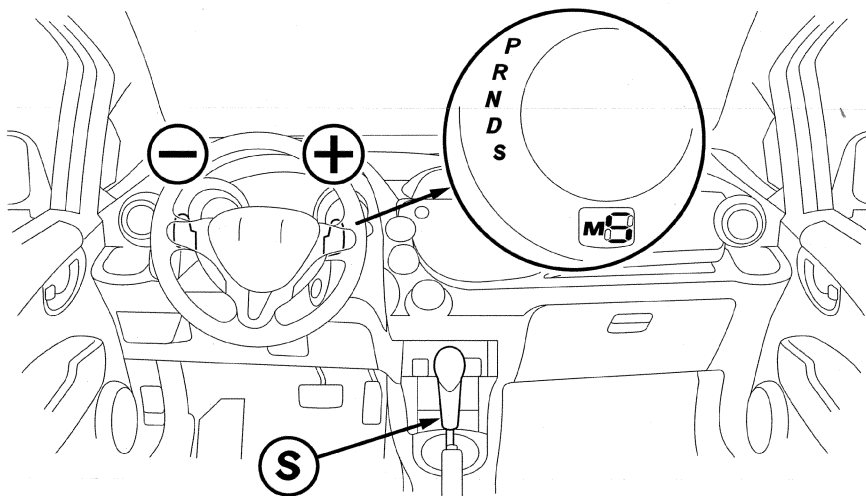
When the paddle shifter + (upshift switch) or paddle shifter - (downshift switch) is pulled, the automatic shift mode is canceled and the sequential sportshift mode comes into operation. The shift indicator displays the number of the selected gear, and the M indicator comes on. In the sequential sportshift mode, the driver can shift up and down manually from 1st through 5th gear by using the paddle shifters, much like a manual transmission. The paddle shifters are mounted on the back of the steering wheel, and the driver can shift gears by pulling the paddle shifters without taking either hand off the steering wheel.

In the sequential sportshift mode, the transmission must be shifted up and down by pulling the paddle shifters. However, the transmission cannot downshift and stays in the current gear if the paddle shifter - (downshift switch) is pulled while the vehicle is coasting at a speed that would cause the engine to over-rev by downshifting the transmission, and the shift indicator blinks the number of the selected gear several times, then returns to the number of the current gear. If the vehicle speed reaches an appropriate speed while the shift indicator is blinking the number of the selected gear, the transmission downshifts and the shift indicator displays the selected gear. The transmission also cannot upshift and stays in the current gear if the paddle shifter + (upshift switch) is pulled while driving below an appropriate upshifting speed, the shift indicator blinks the number of the selected gear several times, then returns to the number of the current gear. If the vehicle speed reaches an appropriate upshift speed while the shift indicator is blinking the number of the selected gear, the transmission upshifts and the shift indicator displays the selected gear.

This mode has automatic downshifting areas so the vehicle can run smoothly with more power to cope with upcoming acceleration. When coasting in 5th gear or 4th gear, the transmission downshifts to the next lower gear if the vehicle slows down to the programmed speed, or by pressing the brake pedal.

When the transmission decelerates to a stop, the transmission shifts to 1st gear automatically. The transmission can be shifted to 2nd gear by pulling the paddle shifter + (upshift switch) while the vehicle is stopped, and the vehicle can start off in 2nd gear.

The sequential sportshift mode is canceled when moving the shift lever to any position other than S.

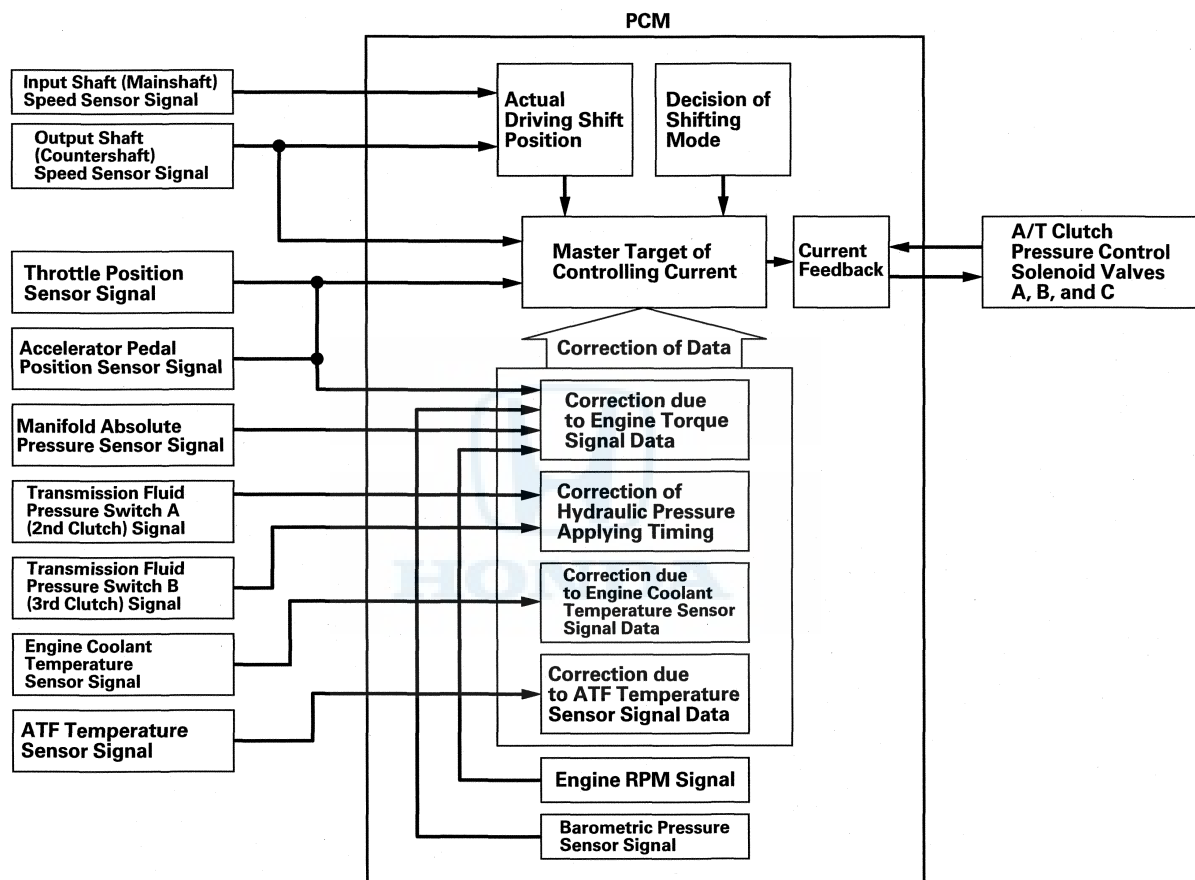




Clutch Pressure Control

The PCM actuates A/T clutch pressure control solenoid valves A, B, and C to control the clutch pressure. When shifting between the lower and higher gears, the clutch pressure regulated by A/T clutch pressure control solenoid valves A, B, and C engages and disengages the clutch smoothly.

The PCM receives input signals from the various sensors and switches, processes the data, and outputs current to A/T clutch pressure control solenoid valves A, B, and C.



(cont'd)

Automatic Transmission

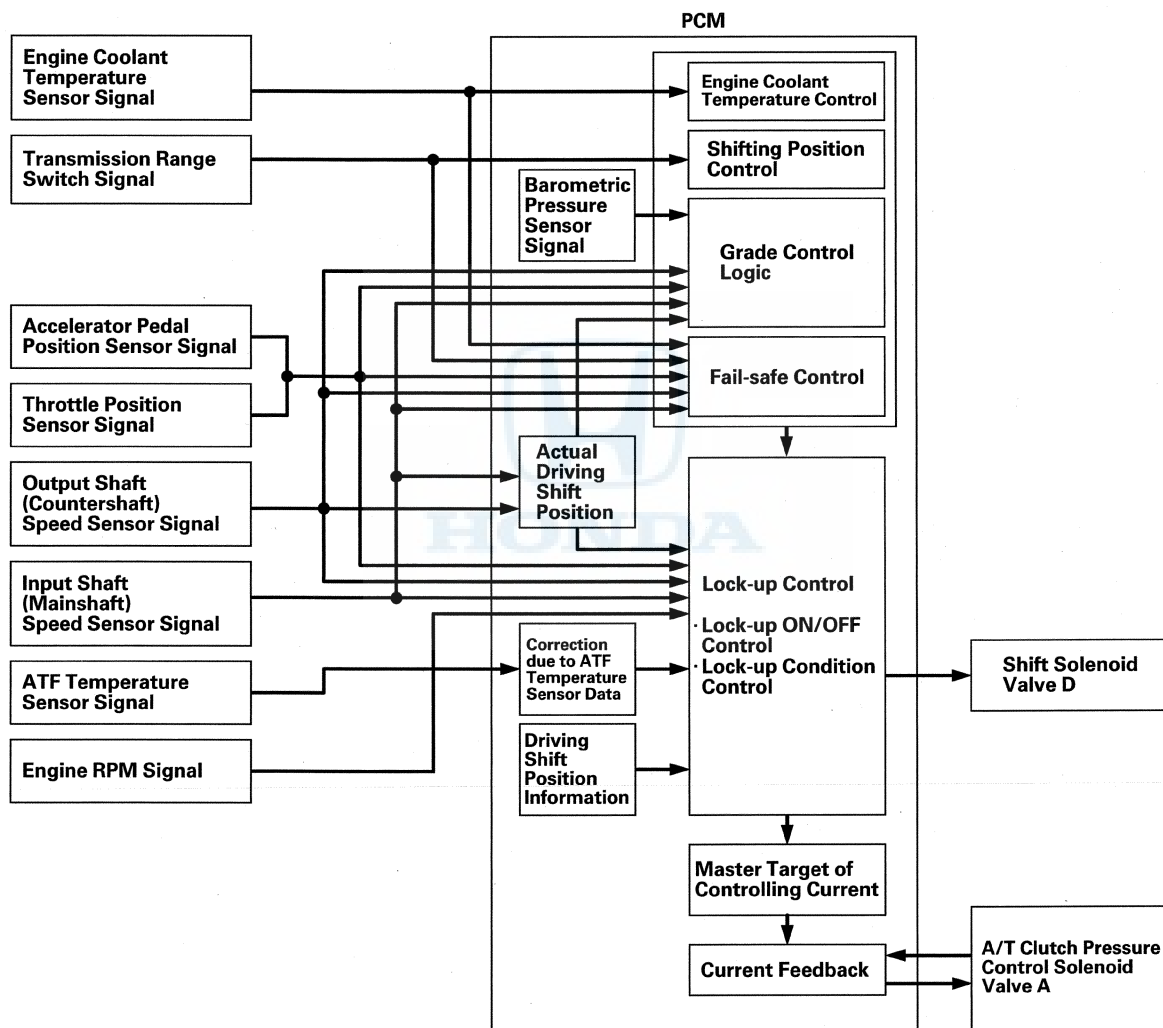
System Description (cont'd)

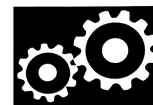
Electronic Control System (cont'd)

Lock-up Control

Shift solenoid valve D controls the hydraulic pressure to switch the lock-up shift valve ON and OFF. When the PCM turns shift solenoid valve D and A/T clutch pressure control solenoid valve A ON, lock-up starts. A/T clutch pressure control solenoid valve A regulates and applies hydraulic pressure to the lock-up control valve to control the degree of the lock-up.

The lock-up mechanism operates in all five gears in D, in 3rd gear in D3, and in 3rd and 4th gears in S.





Self-diagnosis

If the PCM detects the failure of a signal from a sensor, a switch, a solenoid valve, or from another control unit, it stores a Pending DTC or a Confirmed DTC. Depending on the failure, a Confirmed DTC is stored in either the first or the second drive cycle. When a Confirmed DTC is stored, the PCM blinks the D indicator and/or turns on the malfunction indicator lamp (MIL) by a signal sent to the gauge control module via F-CAN.

- **One Drive Cycle Detection Method**

When an abnormality occurs in the signal from a sensor, a switch, a solenoid valve, or from another control unit, the PCM stores a Pending and Confirmed DTC for the failure and blinks the D indicator and/or turns on the MIL immediately.

- **Two Drive Cycle Detection Method**

When an abnormality occurs in the signal from a sensor, a switch, a solenoid valve, or from another control unit in the first drive cycle, the PCM stores a Pending DTC. The D indicator and the MIL do not turn on at this time. If the failure continues in the second drive cycle, the PCM stores a Confirmed DTC and blinks the D indicator and/or turns on the MIL.

Fail-safe Function

When an abnormality occurs in the signal from a sensor, a switch, a solenoid valve, or from another control unit, the PCM ignores that signal and substitutes a pre-programmed value for that signal allows the automatic transmission to continue operation. This causes a Confirmed DTC to be stored and the D indicator to blink and/or the MIL to come on. The transmission may not shift normally driving fail-safe operation. Do not run the test-driving diagnosis when the MIL is ON, or the D indicator is blinking.



(cont'd)

Automatic Transmission

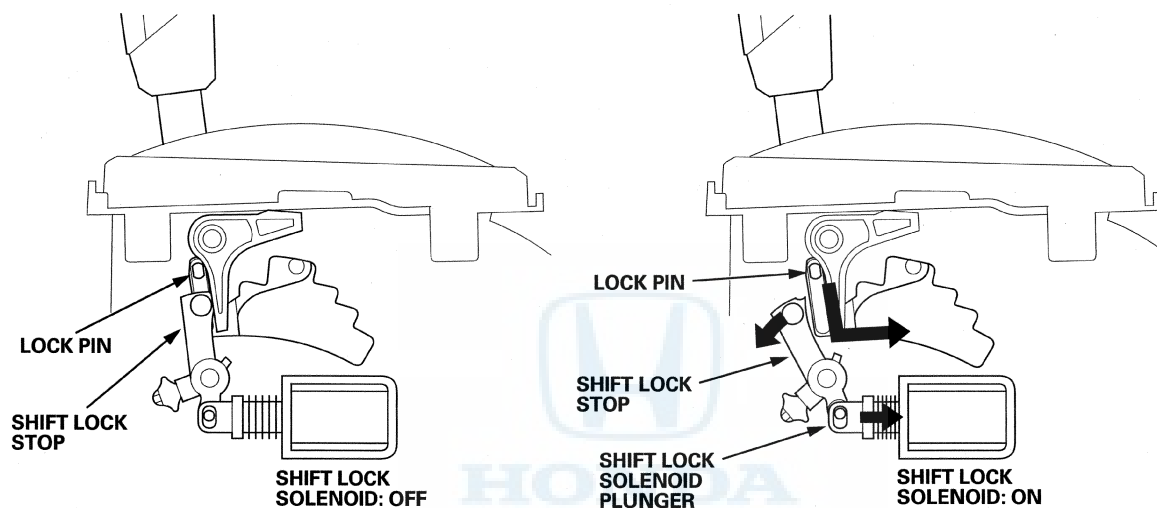
System Description (cont'd)

Electronic Control System (cont'd)

Shift Lock Control

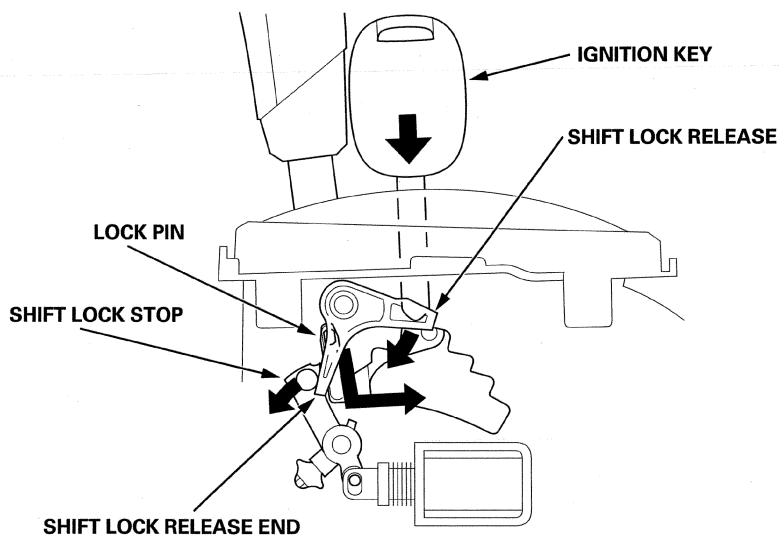
The shift lock control system prevents the risk of unintentional engine starting. Starting the engine is possible only in P and N. The shift lever cannot be shifted out of P without pressing the brake pedal and releasing the accelerator. The shift lock mechanism consists of the shift lock solenoid, shift lock stop, shift lock release, and related parts. The shift lock solenoid is electronically controlled by the shift lock control system signals.

In P without pressing the brake pedal or while pressing the accelerator, the shift lock solenoid remains OFF. The shift lever cannot be shifted out of P because the shift lock stop stops the lock pin. However while the brake pedal is pressed and the accelerator is released, the shift lock solenoid is turned ON, and the shift lock solenoid plunger is retracted, releasing the shift lock stop. Pushing the shift lever button passes the lock pin through the shift lock stop, and allows the shift lever to be shifted out of P.



The illustration shows the seven-position transmission.

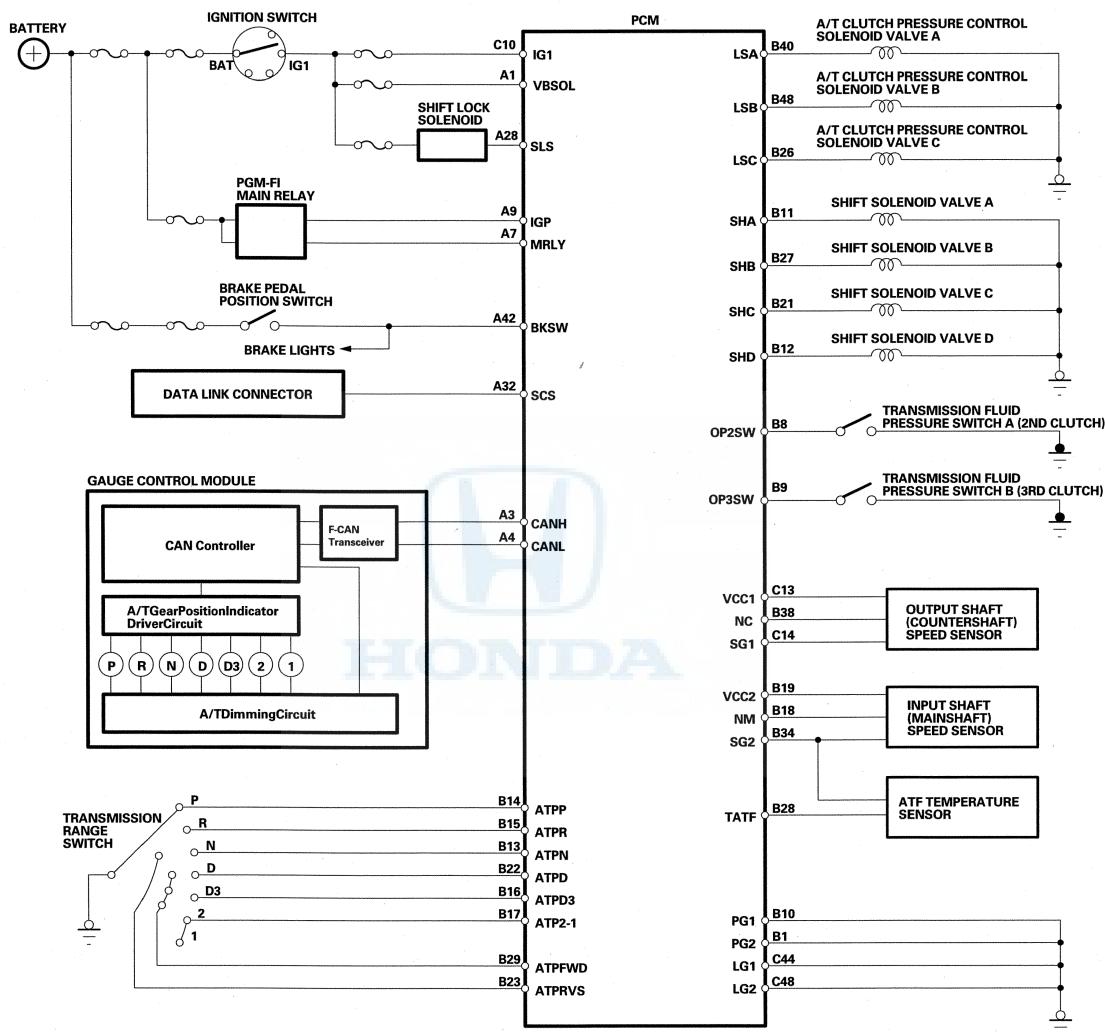
When a shift lock control system malfunction or a mechanical problem occurs, the shift lever can be shifted out of P by pressing the shift lock release with the ignition key or a screwdriver. Pushing the shift lock release releases the shift lock stop, and allows the shift lever to be shifted out of P.



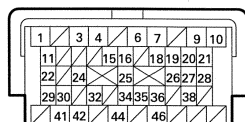
The illustration shows the seven-position transmission.



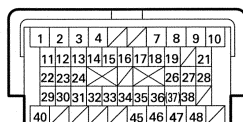
PCM A/T Control System Electrical Connections - Seven-position Transmission



PCM Harness Connector Terminal Locations

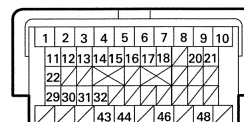


A (49P) □



B (49P) △

Terminal side of female terminals



C (49P) ○

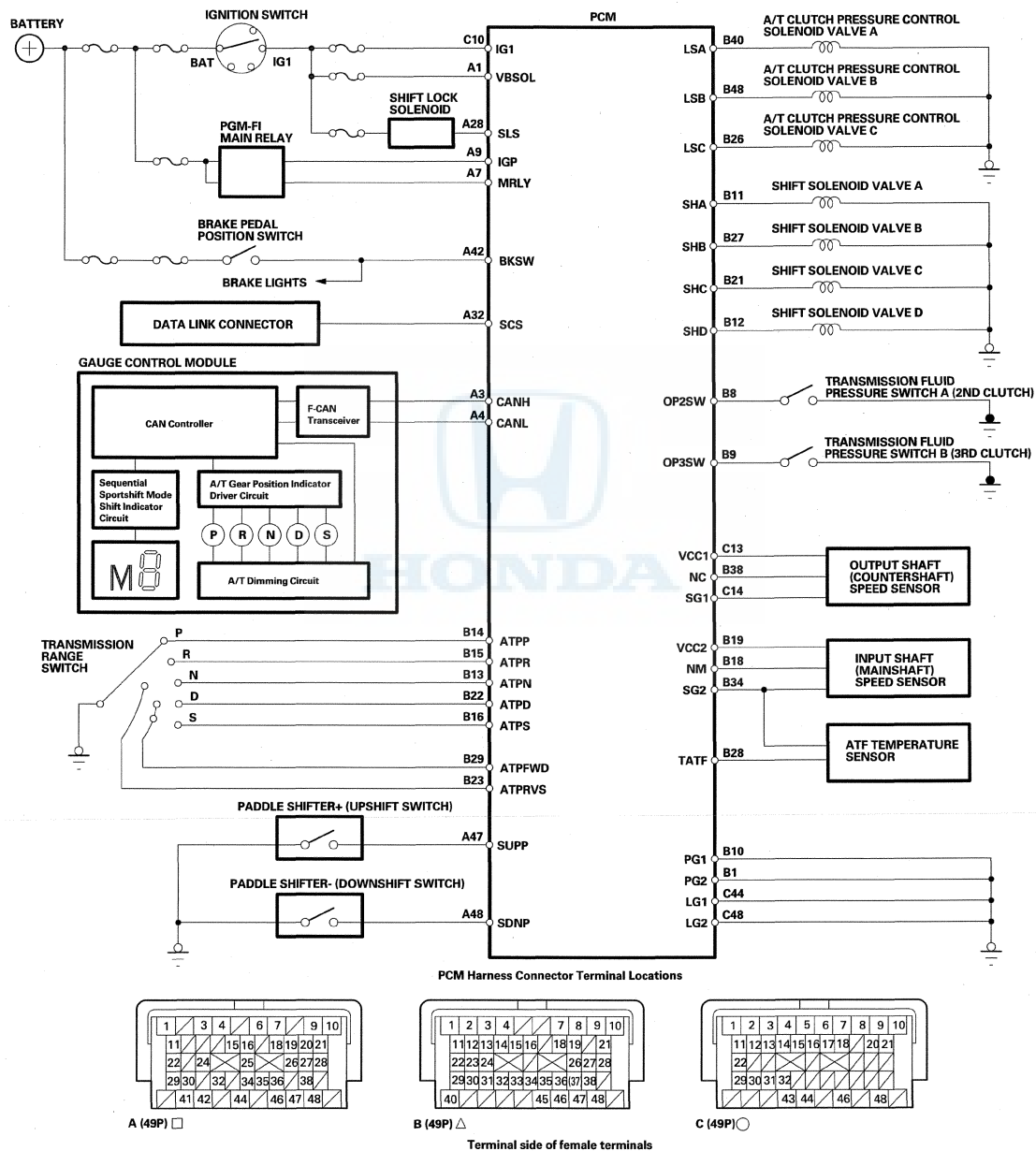
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Automatic Transmission

System Description (cont'd)

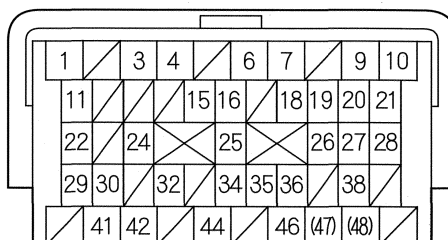
Electronic Control System (cont'd)

PCM A/T Control System Electrical Connections - Five-position Transmission





PCM A/T Control System Inputs and Outputs at PCM Connector A □ (49P)



Terminal side of female terminals

Terminal number	Wire color	Terminal name	Description	Signal
1	BRN	VBSOL (POWER SOURCE FOR SOLENOID VALVES)	Power source for solenoid valves	With ignition switch ON (II): battery voltage
3	WHT	F-CAN H (CAN COMMUNICATION SIGNAL HIGH)	Sends communication signal	With ignition switch ON (II): about 2.5 V (pulses)
4	RED	F-CAN L (CAN COMMUNICATION SIGNAL LOW)	Sends communication signal	With ignition switch ON (II): about 2.5 V (pulses)
7	BLU	MRLY (PGM-FI MAIN RELAY 1)	Drives PGM-FI main relay 1	With ignition switch ON (II): about 0 V With ignition switch in LOCK (0): battery voltage
9	LT GRN	IGP (POWER SOURCE)	Power source for PCM circuit	With ignition switch ON (II): battery voltage
18	ORN	APSA (ACCELERATOR PEDAL POSITION (APP) SENSOR A)	Detects APP sensor A signal	With ignition switch ON (II) and accelerator pedal released: about 1.0 V With ignition switch ON (II) and accelerator pedal pressed: about 4.5 V
19	LT BLU	APSB (ACCELERATOR PEDAL POSITION (APP) SENSOR B)	Detects APP sensor B signal	With ignition switch ON (II) and accelerator pedal released: about 0.5 V With ignition switch ON (II) and accelerator pedal pressed: about 2.3 V
25	GRY	VCC5 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
26	BRN	VCC4 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V

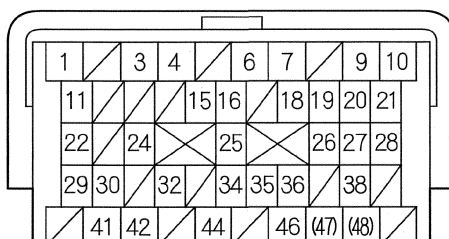
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Automatic Transmission

System Description (cont'd)

Electronic Control System (cont'd)

PCM A/T Control System Inputs and Outputs at PCM Connector A □ (49P)

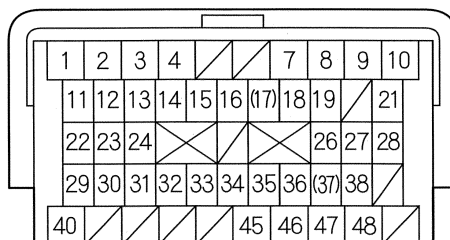


Terminal side of female terminals

Terminal number	Wire color	Terminal name	Description	Signal
28	PNK	SLS (SHIFT LOCK SOLENOID)	Drives shift lock solenoid	With ignition switch ON (II), in P, brake pedal pressed, and accelerator released: about 0 V
32	YEL	SCS (SERVICE CHECK SIGNAL)	Detects service check signal	With service check signal shorted using the HDS: about 0 V With service check signal opened: about 5.0 V
35	WHT	SG5 (SENSOR GROUND)	Sensor ground	Less than 0.2 V at all times
36	BLU	SG4 (SENSOR GROUND)	Sensor ground	Less than 0.2 V at all times
42	LT GRN	BKSW (BRAKE PEDAL POSITION SWITCH)	Detects brake pedal position switch signal	With brake pedal released: about 0 V With brake pedal pressed: battery voltage
47 (Five-position)	YEL	SUPP (PADDLE SHIFTER + UPSHIFT SWITCH)	Detects paddle shifter + (upshift switch) signal	With ignition switch ON (II): • With paddle shifter + (upshift switch) pressed: about 0 V • With paddle shifter + (upshift switch) released: battery voltage
48 (Five-position)	LT BLU	SDNP (PADDLE SHIFTER — DOWNSHIFT SWITCH)	Detects paddle shifter — (downshift switch) signal	With ignition switch ON (II): • With paddle shifter — (downshift switch) pressed: about 0 V • With paddle shifter — (downshift switch) released: battery voltage



PCM A/T Control System Inputs and Outputs at PCM Connector B △ (49P)



Terminal side of female terminals

Terminal number	Wire color	Terminal name	Description	Signal
1	BRN ^{*(1)} BLK ^{*(2)}	PG2 (POWER GROUND)	Ground circuit for PCM circuit	Less than 0.2 V at all times
8	BLU/RED ^{*(1)} BLU ^{*(2)}	OP2SW (TRANSMISSION FLUID PRESSURE SWITCH A (2ND CLUTCH))	Detects transmission fluid pressure switch A (2nd clutch) input signal	With ignition switch ON (II): • Without 2nd clutch pressure: about 5.0 V • With 2nd clutch pressure: about 0 V
9	BLU/WHT ^{*(1)} PNK ^{*(2)}	OP3SW (TRANSMISSION FLUID PRESSURE SWITCH B (3RD CLUTCH))	Detects transmission fluid pressure switch B (3rd clutch) input signal	With ignition switch ON (II): • Without 3rd clutch pressure: about 5.0 V • With 3rd clutch pressure: about 0 V
10	BLK	PG1 (POWER GROUND)	Ground circuit for PCM circuit	Less than 0.2 V at all times
11	BLU/BLK ^{*(1)} LT GRN ^{*(2)}	SHA (SHIFT SOLENOID VALVE A)	Drives shift solenoid valve A	With engine running in D (in 2nd and 4th gears), S (in 2nd and 4th gears), D3 (in 2nd gear), and 2: battery voltage With engine running in P, R, N, 1, D (in 1st, 3rd, and 5th gears), S (in 1st, 3rd, and 5th gears), and D3 (in 1st and 3rd gears): about 0 V
12	GRN/RED ^{*(1)} RED ^{*(2)}	SHD (SHIFT SOLENOID VALVE D)	Drives shift solenoid valve D	With engine running in P and R: battery voltage With engine running in N: about 0 V
13	RED/BLK ^{*(1)} WHT ^{*(2)}	ATPN (TRANSMISSION RANGE SWITCH IN N)	Detects transmission range switch N position input signal	With ignition switch ON (II) in N: about 0 V With ignition switch ON (II) in any position other than N: battery voltage
14	BLU/BLK ^{*(1)} GRN ^{*(2)}	ATPP (TRANSMISSION RANGE SWITCH IN P)	Detects transmission range switch P position input signal	With ignition switch ON (II) in P: about 0 V With ignition switch ON (II) in any position other than P: battery voltage
15	WHT ^{*(1)} PUR ^{*(2)}	ATPR (TRANSMISSION RANGE SWITCH IN R)	Detects transmission range switch R position input signal	With ignition switch ON (II) in R: about 0 V With ignition switch ON (II) in any position other than R: battery voltage

* (1): '09 - 10 models

* (2): '11 - 12 model

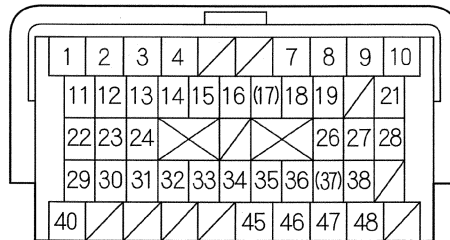
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Automatic Transmission

System Description (cont'd)

Electronic Control System (cont'd)

PCM A/T Control System Inputs and Outputs at PCM Connector B △ (49P)



Terminal side of female terminals

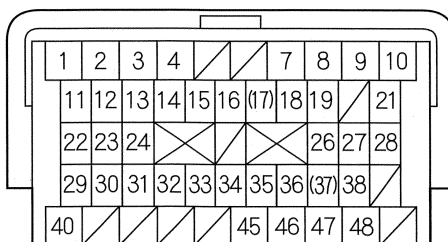
Terminal number	Wire color	Terminal name	Description	Signal
16 (Seven-position)	RED ^{*(1)} LT BLU ^{*(2)}	ATPD3 (TRANSMISSION RANGE SWITCH IN D3)	Detects transmission range switch D3 position input signal	With ignition switch ON (II) in D3: about 0 V With ignition switch ON (II) in any position other than D3: battery voltage
16 (Five-position)	RED ^{*(1)} LT BLU ^{*(2)}	ATPS (TRANSMISSION RANGE SWITCH IN S)	Detects transmission range switch S position input signal	With ignition switch ON (II) in S: about 0 V With ignition switch ON (II) in any position other than S: battery voltage
17 (Seven-position)	BLU	ATP2-1 (TRANSMISSION RANGE SWITCH 2-1)	Detects transmission range switch 2 and 1 position input signal	With ignition switch ON (II) in 2 and 1: about 0 V With ignition switch ON (II) in any position other than 2 and 1: battery voltage
18	WHT/RED ^{*(1)} RED ^{*(2)}	NM (INPUT SHAFT (MAINSHAFT) SPEED SENSOR)	Detects input shaft (mainshaft) speed sensor signal	With ignition switch ON (II): about 0 V or about 5.0 V With engine running in N: pulses
19	YEL/BLU ^{*(1)} TAN ^{*(2)}	VCC2 (SENSOR VOLTAGE)	Provides sensor voltage	With ignition switch ON (II): about 5.0 V
21	GRN ^{*(1)} BLU ^{*(2)}	SHC (SHIFT SOLENOID VALVE C)	Drives shift solenoid valve C	With engine running in R, D (in 3rd and 4th gears), S (in 3rd and 4th gears), and D3 (in 3rd gear): battery voltage With engine running in P, N, 2, 1, D (in 1st, 2nd, and 5th gears), S (in 1st, 2nd, and 5th gears), and D3 (in 1st and 2nd gears): about 0 V
22	PNK	ATPD (TRANSMISSION RANGE SWITCH IN D)	Detects transmission range switch D position input signal	With ignition switch ON (II) in D: about 0 V With ignition switch ON (II) in any position other than D: battery voltage
23	YEL	ATPRVS (TRANSMISSION RANGE SWITCH IN RVS)	Detects transmission range switch R position input signal	With ignition switch ON (II) in R: about 0 V With ignition switch ON (II) in any position other than R: battery voltage

*(1): '09 - 10 models

*(2): '11 - 12 model



PCM A/T Control System Inputs and Outputs at PCM Connector B △ (49P)



Terminal side of female terminals

Terminal number	Wire color	Terminal name	Description	Signal
26	BLU/YEL ^{*(1)} RED ^{*(2)}	LSC (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C)	Drives A/T clutch pressure control solenoid valve C	With ignition switch ON (II): duty controlled
27	GRN/WHT ^{*(1)} PUR ^{*(2)}	SHB (SHIFT SOLENOID VALVE B)	Drives shift solenoid valve B	With engine running in R, 1, D (in 1st, 4th, and 5th gears), S (in 1st, 4th, and 5th gears), and D3 (in 1st gear): battery voltage With engine running in P, N, 2, D (in 2nd and 3rd gears), S (in 2nd and 3rd gears), and D3 (in 2nd and 3rd gears): about 0 V
28	RED/YEL ^{*(1)} WHT ^{*(2)}	TATF (ATF TEMPERATURE SENSOR)	Detects ATF temperature signal	With ignition switch ON (II): about 0.2—4.0 V (depending on ATF temperature)
29	BLU/YEL ^{*(1)} TAN ^{*(2)}	ATPFWD (TRANSMISSION RANGE SWITCH IN FWD)	Detects transmission range switch D, D3, 2, and S position input signals	With ignition switch ON (II) in D, D3, 2, and S: about 0 V With ignition switch ON (II) in any position other than D, D3, 2, and S: battery voltage
34	GRN/YEL ^{*(1)} GRY ^{*(2)}	SG2 (SENSOR GROUND)	Sensor ground	Less than 0.2 V at all times
38	BLK/WHT ^{*(1)} LT BLU ^{*(2)}	NC (OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR)	Detects output shaft (countershaft) speed sensor signal	With ignition switch ON (II): about 0 V or about 5.0 V Driving: pulses
40	RED/BLK ^{*(1)} LT BLU ^{*(2)}	LSA (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A)	Drives A/T clutch pressure control solenoid valve A	With ignition switch ON (II): duty controlled
48	BRN/WHT ^{*(1)} YEL ^{*(2)}	LSB (A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B)	Drives A/T clutch pressure control solenoid valve B	With ignition switch ON (II): duty controlled

* (1): '09 - 10 models

* (2): '11 - 12 model

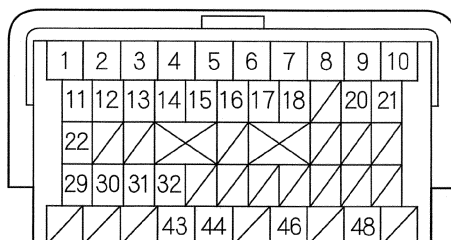
(cont'd)

Automatic Transmission

System Description (cont'd)

Electronic Control System (cont'd)

PCM A/T Control System Inputs and Outputs at PCM Connector C ○ (49P)



Terminal side of female terminals

Terminal number	Wire color	Terminal name	Description	Signal
10	BLK/RED ^{*(1)} TAN ^{*(2)}	IG1 (IGNITION SIGNAL)	Detects ignition signal	With ignition switch ON (II): battery voltage
13	YEL/RED ^{*(1)} PNK ^{*(2)}	VCC1 (SENSOR VOLTAGE)	Provides sensor reference voltage	With ignition switch ON (II): about 5.0 V
14	GRN/WHT ^{*(1)} BLU ^{*(2)}	SG1 (SENSOR GROUND)	Sensor ground	Less than 0.2 V at all times
44	BRN/YEL ^{*(1)} BRN ^{*(2)}	LG1 (LOGIC GROUND)	Ground circuit for PCM circuit	Less than 0.2 V at all times
48	BRN/YEL ^{*(1)} BRN ^{*(2)}	LG2 (LOGIC GROUND)	Ground circuit for PCM circuit	Less than 0.2 V at all times

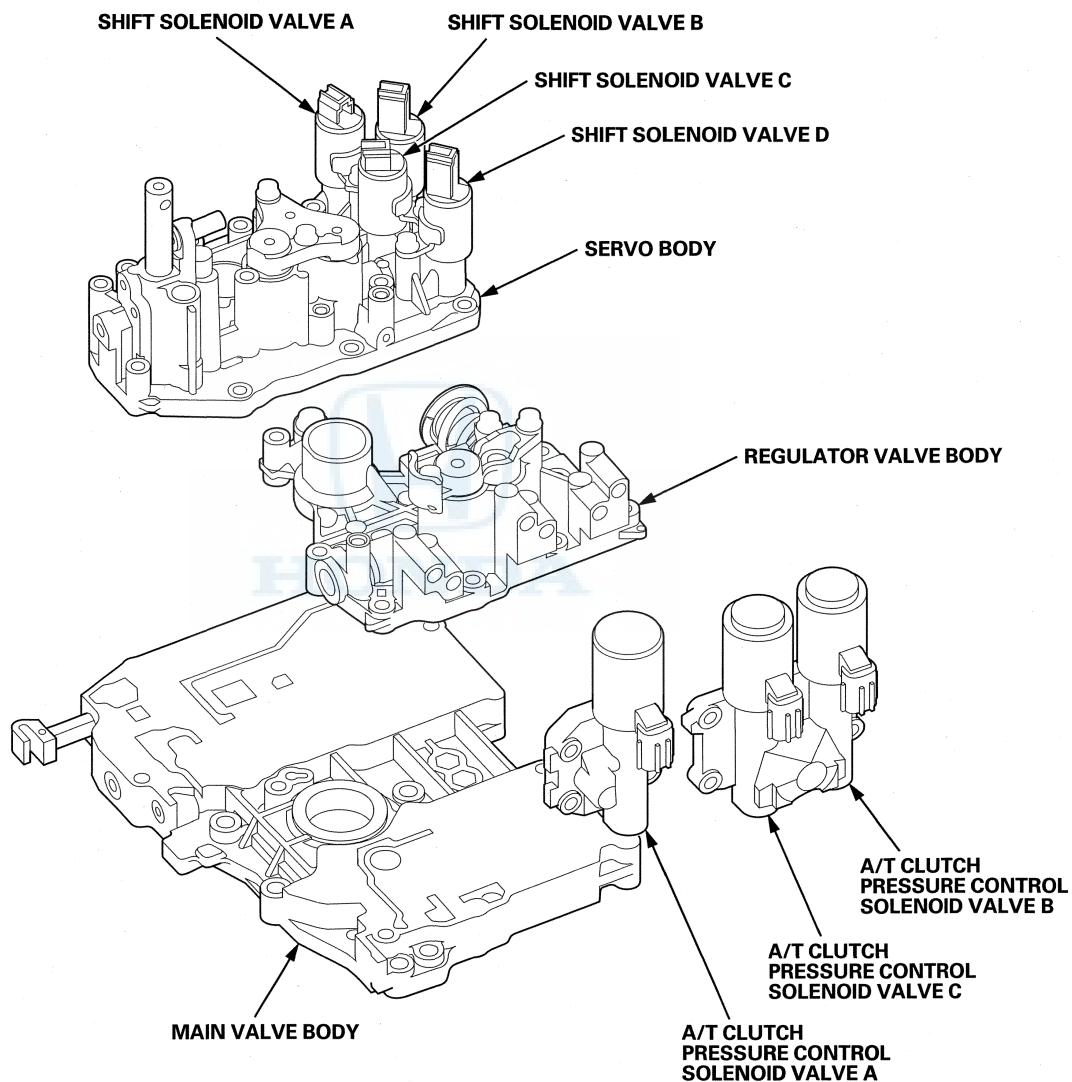
* (1): '09 - 10 models

* (2): '11 - 12 model



Hydraulic Controls

The valve body includes the main valve body, the regulator valve body, and the servo body. The ATF pump is driven by splines on the end of the torque converter which is attached to the engine. Fluid flows through the regulator valve to maintain specified pressure through the main valve body to the manual valve, directing pressure to each of the clutches. Shift solenoid valves A, B, C, and D are mounted on the servo body. A/T clutch pressure control solenoid valves A, B, and C are mounted on the transmission housing.



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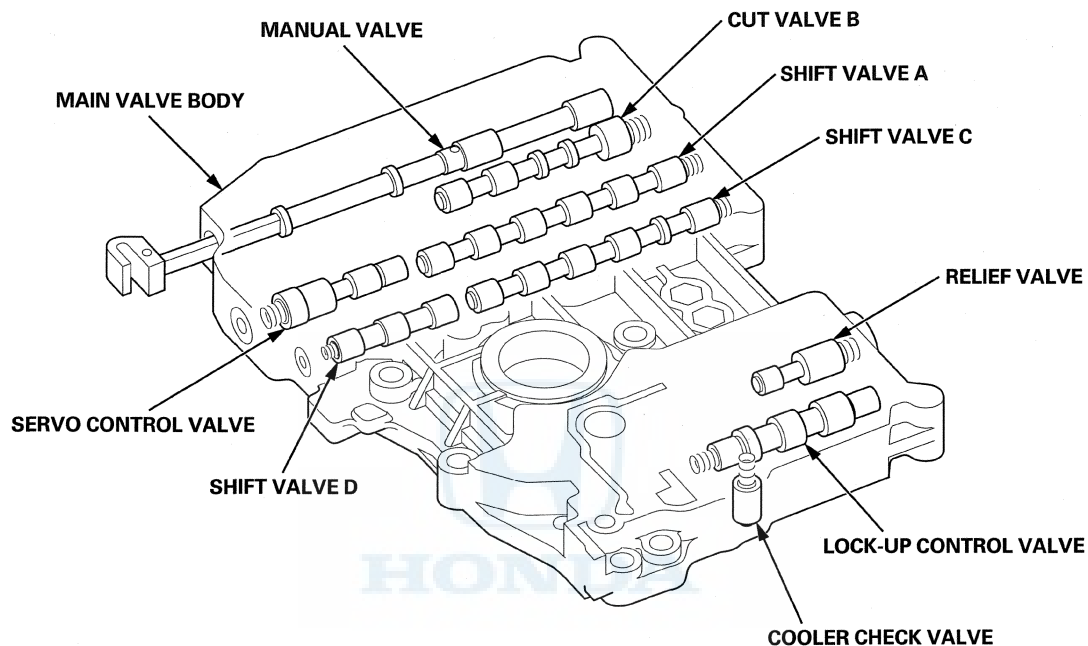
Automatic Transmission

System Description (cont'd)

Hydraulic Controls (cont'd)

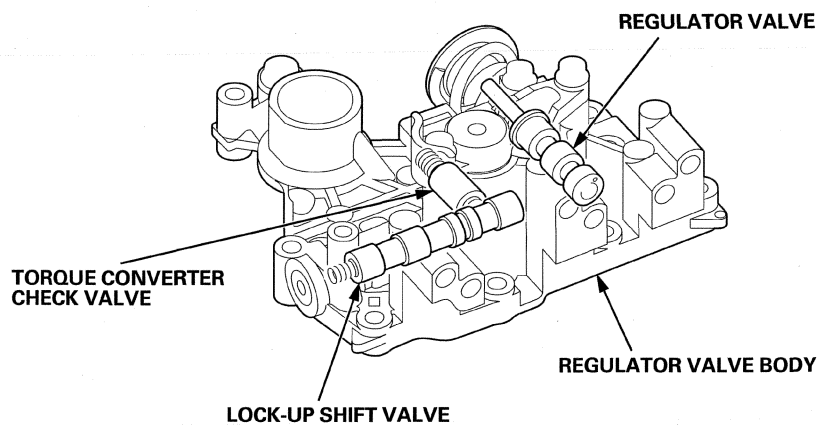
Main Valve Body

The main valve body contains the manual valve, cut valve B, shift valves A, C, and D, the relief valve, the lock-up control valve, the cooler check valve, the servo control valve, and the ATF pump gears. The primary function of the main valve body is to switch fluid pressure on and off to control hydraulic pressure going to the hydraulic control system.



Regulator Valve Body

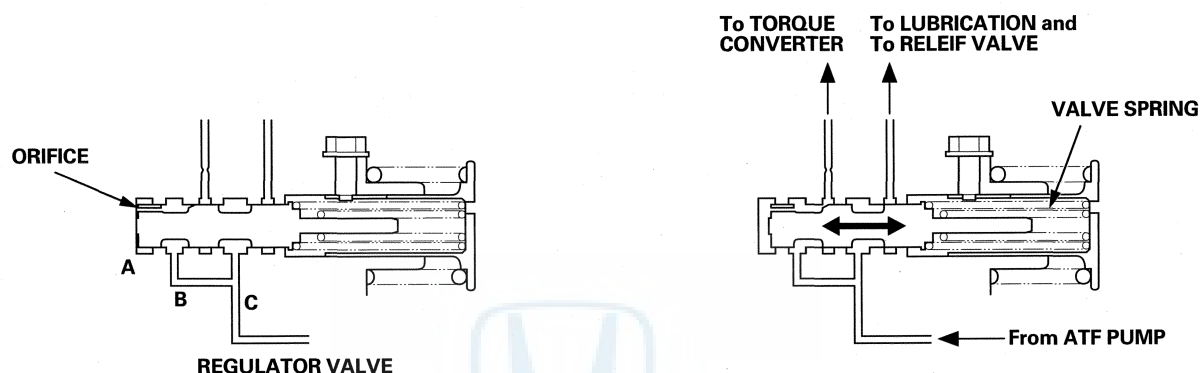
The regulator valve body is located on the main valve body. The regulator valve body contains the regulator valve, the torque converter check valve, the lock-up shift valve, the 1st accumulator, and the 4th accumulator.



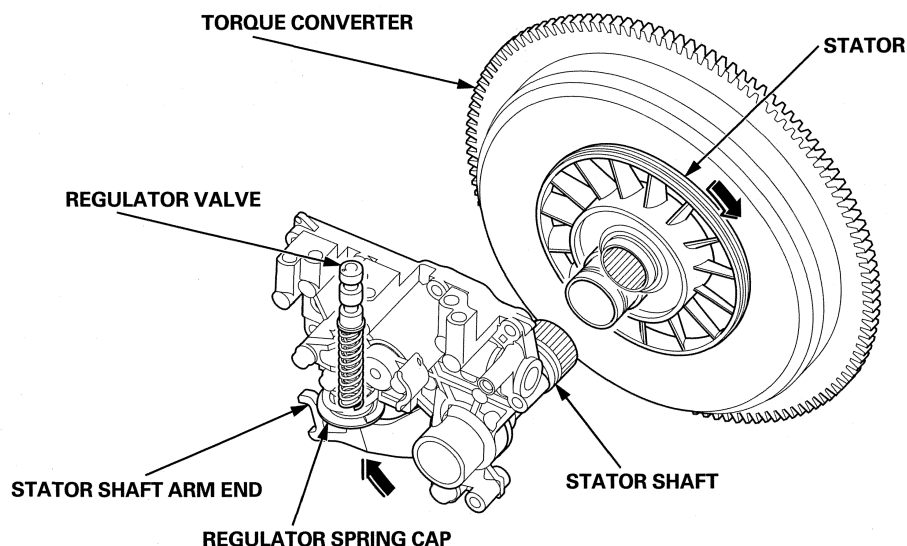


Regulator Valve

The regulator valve maintains constant hydraulic pressure from the ATF pump to the hydraulic control system. While also furnishing fluid to the lubrication system and torque converter. Fluid from the ATF pump flows through B and C. Fluid entering from B flows through the valve orifice to the A cavity. This pressure in the A cavity pushes the regulator valve to the spring side, and this movement of the regulator valve uncovers the fluid port to the torque converter and the relief valve. The fluid flows out to the torque converter and the relief valve, and the regulator valve returns under spring force. According to the level of the hydraulic pressure through B, the position of the regulator valve changes, and the amount of fluid from C through the torque converter changes. This operation is continued, maintaining the line pressure.



Increases in hydraulic pressure according to torque are regulated by the regulator valve using stator torque reaction. The stator shaft is splined to the stator in the torque converter, and the stator shaft arm end contacts the regulator spring cap. When the vehicle is accelerating or climbing (torque converter range), stator torque reaction acts on the stator shaft, and the stator shaft arm end pushes the regulator spring cap in the direction of the arrow in proportion to the reaction. The stator reaction spring compresses, and the regulator valve moves to increase the line pressure which is regulated by the regulator valve. The line pressure reaches its maximum when the stator torque reaction reaches its maximum.



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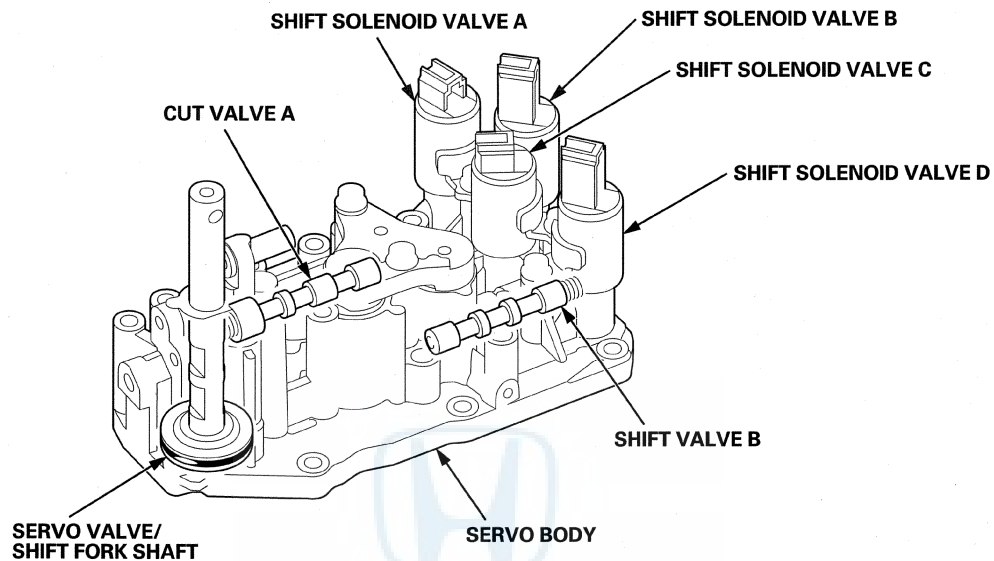
Automatic Transmission

System Description (cont'd)

Hydraulic Controls (cont'd)

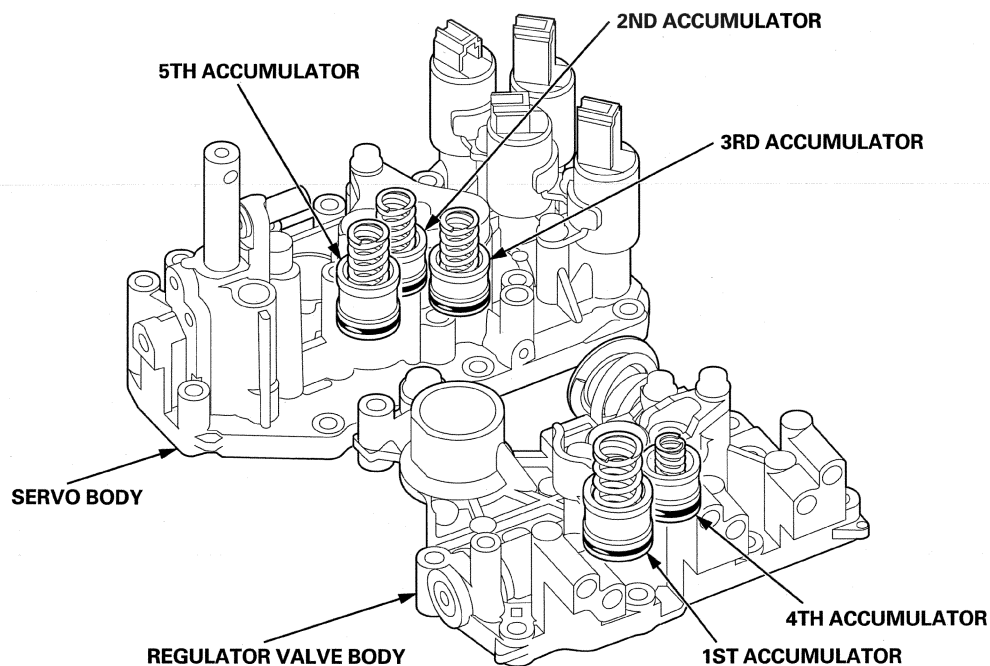
Servo Body

The servo body is on the main valve body. The servo body contains the servo valve, shift valve B, cut valve A, accumulators for 2nd, 3rd, and 5th, and shift solenoid valves A, B, C, and D.



Accumulator

The accumulators are located in the regulator valve body and servo body. The regulator valve body contains the 1st and 4th accumulators, and the servo body contains the 2nd, 3rd, and 5th accumulators.





Hydraulic Flow

Distribution of Hydraulic Pressure

As the engine turns, the ATF pump starts to operate. Automatic transmission fluid (ATF) is drawn through the ATF strainer (filter) and discharged into the hydraulic circuit. Then, ATF flowing from the ATF pump becomes line pressure that is regulated by the regulator valve. Torque converter pressure from the regulator valve enters the torque converter through the lock-up shift valve, and it is discharged from the torque converter. The torque converter check valve prevents torque converter pressure from rising.

The PCM controls the shift solenoid valves ON and OFF. The shift solenoid valve blocks line pressure from the ATF pump via the manual valve when the shift solenoid valve is OFF. When the shift solenoid valve is turned ON by the PCM, line pressure changes to shift solenoid valve pressure at the shift solenoid valve, then the shift solenoid valve pressure flows to the shift valve. Applying shift solenoid pressure to the shift valve moves the position of the shift valve, and switches the port of the hydraulic circuit. The PCM also controls A/T clutch pressure control solenoid valves A, B, and C. The A/T clutch pressure control solenoid valves regulate hydraulic pressure, and apply pressure to the clutches to engage smoothly. The clutches receive optimum clutch pressure which is regulated by the A/T clutch pressure control solenoid valves for comfortable driving and shifting under all conditions.

Hydraulic Pressure at the ports used in the hydraulic circuit

Port No.	Hydraulic Pressure	Port No.	Hydraulic Pressure
1	Line	5T	A/T clutch pressure control solenoid valve C
3	Line	SA	Shift solenoid valve A
3'	Line	SB	Shift solenoid valve B
4	Line	SC	Shift solenoid valve C
4'	Line	SD	Shift solenoid valve D
4''	Line	10	1st clutch
7	Line	20	2nd clutch
1A	Line	30	3rd clutch
1B	Line	40	4th clutch
1C	Line or A/T clutch pressure control solenoid valve A	50	5th clutch
3A	Line or A/T clutch pressure control solenoid valve A	55	A/T clutch pressure control solenoid valve A
3B	Line or A/T clutch pressure control solenoid valve A	55'	A/T clutch pressure control solenoid valve A
3C	Line or A/T clutch pressure control solenoid valve A	56	A/T clutch pressure control solenoid valve B
5A	Line or A/T clutch pressure control solenoid valve A	57	A/T clutch pressure control solenoid valve C
5B	Line, A/T clutch pressure control solenoid valve A, or C	90	Torque converter
5C	A/T clutch pressure control solenoid valve C	91	Torque converter
5D	Line or A/T clutch pressure control solenoid valve A	92	Torque converter
5E	Line or A/T clutch pressure control solenoid valve B	93	ATF cooler
5F	A/T clutch pressure control solenoid valve B	94	Torque converter
5G	Line, A/T clutch pressure control solenoid valve A, or B	95	Lubrication
5H	A/T clutch pressure control solenoid valve B	96	Torque converter
5J	A/T clutch pressure control solenoid valve C	97	Torque converter
5K	A/T clutch pressure control solenoid valve C	99	Suction
5L	A/T clutch pressure control solenoid valve C	X	Drain
5M	A/T clutch pressure control solenoid valve B	HX	High position drain
5R	A/T clutch pressure control solenoid valve C	AX	Air drain

(cont'd)

Automatic Transmission

System Description (cont'd)

Hydraulic Flow (cont'd)

N Position

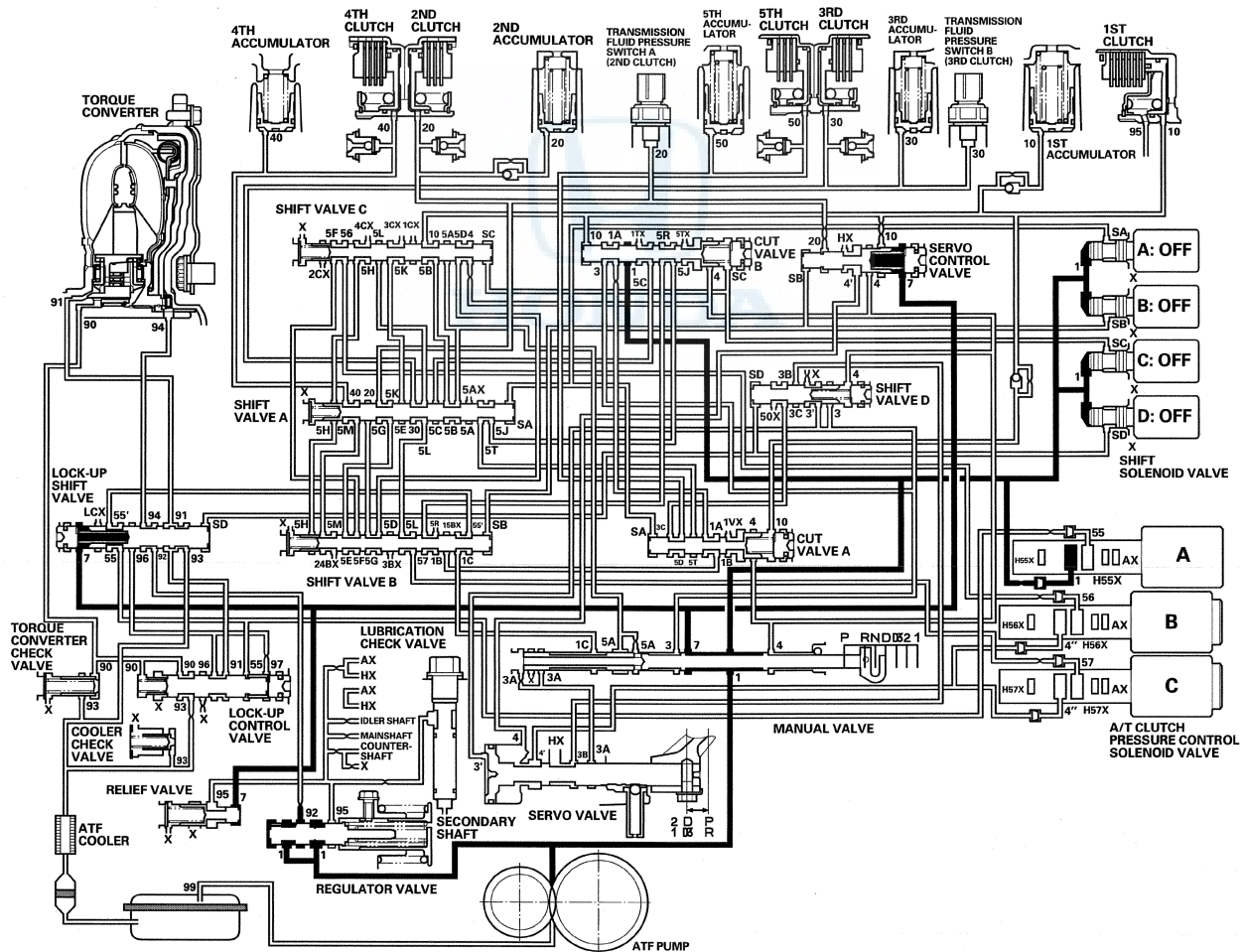
The PCM controls the shift solenoid valves. The conditions of the shift solenoid valves and the positions of the shift valves are as follows:

- Shift solenoid valve A is turned OFF, shift valve A stays on the right side, and cut valve A stays on the left side.
- Shift solenoid valve B is turned OFF, and shift valve B stays on the right side.
- Shift solenoid valve C is turned OFF, and shift valve C stays on the right side.

Line pressure (1) passes through the manual valve and stops at cut valve B. Line pressure (1) also flows to the shift solenoid valves and A/T clutch pressure control solenoid valve A. Under this condition, hydraulic pressure is not applied to the clutches.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.



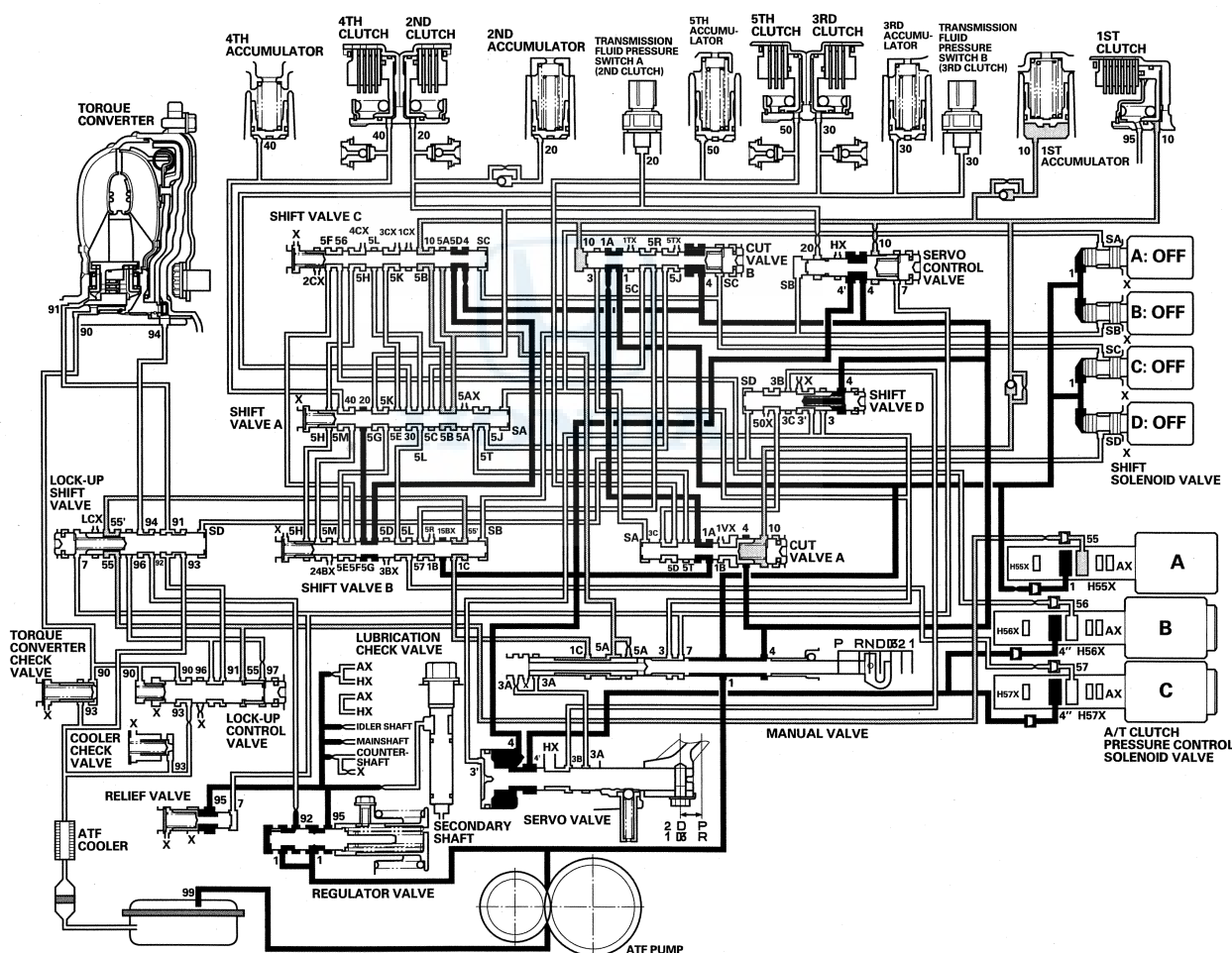


D Position: 1st Gear shifting from the N position

When shifting to D from N, the condition of the shift solenoid valves and the shift valves remain the same as in N. The PCM actuates A/T clutch pressure control solenoid valve A to regulate the line pressure (1) that is allowed to flow through the valve and becomes A/T clutch pressure control solenoid valve A pressure (55). The A/T clutch pressure control solenoid valve A pressure flows to the lock-up shift valve, shift valve B, the manual valve, and shift valve A, and becomes 1st clutch pressure (10) at shift valve C. 1st clutch pressure (10) flows to the 1st clutch. The 1st clutch is engaged by A/T clutch pressure control solenoid valve A pressure mode when shifting to D from N.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.



(cont'd)

Automatic Transmission

System Description (cont'd)

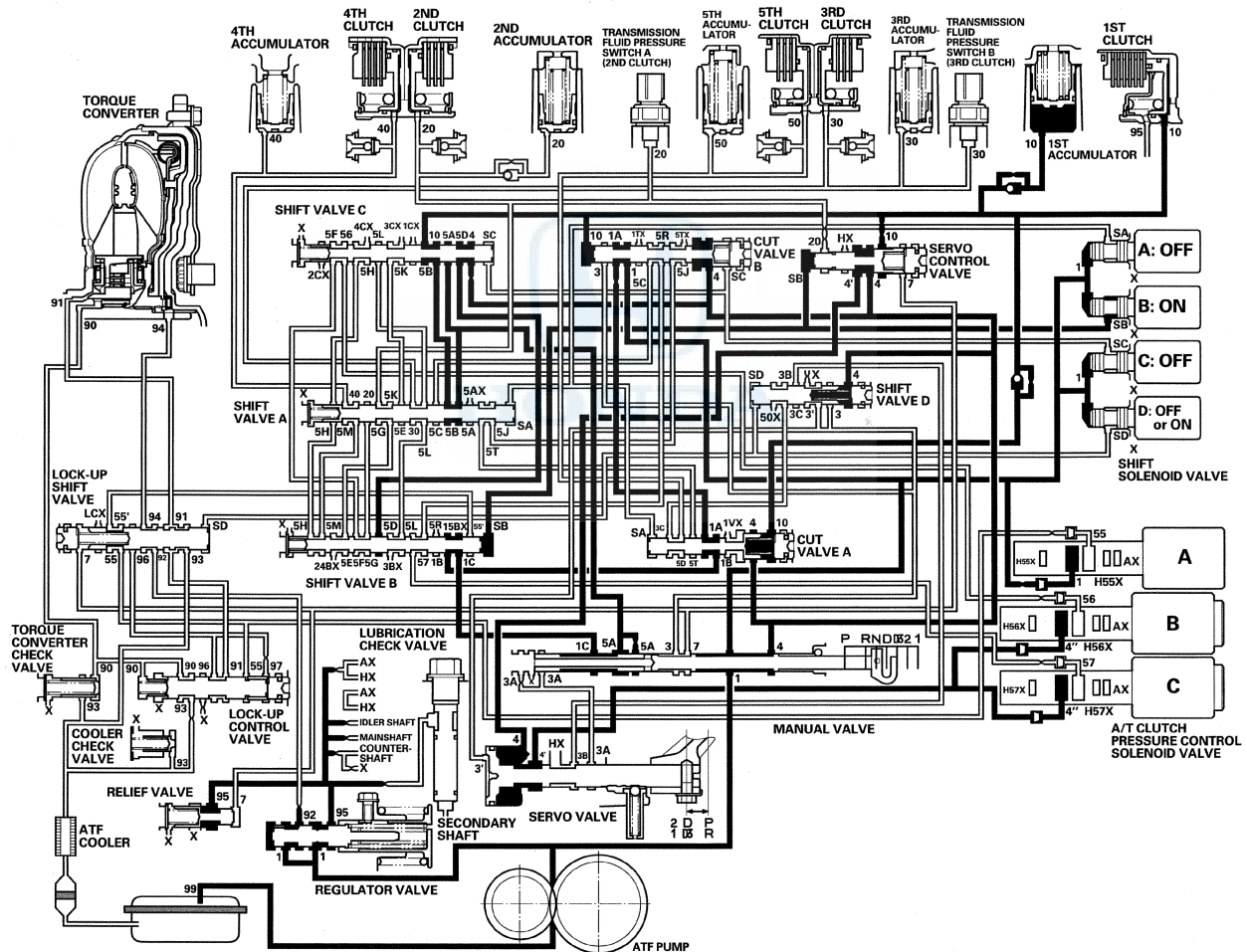
Hydraulic Flow (cont'd)

D Position: Driving in 1st Gear

The PCM turns shift solenoid valve B ON, and shift solenoid valves A and C remain OFF. Shift solenoid valve B pressure (SB) is applied to the right end of shift valve B. Shift valve B is moved to the left side to uncover the line pressure port leading to the 1st clutch, and to cover the A/T clutch pressure control solenoid valve A pressure port. Line pressure (1B) passed through shift valve B flows to the manual valve, shift valve A, and shift valve C, and becomes 1st clutch pressure (10). 1st clutch pressure is applied to the 1st clutch, and the 1st clutch is engaged by the line pressure mode.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.



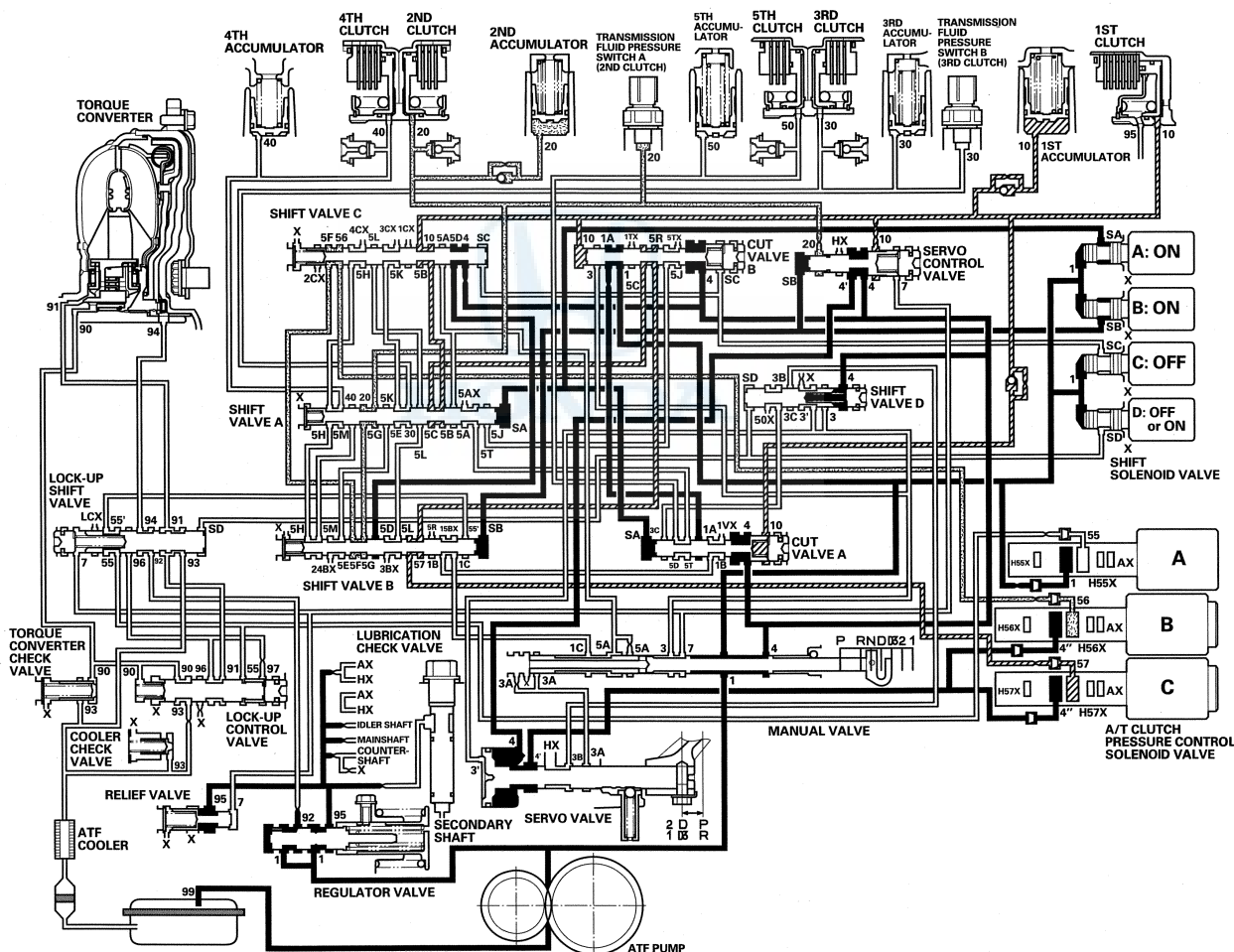


D Position: Shifting between 1st Gear and 2nd Gear

As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valve A ON, shift solenoid valve B remains ON, and shift solenoid valve C remains OFF. Shift solenoid valve A pressure (SA) is applied to the right end of shift valve A and to the left side of cut valve A. Cut valve A is moved to the right side to release 1st clutch pressure in line pressure mode, and shift valve A is moved to the left side to switch the line pressure port (5A) to the A/T clutch pressure control solenoid valve C pressure port (5C) leading to the 1st clutch. Also, shift valve A uncovers the 2nd clutch pressure port (20) leading A/T clutch pressure control solenoid valve B pressure (56) to the 2nd clutch. The 1st clutch and 2nd clutch are engaged by the A/T clutch pressure control solenoid valve pressure.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.



(cont'd)

Automatic Transmission

System Description (cont'd)

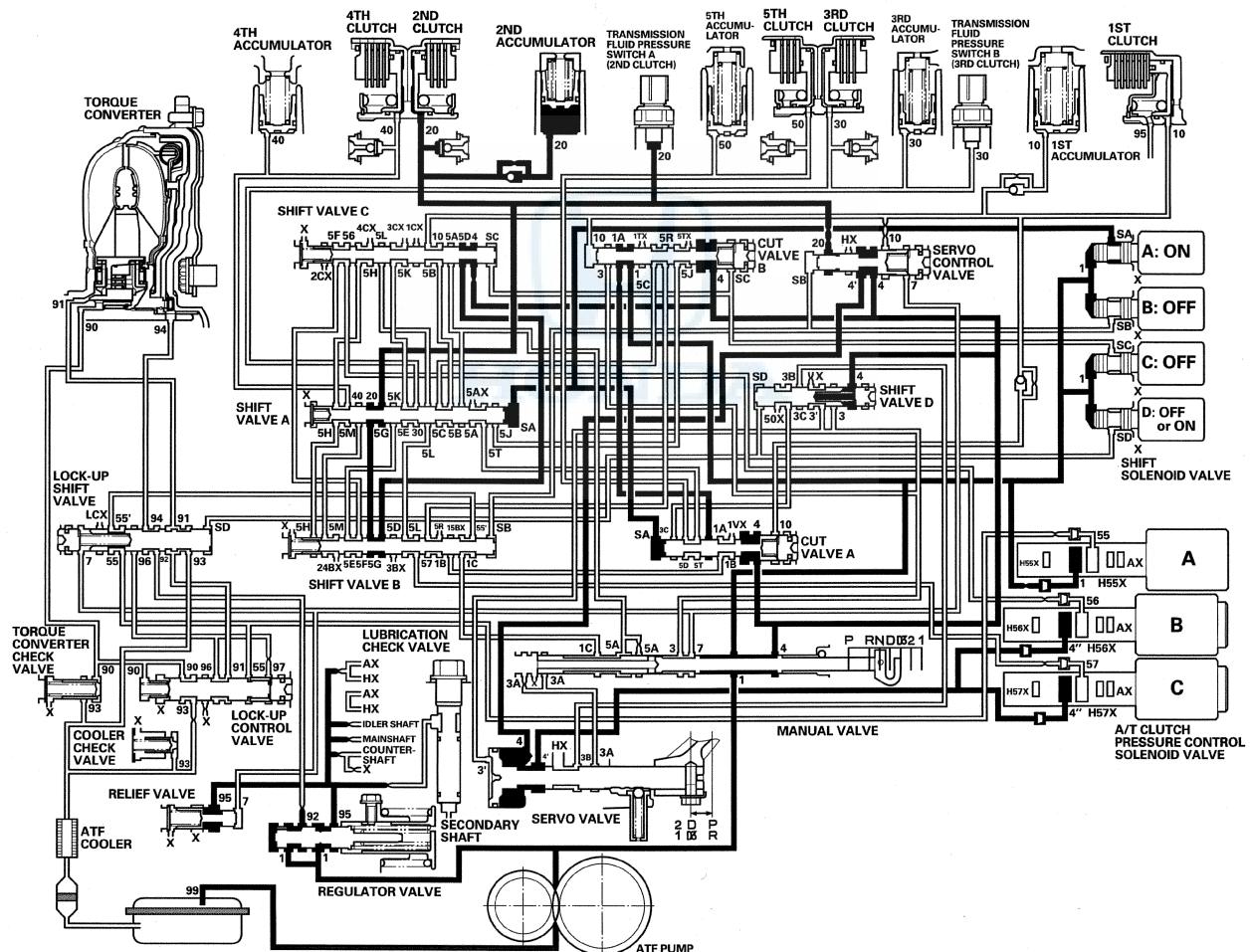
Hydraulic Flow (cont'd)

D Position: Driving in 2nd Gear

The PCM turns shift solenoid valve B OFF, shift solenoid valve A remains ON, and shift solenoid valve C remains OFF. Shift solenoid valve B pressure (SB) in the right end of shift valve B and in the left end of the servo control valve is released. Cut valve B and the servo control valve are kept in the right side by line pressure (4) even though hydraulic pressure in the left end is released. Shift valve B is moved to the right side to switch the A/T clutch pressure control solenoid valve B pressure port (5F) to the line pressure port (5D) leading to the 2nd clutch. The 2nd clutch pressure (20) is applied to the 2nd clutch, and the 2nd clutch is engaged by the line pressure.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.



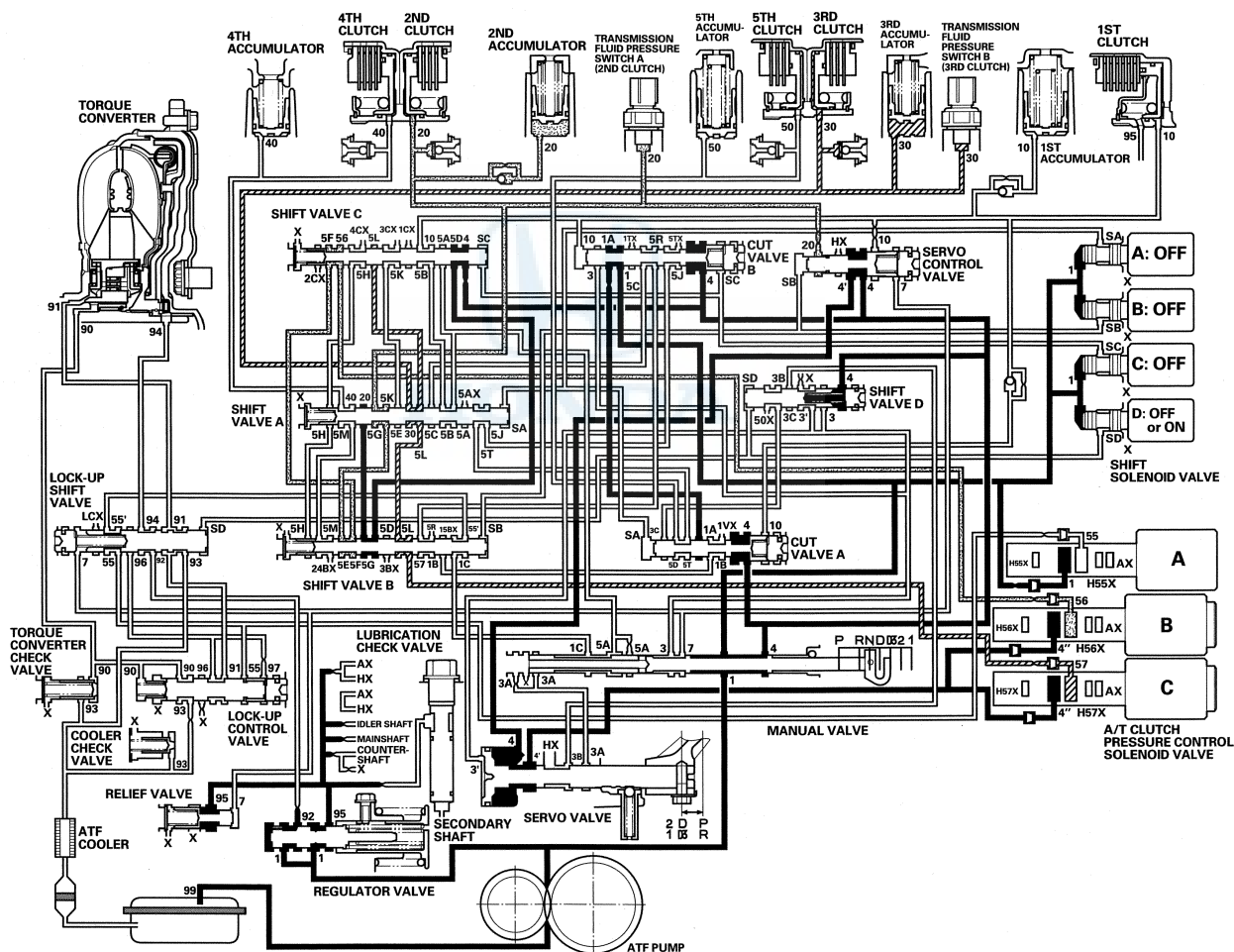


D Position: Shifting between 2nd Gear and 3rd Gear

As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valve A OFF. Shift solenoid valves B and C remain OFF. Shift solenoid valve A pressure (SA) in the right end of shift valve A and in the left end of cut valve A is released. Cut valve A is kept in the right side by line pressure (4) even though shift solenoid valve A pressure (SA) is released. Shift valve A is moved to the right side to the switch line pressure port (5G) to the A/T clutch pressure control solenoid valve B pressure port (5E) leading to the 2nd clutch. Also, shift valve A uncovers the 3rd clutch pressure port (30) leading the A/T clutch pressure control solenoid valve C pressure (5L) to the 3rd clutch. The 2nd clutch and 3rd clutch are engaged by the A/T clutch pressure control solenoid valve pressure.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.



(cont'd)

Automatic Transmission

System Description (cont'd)

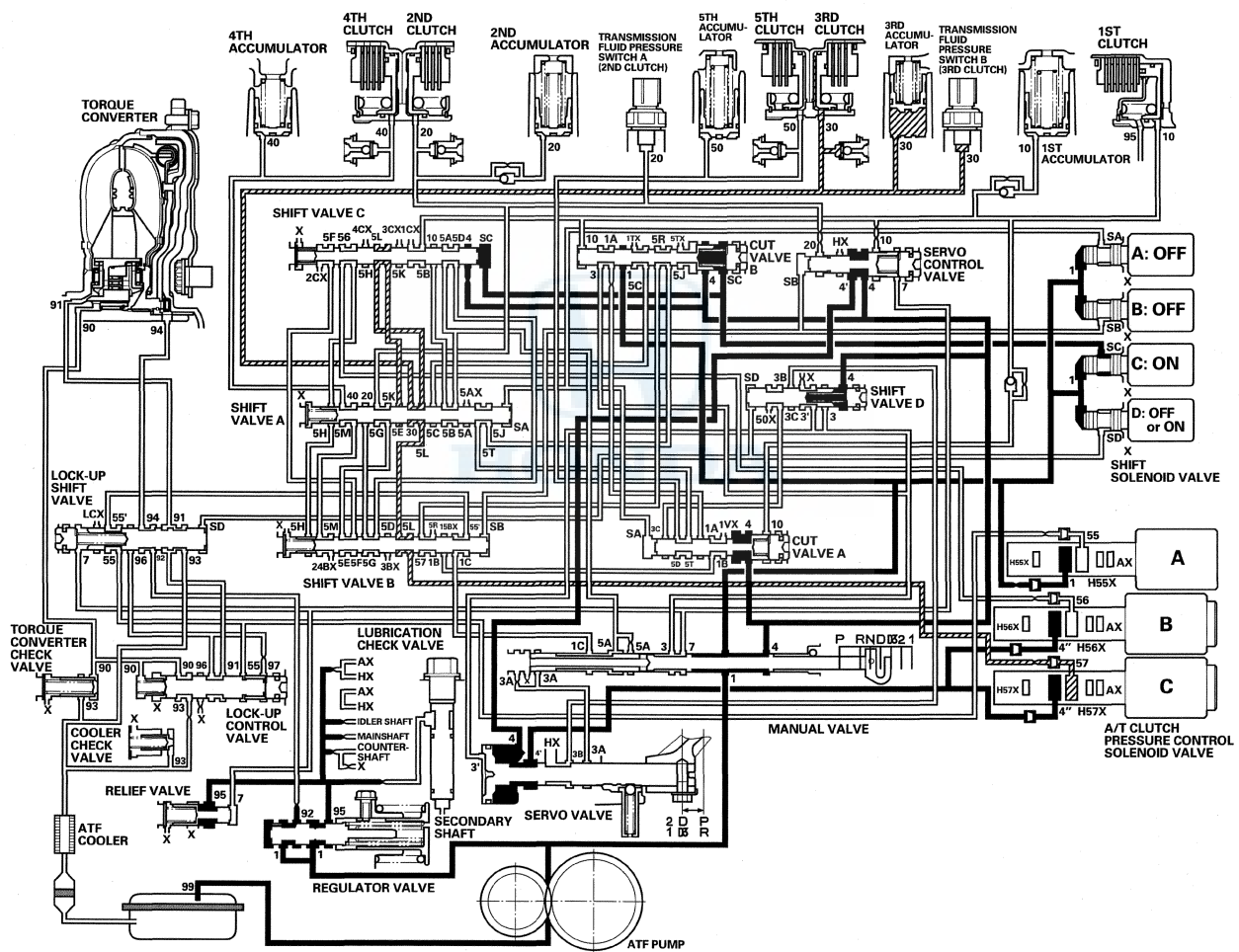
Hydraulic Flow (cont'd)

D Position: Driving in 3rd Gear

The PCM turns shift solenoid valve C ON, and shift solenoid valves A and B remain OFF. Shift solenoid valve C pressure (SC) is applied to the right end of shift valve C and cut valve B. Shift valve C is moved to the left side to release 2nd clutch pressure. The 3rd clutch stays engaged with the A/T clutch pressure control solenoid valve C pressure.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.



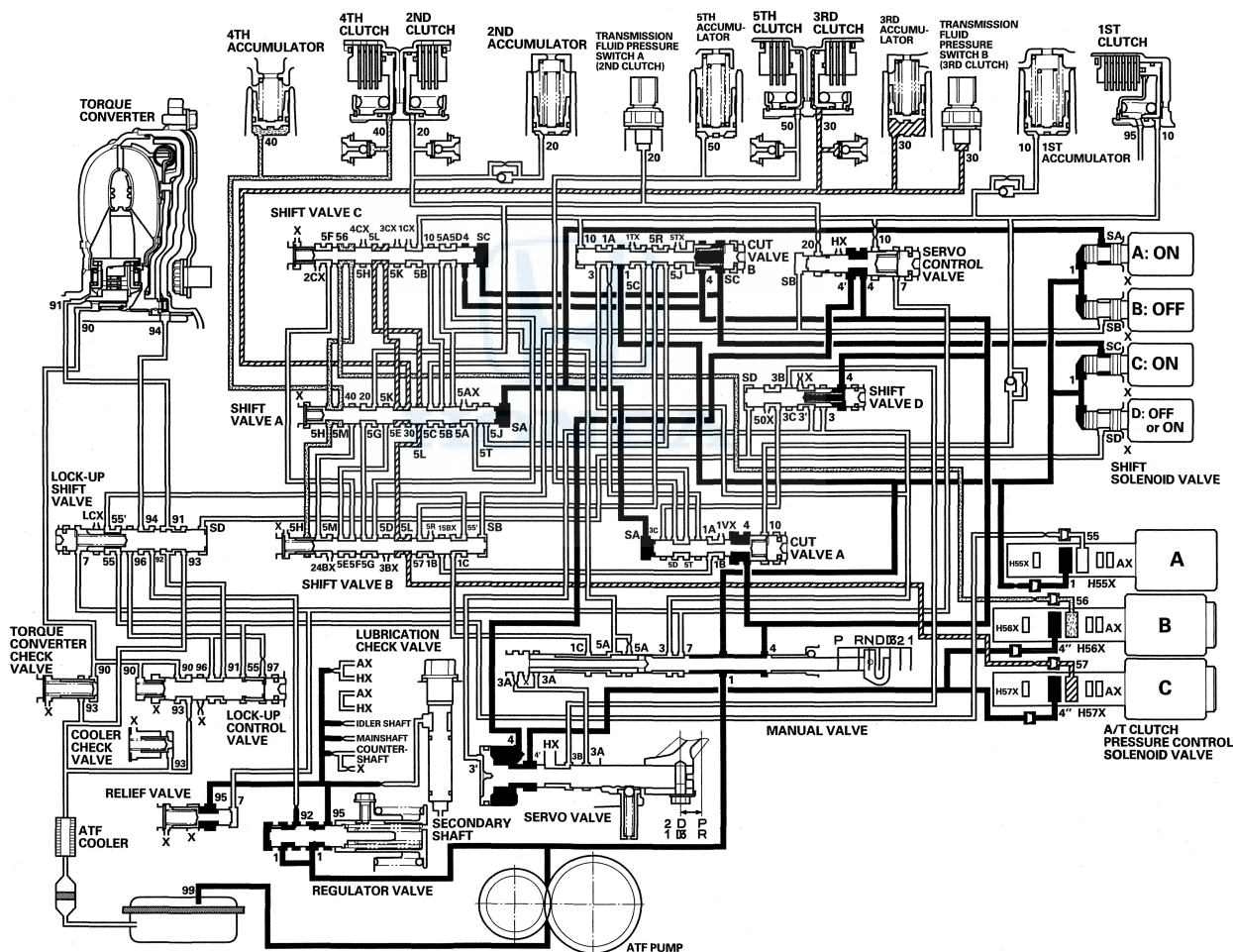


D Position: Shifting between 3rd Gear and 4th Gear

As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valve A ON. Shift solenoid valve B remains OFF, and shift solenoid valve C remains ON. Shift solenoid valve A pressure (SA) is applied to the right end of shift valve A and to the left end of cut valve A. Shift valve A is moved to the left side to switch the line pressure port (5L) to the A/T clutch pressure control solenoid valve C pressure port (5K) leading to the 3rd clutch. Also, shift valve A uncovers the 4th clutch pressure port (40) leading the A/T clutch pressure control solenoid valve B pressure (5H) to the 4th clutch. The 3rd clutch and 4th clutch are engaged by the A/T clutch pressure control solenoid valve pressure.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.



(cont'd)

Automatic Transmission

System Description (cont'd)

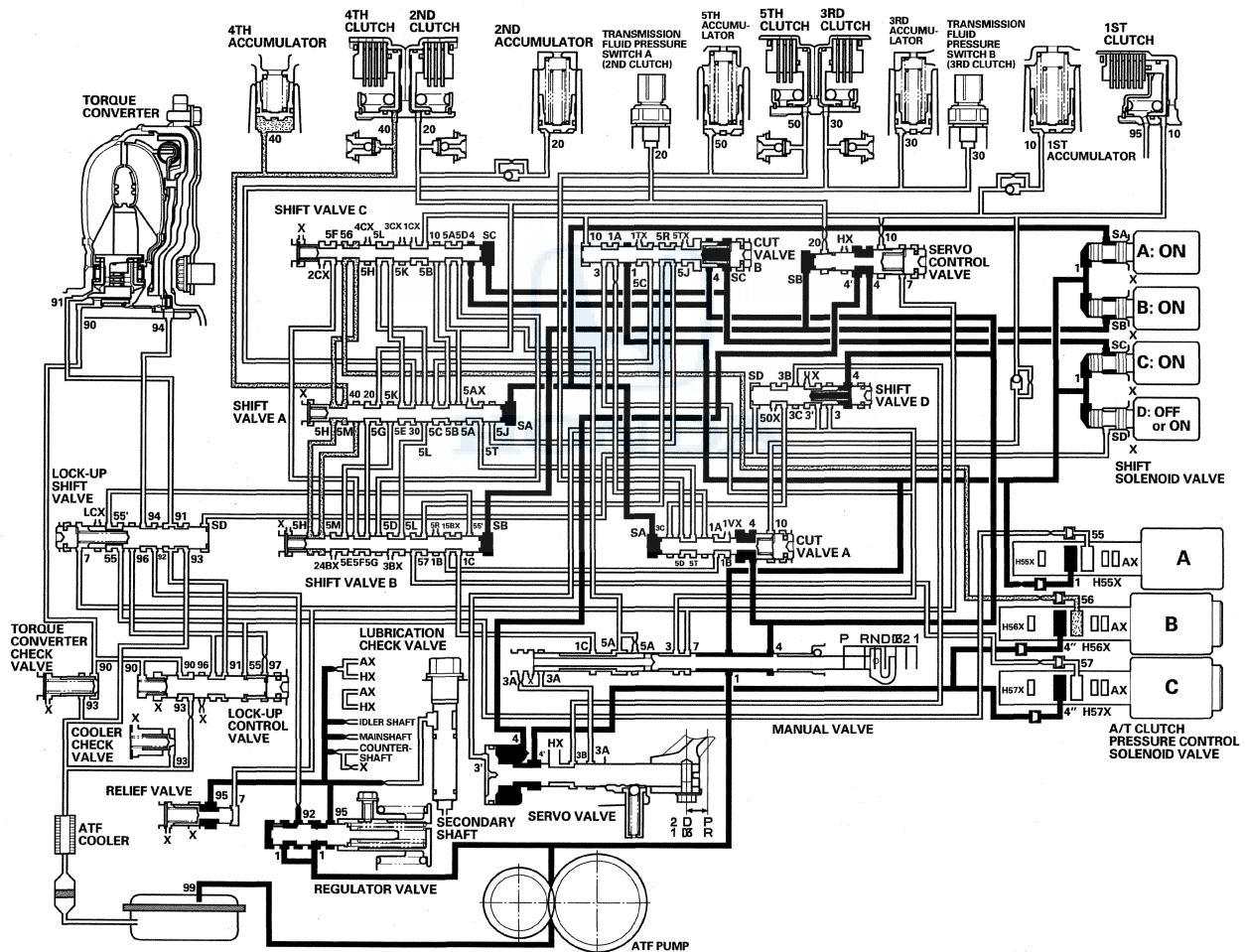
Hydraulic Flow (cont'd)

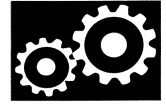
D Position: Driving in 4th Gear

The PCM turns shift solenoid valve B ON, and shift solenoid valves A and C remain ON. Shift solenoid valve B pressure (SB) is applied to the right end of shift valve B and the left end of the servo control valve. Shift valve B is moved to the left side to release 3rd clutch pressure. The 4th clutch stays engaged with the A/T clutch pressure control solenoid valve B pressure.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.



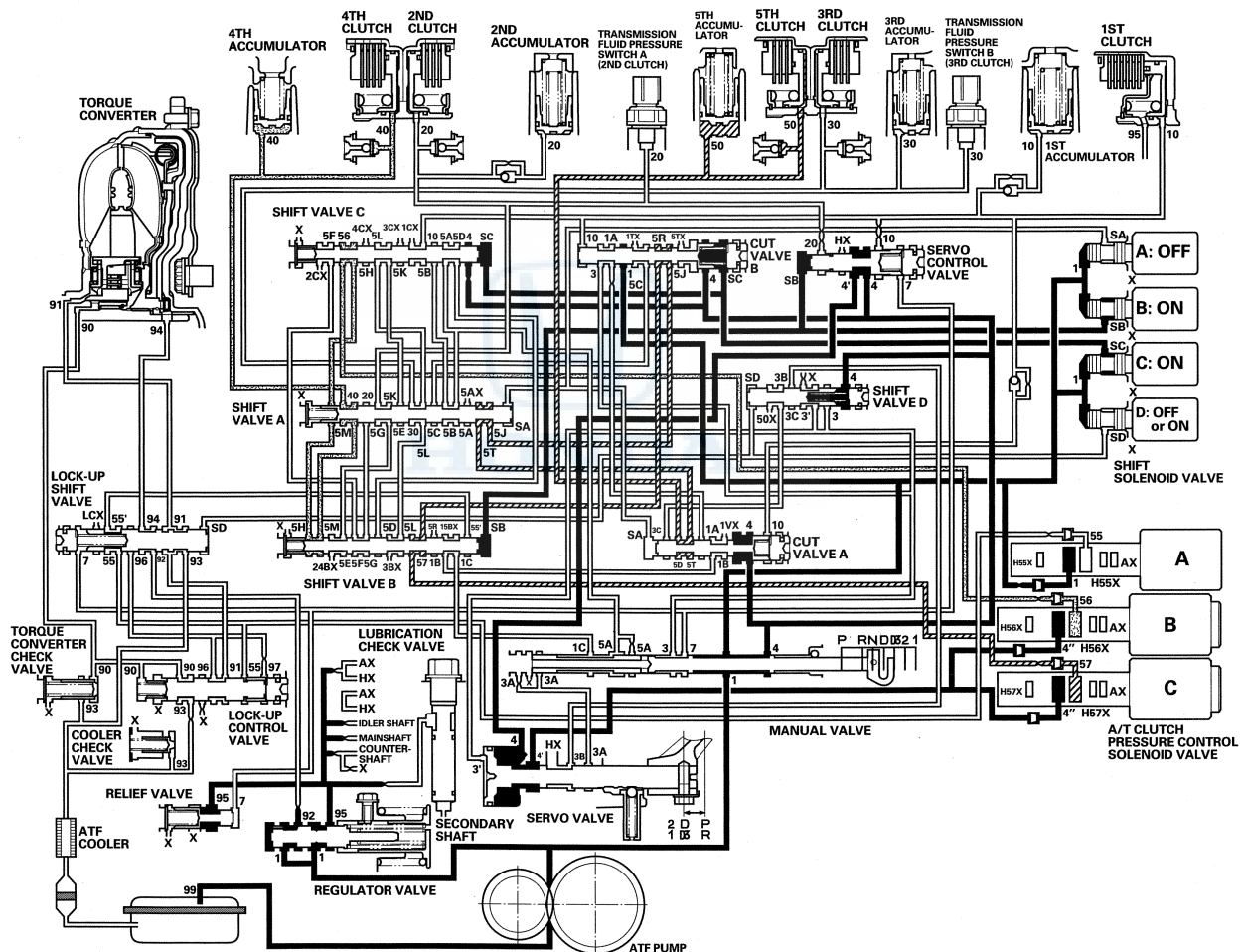


D Position: Shifting between 4th Gear and 5th Gear

As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valve A OFF. Shift solenoid valves B and C remain ON. Shift solenoid valve A pressure (SA) in the right end of shift valve A is released. Cut valve A is kept in the right side by line pressure (4) even though shift solenoid valve A pressure (SA) is released. Shift valve A is moved to the right side to uncover the A/T clutch pressure control solenoid valve C pressure ports (5T) (5J) leading to the 4th clutches. The 4th and 5th clutches are engaged by the A/T clutch pressure control solenoid valve pressure.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.



(cont'd)

Automatic Transmission

System Description (cont'd)

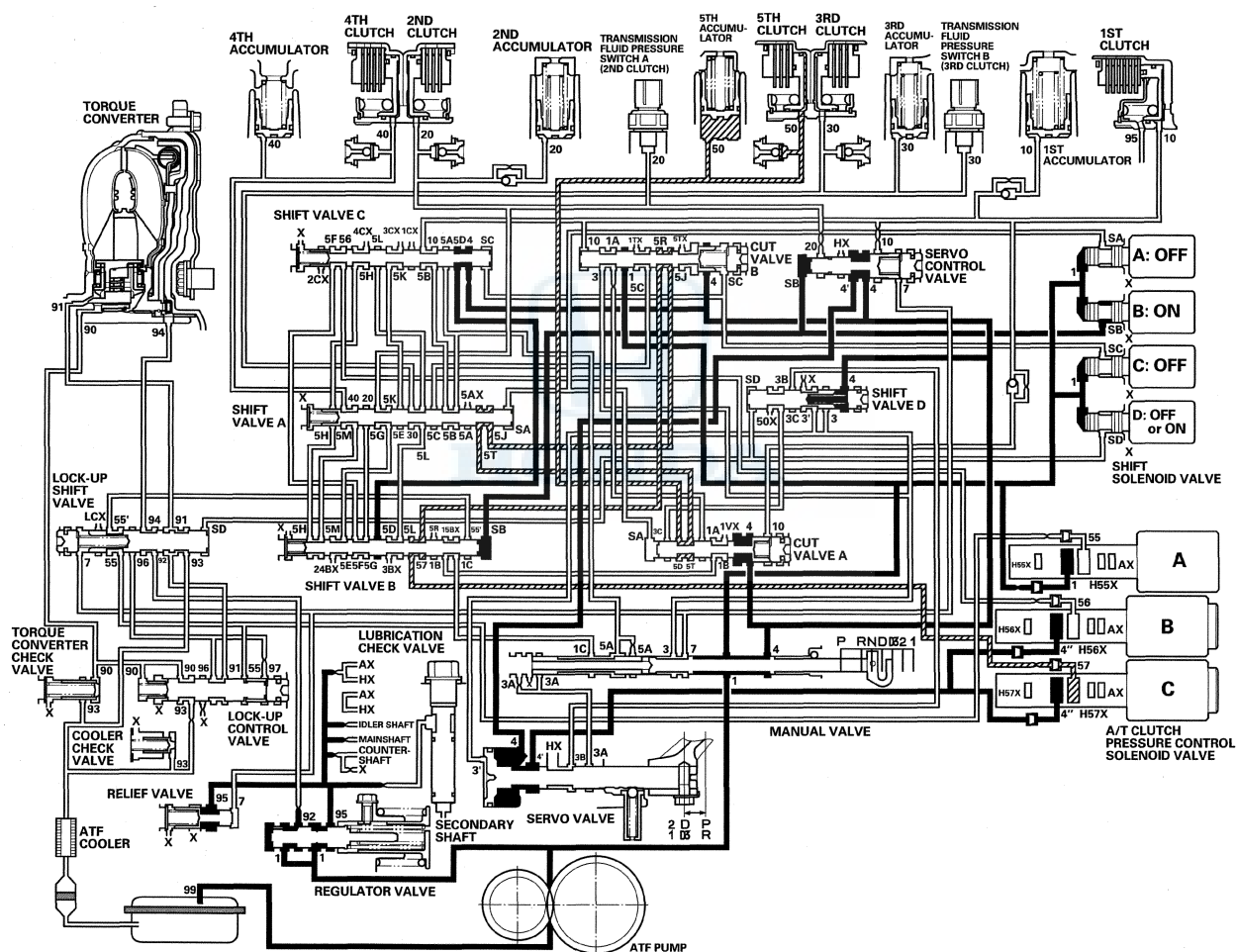
Hydraulic Flow (cont'd)

D Position: Driving in 5th Gear

The PCM turns shift solenoid valve C OFF, shift solenoid valve A remains OFF, and shift solenoid valve B remains ON. Shift solenoid valve C pressure (SC) in the right end of shift valve C is released. Shift valve C is moved to the right side to release 4th clutch pressure. The 5th clutch stays engaged with the A/T clutch pressure control solenoid valve C pressure.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.





2 Position (Seven-position Transmission)

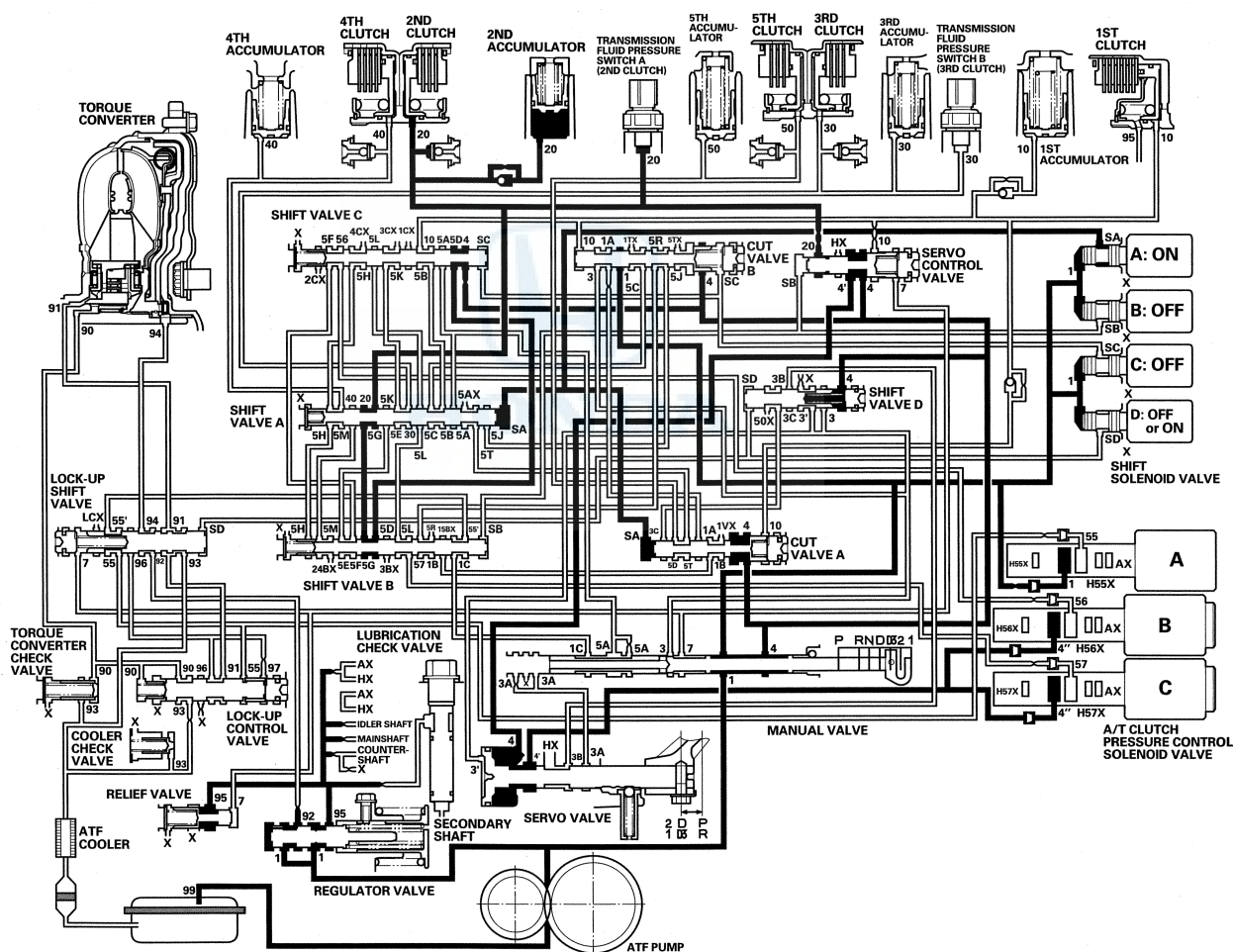
The PCM controls the shift solenoid valves and the A/T clutch pressure control solenoid valves. The conditions of the shift solenoid valves and the position of the shift valves are as follows:

- Shift solenoid valve A is turned ON, and shift valve A is moved to the left side.
- Shift solenoid valve B is turned OFF, and shift valve B is in the right side.
- Shift solenoid valve C is turned OFF, and shift valve C is in the left side.

Line pressure (4) from the manual valve becomes 2nd clutch pressure (20) at shift valve A, via shift valves C and B. 2nd clutch pressure (20) is applied to the 2nd clutch, and the 2nd clutch is engaged.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the five-position transmission does not have position 2.



(cont'd)

Automatic Transmission

System Description (cont'd)

Hydraulic Flow (cont'd)

1 Position (Seven-position Transmission)

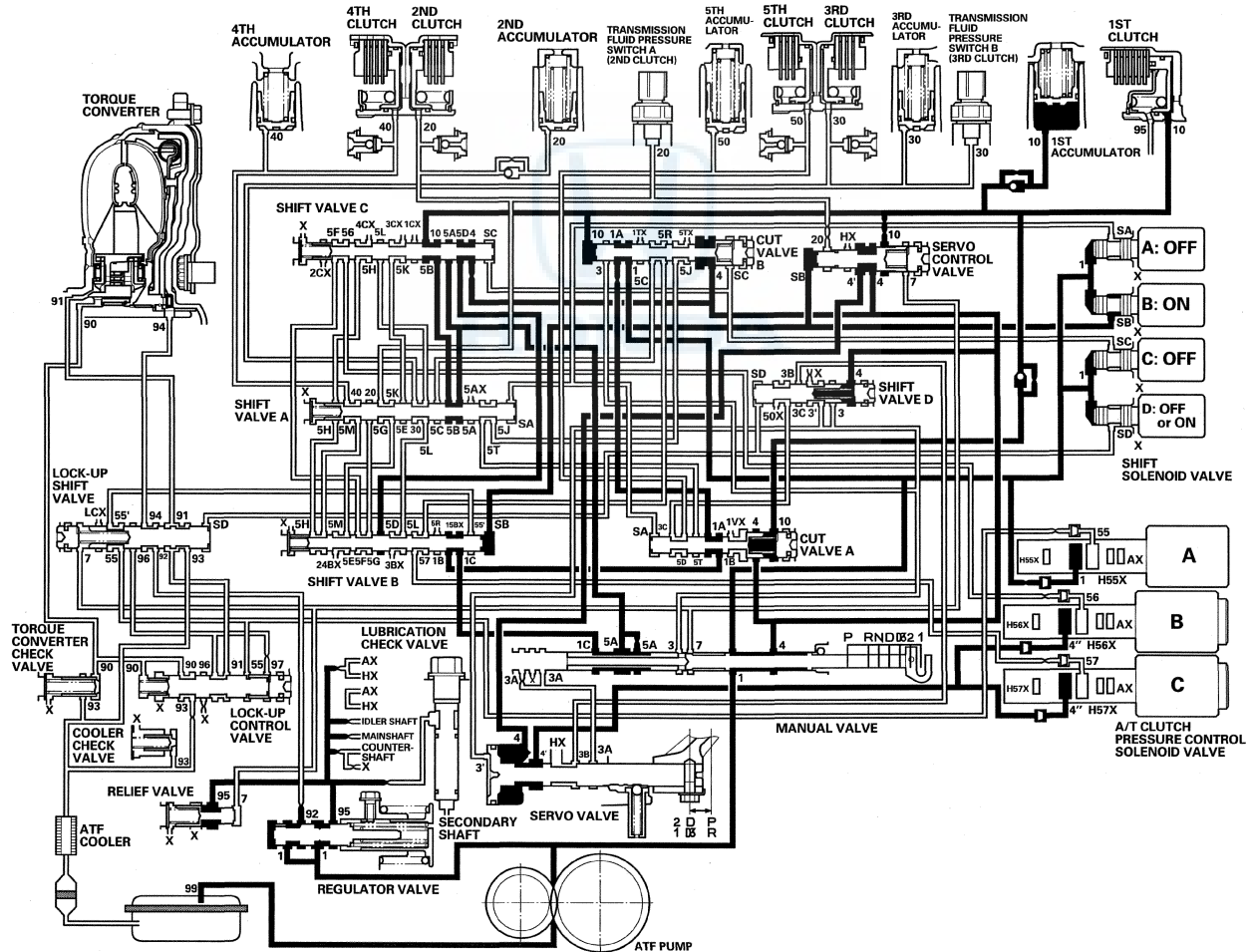
The PCM controls the shift solenoid valves and the A/T clutch pressure control solenoid valves. The conditions of the shift solenoid valves and the position of the shift valves are as follows:

- Shift solenoid valve A is turned OFF, and shift valve A is in the right side.
- Shift solenoid valve B is turned ON, and shift valve B is moved to the left side.
- Shift solenoid valve C is turned OFF, and shift valve C is in the right side.

Line pressure (1) from the manual valve flows to cut valve B, cut valve A, shift valve B, and becomes line pressure (5A) at the manual valve. Line pressure (5A) passes through shift valve A, flows to shift valve C, and becomes 1st clutch pressure (10). 1st clutch pressure (10) is applied to the 1st clutch, and the 1st clutch is engaged.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the five-position transmission does have position 1.



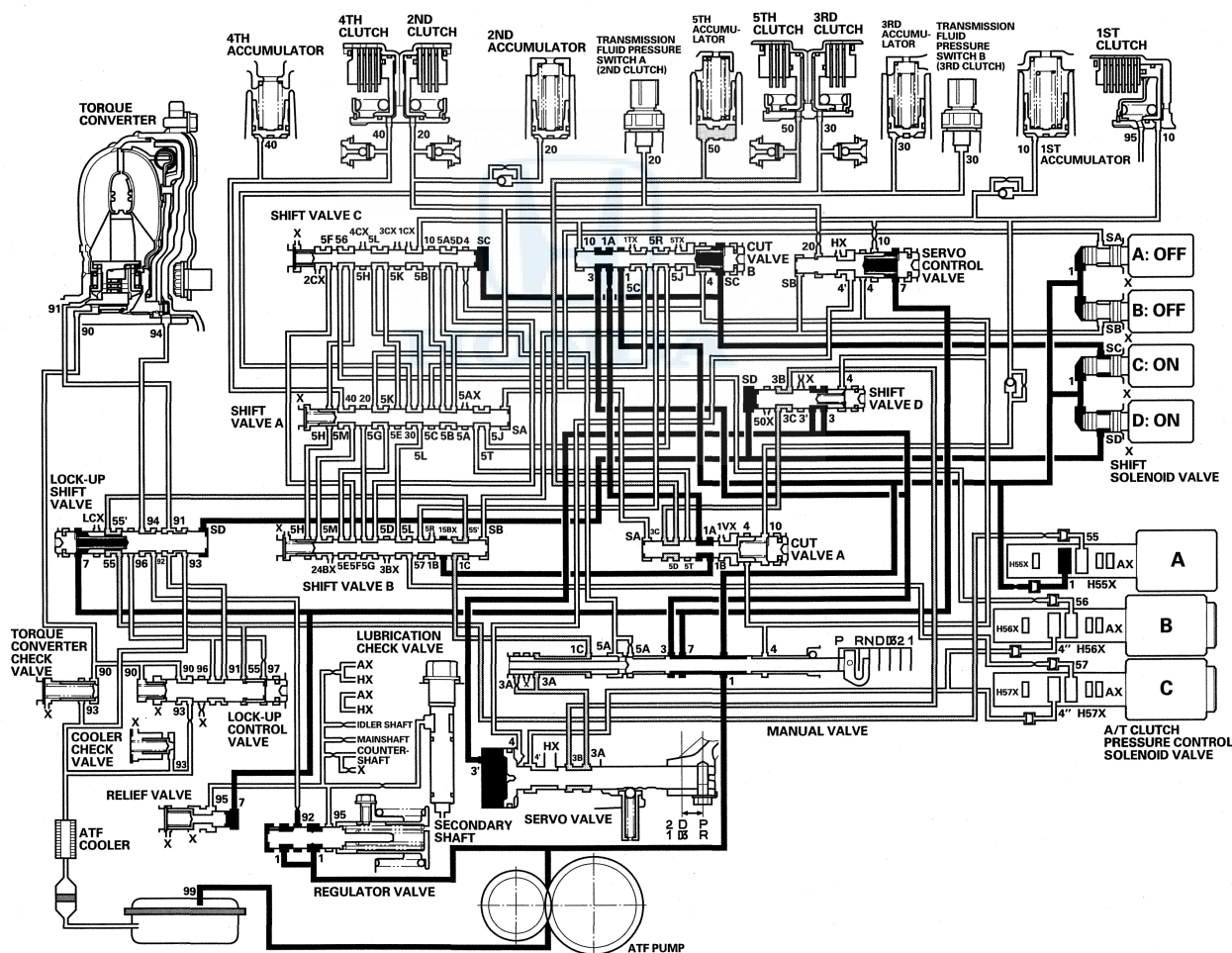


R Position: Shifting to the R position from the P or N position

When shifting into R from P or N, line pressure (1) becomes line pressure (1), (3), and (7) at the manual valve. The PCM turns shift solenoid valve D ON, and shift solenoid valves A, B, and C OFF. Shift solenoid valve D pressure (SD) is applied to the left end of shift valve D, and shift valve D is moved to the right side to uncover the line pressure port (3) leading to the servo valve. Line pressure (3') from shift valve D flows to the servo valve, and pushes the servo valve to the reverse position. The PCM controls A/T clutch pressure control solenoid valve A to regulate A/T clutch pressure control solenoid valve A pressure (55), and A/T clutch pressure control solenoid valve A pressure (55) flows to the lock-up shift valve, shift valve B, the manual valve, the servo valve, shift valve D, and cut valve A. A/T clutch pressure control solenoid valve A pressure (3C) becomes 5th clutch pressure (50) at cut valve A. 5th clutch pressure (50) is applied to the 5th clutch, and the 5th clutch is engaged with the A/T clutch pressure control solenoid valve A pressure.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.



(cont'd)

Automatic Transmission

System Description (cont'd)

Hydraulic Flow (cont'd)

R Position: Driving in Reverse Gear

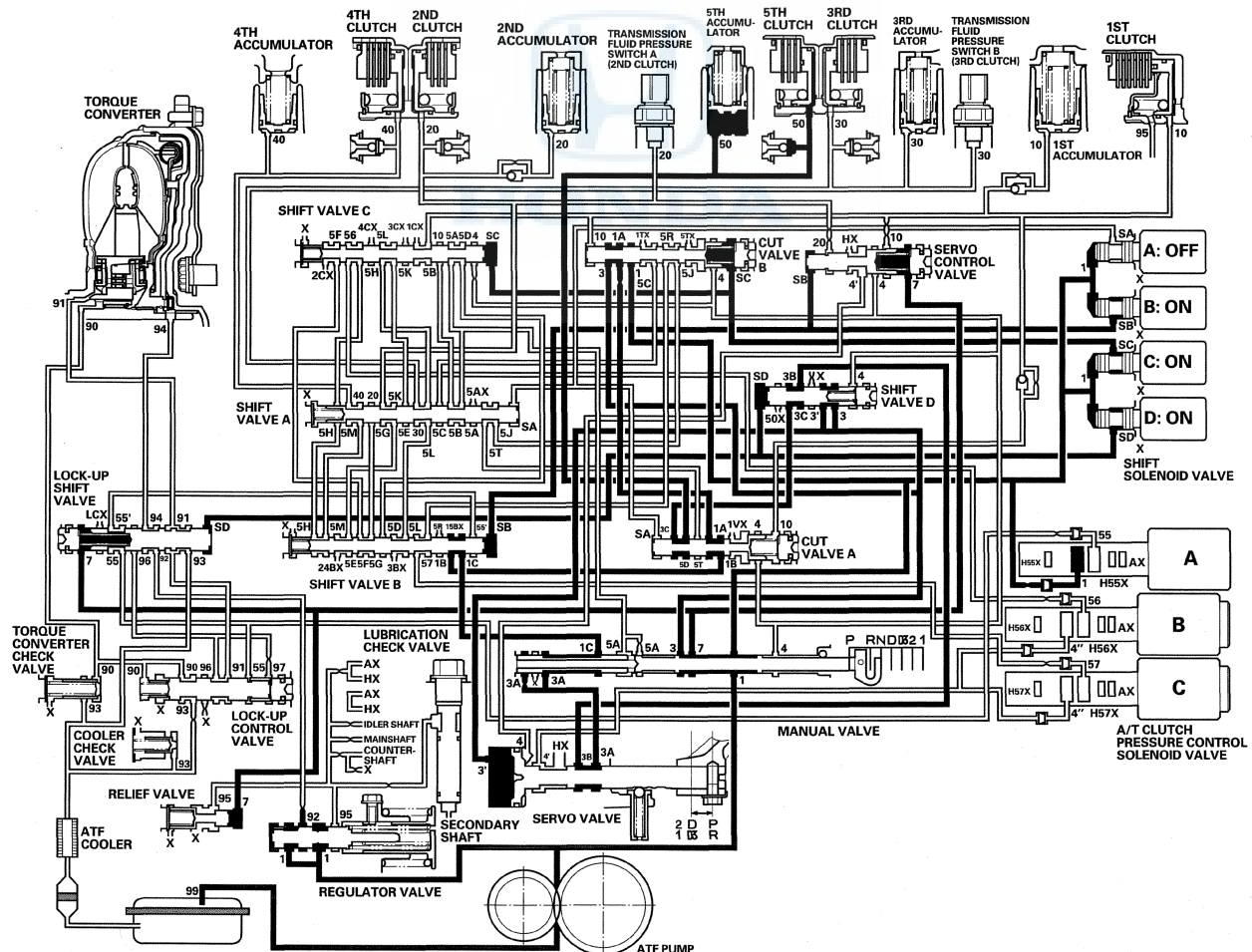
As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valves B and C ON. Shift solenoid valve A remains OFF, and shift solenoid valve D remains ON. Shift solenoid valve B is turned ON, and shift solenoid valve B pressure (SB) is applied to the right end of shift valve B. Shift valve B is moved to the right side to switch the A/T clutch pressure control solenoid valve A pressure port (55') to the line pressure port (1B) leading to the 5th clutch. The 5th clutch is engaged with the line pressure.

Reverse Inhibitor Control

When R is selected while the vehicle is moving forward at a speed above 6 mph (10 km/h), the PCM turns shift solenoid valves A and C ON, and shift solenoid valves B and D OFF. Shift solenoid valve D is kept OFF, and shift valve D is kept in the left side to cover the line pressure port (3) leading to the servo valve. The servo valve is kept in the forward position. Shift solenoid valve A is turned ON, shift valve A is moved to the right side and covers the port to stop line pressure (1A) leading to the 5th clutch. The servo valve is not applied line pressure, the 5th clutch is not applied 5th clutch pressure, as a result, power is not transmitted to the reverse direction.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.



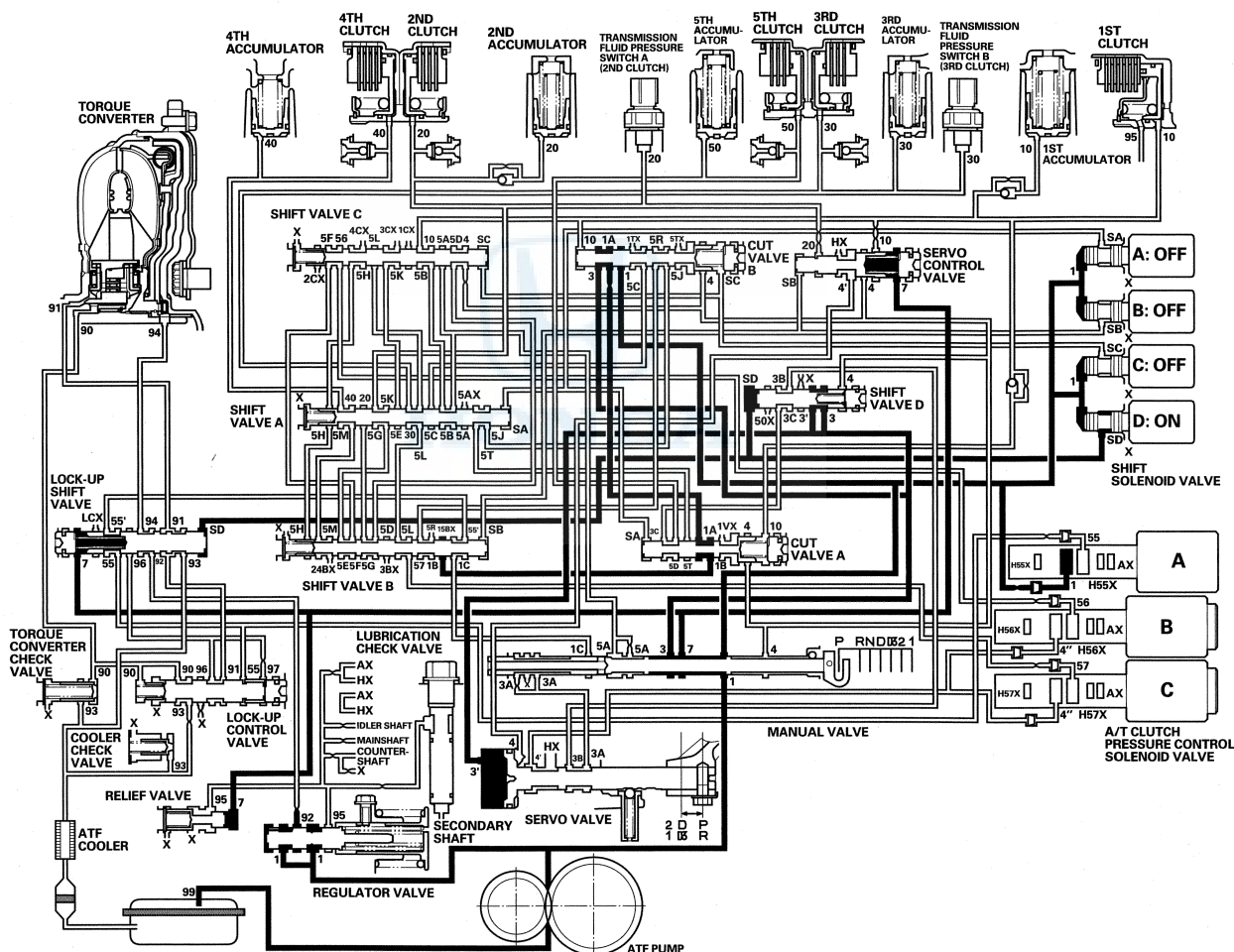


P Position

When shifting into P, line pressure (1) becomes line pressure (1), (3), and (7) at the manual valve. The PCM turns shift solenoid valve D ON, and shift solenoid valves A, B, and C OFF. Shift solenoid valve D pressure (SD) is applied to the left end of shift valve D, and shift valve D is moved to the right side to uncover the line pressure port (3) leading to the servo valve. Line pressure (3') from shift valve D flows to the servo valve, and pushes the servo valve to the reverse position. Line pressure (1) is intercepted at cut valve B, line pressure (1B) is intercepted at shift valve B, and hydraulic pressure is not applied to the clutches.

NOTE:

- When used, "left" or "right" indicates direction on the hydraulic circuit.
- The illustration shows the seven-position transmission; the manual-valve-position differs in the five-position transmission.



(cont'd)

Automatic Transmission

System Description (cont'd)

Lock-up System

The lock-up mechanism of the torque converter clutch operates in all five gears in D, in 3rd gear in D3, and 3rd and 4th gears in S with the automatic shift mode. The pressurized fluid is drained from the back of the torque converter through a fluid passage, causing the torque converter clutch piston to be held against the torque converter cover. As this takes place, the mainshaft rotates at the same speed as the engine crankshaft. Together with the hydraulic control, the PCM optimizes the timing and degree of lock-up. When shift solenoid valve D is turned ON by the PCM, shift solenoid valve D pressure switches the lock-up shift valve lock-up ON and OFF. A/T clutch pressure control solenoid valve A and the lock-up control valve control the amount of lock-up.

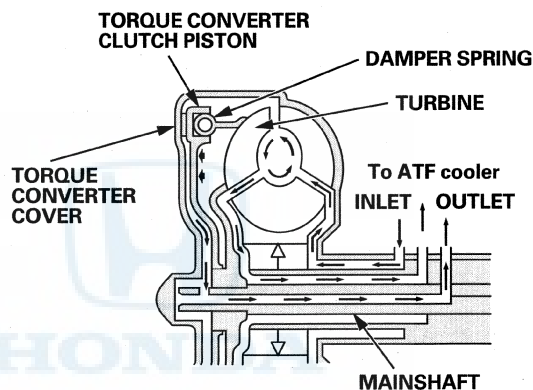
Torque Converter Clutch Lock-up ON (Engaging Torque Converter Clutch)

Fluid in the chamber between the torque converter cover and the torque converter clutch piston is drained off, and fluid entering from the chamber between the pump and stator exerts pressure through the torque converter clutch piston against the torque converter cover. The torque converter clutch piston engages with the torque converter cover; the torque converter clutch lock-up is ON, and the mainshaft rotates at the same speed as the engine.

Power flow

The power flows by way of:

Engine
↓
Drive plate
↓
Torque converter cover
↓
Torque converter clutch piston
↓
Damper spring
↓
Turbine
↓
Mainshaft



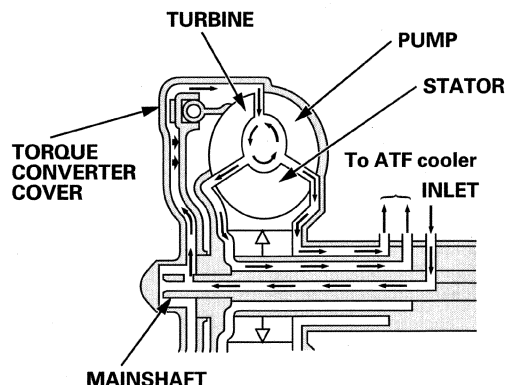
Torque Converter Clutch Lock-up OFF (Disengaging Torque Converter Clutch)

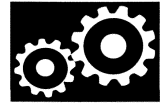
Fluid entered from the chamber between the torque converter cover and the torque converter clutch piston passes through the torque converter and goes out from the chambers between the turbine and the stator, and between the pump and the stator. As a result, the torque converter clutch piston moves away from the torque converter cover, and the torque converter clutch lock-up is released; torque converter clutch lock-up is OFF.

Power flow

The power flows by way of:

Engine
↓
Drive plate
↓
Torque converter cover
↓
Pump
↓
Turbine
↓
Mainshaft

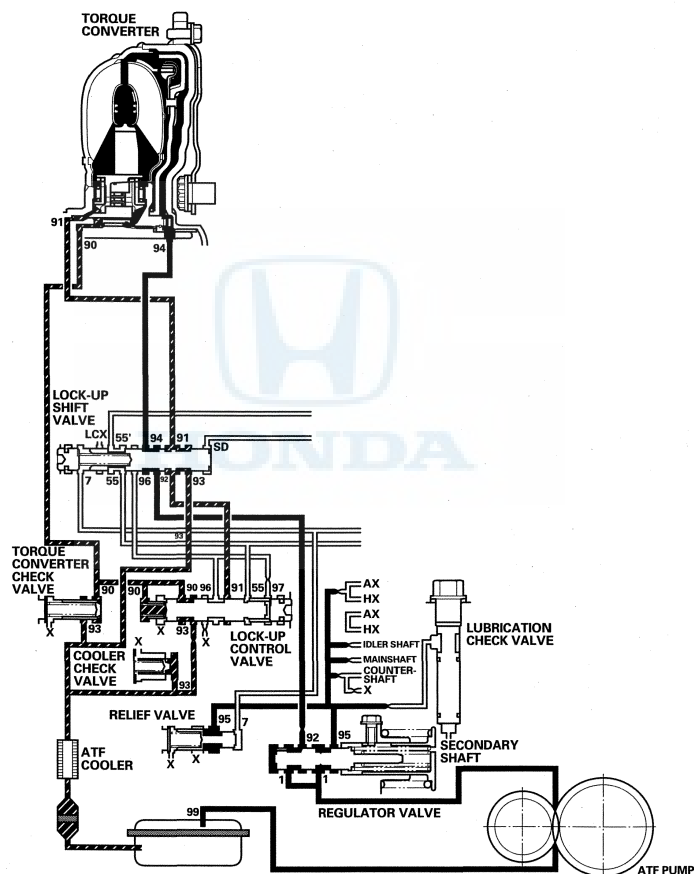




No Lock-up

The PCM commands shift solenoid valve D to remain OFF, and shift solenoid valve D covers the shift solenoid valve D pressure port (SD) to the lock-up shift valve. The lock-up shift valve is in the right side, and uncovers the torque converter pressure port leading to the back of the torque converter. Torque converter pressure (92), regulated by the regulator valve, flows to the lock-up shift valve and becomes torque converter pressure (94). Torque converter pressure (94) enters into the back of the torque converter, and discharges into the circuit from the front of the torque converter. Torque converter pressure enters into the back of the torque converter and is discharged from the front side; this disengages the torque converter clutch piston and the torque converter cover. Under this condition, the torque converter clutch is not engaged; this is the non lock-up condition.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.



(cont'd)

Automatic Transmission

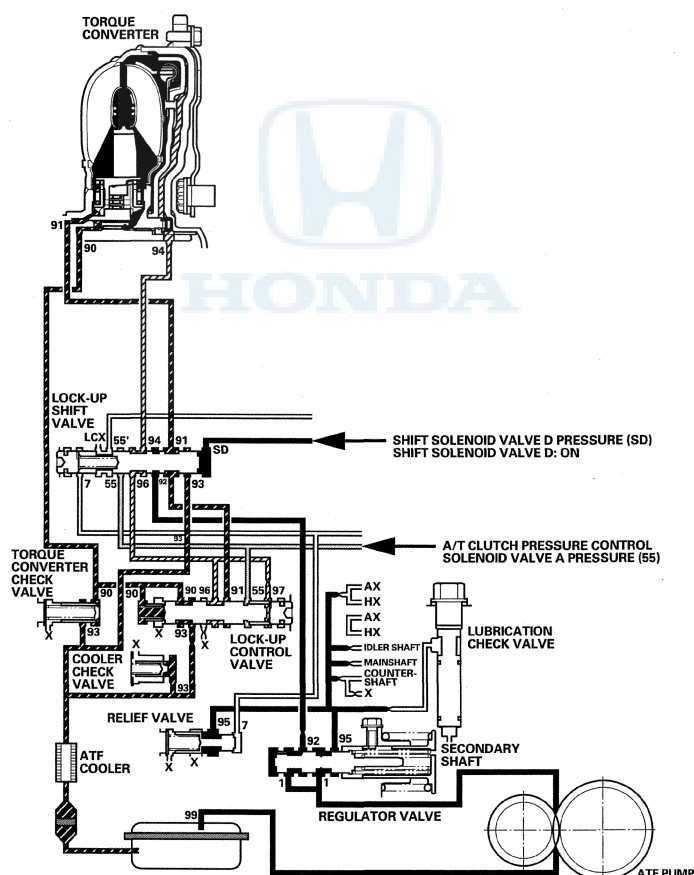
System Description (cont'd)

Lock-up System (cont'd)

Partial Lock-up

As the speed of the vehicle reaches the programmed value, the PCM turns shift solenoid valve D ON. Shift solenoid valve D pressure (SD) is applied to the right end of the lock-up shift valve to switch the torque converter pressure port leading to the front of the torque converter. Torque converter pressure (91) enters into the front of the torque converter to engage the torque converter clutch piston. The PCM also controls A/T clutch pressure control solenoid valve A to regulate A/T clutch pressure control solenoid valve A pressure (55) is applied to the lock-up control valve. Torque converter pressure (94) drained from the back of the torque converter is applied to the right side of the lock-up control valve, and torque converter pressure (90) is applied to the left side of the lock-up control valve. The lock-up control valve controls the amount of the lock-up by receiving these pressures. The torque converter clutch is engaged partially when torque converter pressure (90) in the left side of the lock-up control valve is higher, and the torque converter clutch is engaged securely according to the amount of pressure in the right side of the lock-up control valve. Under this condition, the torque converter clutch is engaged by pressure entering into the front side of the torque converter; this condition is partial lock-up.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.

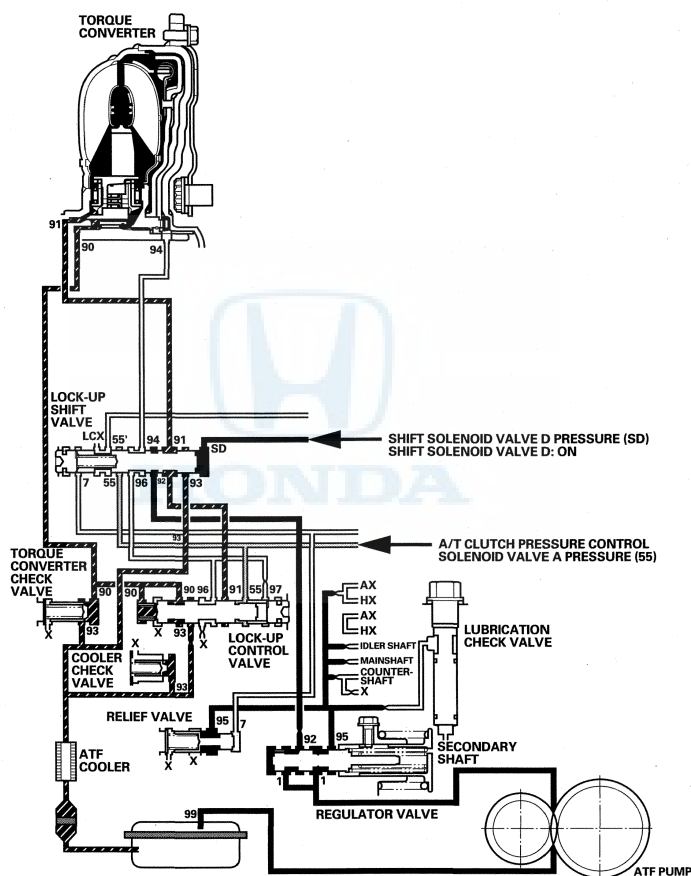




Full Lock-up

When the vehicle speed further increases, the PCM controls A/T clutch pressure control solenoid valve A to increase A/T clutch pressure control solenoid valve A pressure (55). A/T clutch pressure control solenoid valve A pressure (55) is applied to the lock-up control valve, and the lock-up control valve is moved to the left side to release torque converter back pressure (94). Torque converter pressure (91) enters into the front of the torque converter, and the torque converter clutch piston is securely engaged with the torque converter cover by torque converter pressure. Under this condition, torque converter back pressure is released fully, causing the torque converter clutch to be fully engaged; this condition is full lock-up.

NOTE: When used, "left" or "right" indicates direction on the hydraulic circuit.

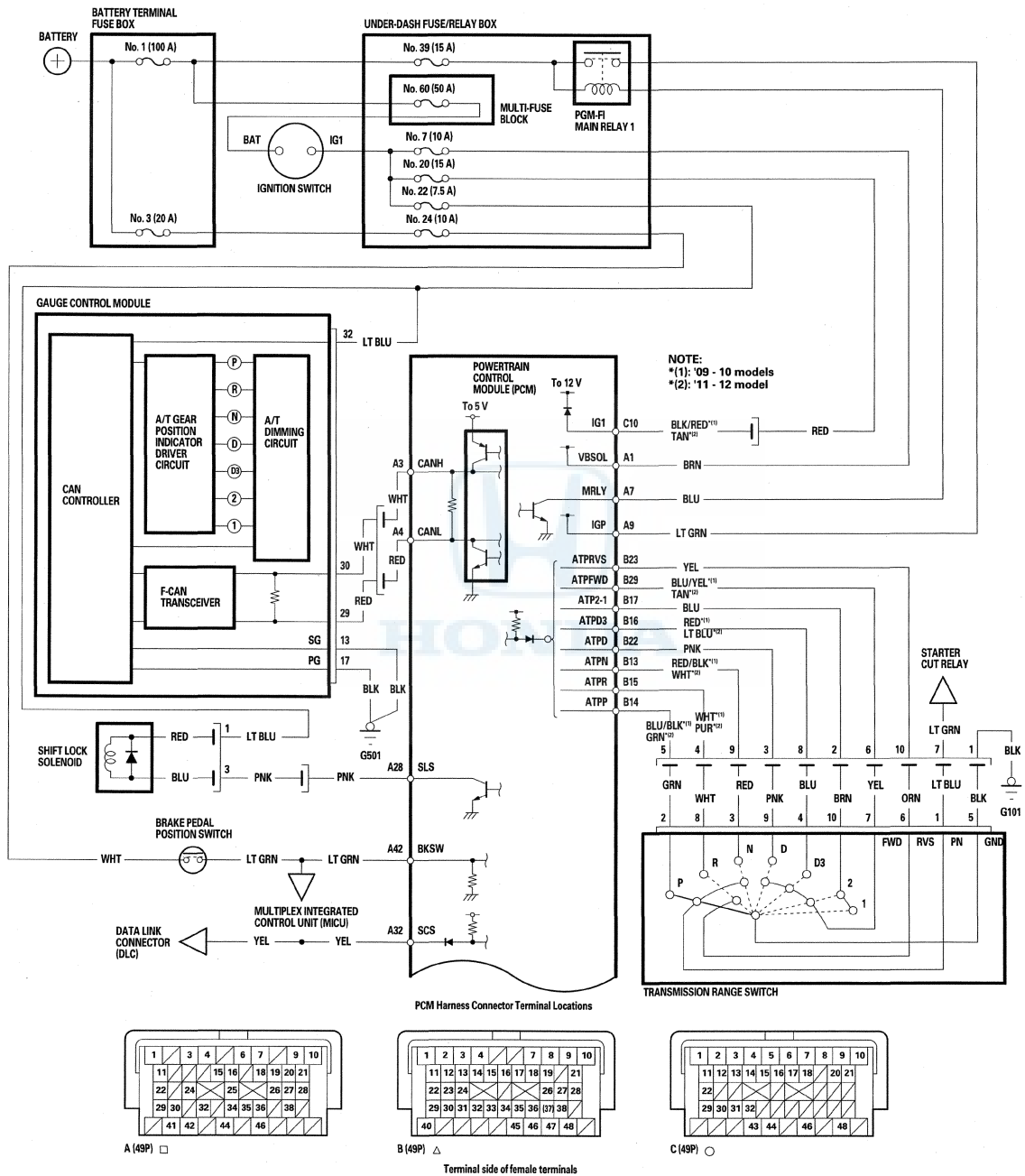


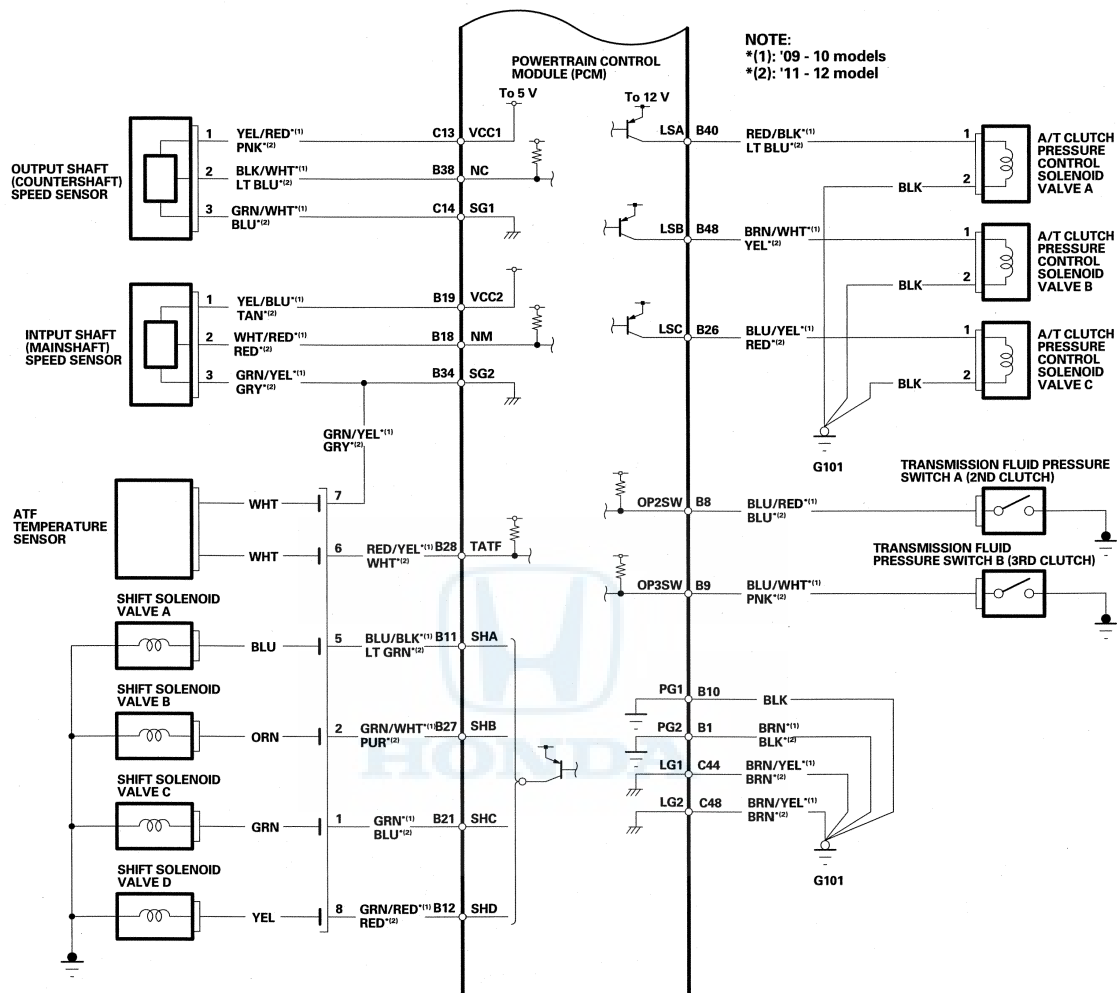
(cont'd)

Automatic Transmission

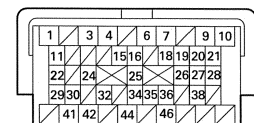
System Description (cont'd)

Circuit Diagram - PCM A/T Control System - Seven-position Transmission

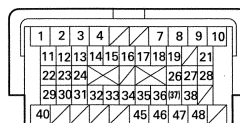




PCM Harness Connector Terminal Locations

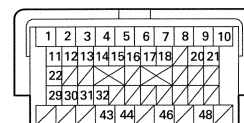


A (49P) □



B (49P) △

Terminal side of female terminals



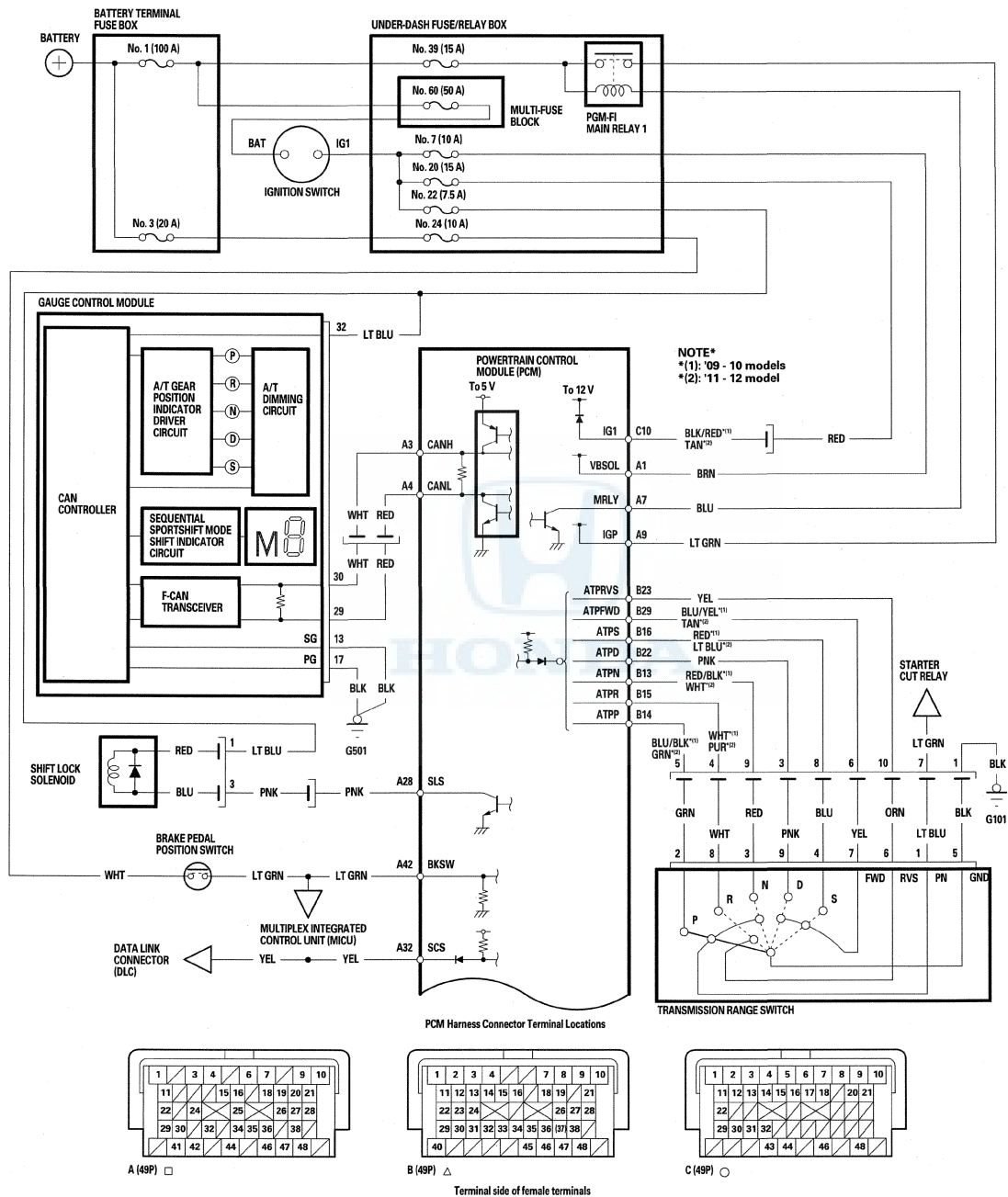
C (49P) ○

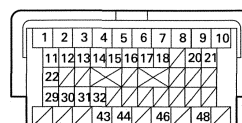
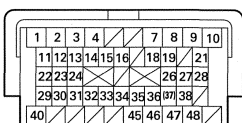
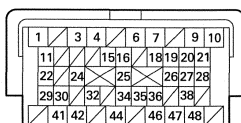
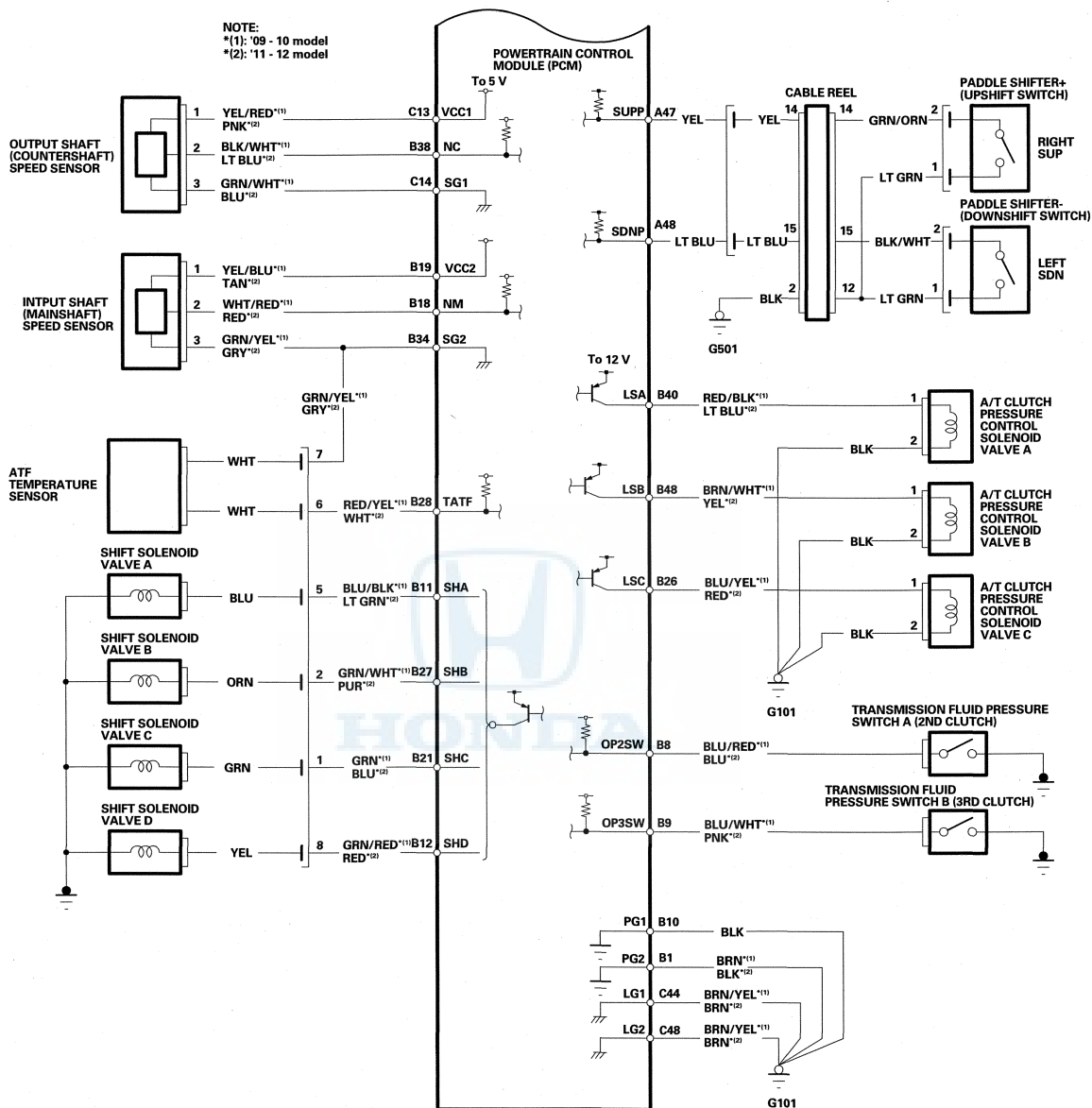
(cont'd)

Automatic Transmission

System Description (cont'd)

Circuit Diagram - PCM A/T Control System - Five-position Transmission





Terminal side of female terminals

Automatic Transmission

DTC Troubleshooting

DTC P062F: PCM Internal Control Module Keep Alive Memory (KAM) Error

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Check whether DTC P062F is indicated in the DTCs/Freeze Data in PGM-FI Mode Menu with the HDS.

Is DTC P062F indicated in the PGM-FI system?

YES—Troubleshoot for DTC P062F in the PGM-FI System (see page 11-141). ■

NO—Go to step 3.

3. Check whether DTC P062F is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

Is DTC P062F indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
5. Start the engine, and let it idle for 2 minutes.
6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P062F indicated?

YES—Check for poor connections and loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, then go to step 1.

NO—Go to step 7.

7. Monitor the OBD STATUS for P062F in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 6, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.



DTC P0705: Transmission Range Switch (Multiple Shift-position Input)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch to ON (II).
2. Move the shift lever through all positions, monitor the ATPP, ATPR, ATPN, ATPD, ATPD3, ATP2-1, ATPS, ATPFWD, and ATPRVS inputs with the HDS. Check for an ON-input that should be OFF in the specific position base on the following tables.

Seven-position Transmission

	ATP P	ATP R	ATP N	ATP D	ATP D3	ATP 2-1	ATP FWD	ATP RVS
P	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
R	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON
N	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
D	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF
D3	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF
2	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF
1	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF

Five-position Transmission

	ATP P	ATP R	ATP N	ATP D	ATP S	ATP FWD	ATP RVS
P	ON	OFF	OFF	OFF	OFF	OFF	OFF
R	OFF	ON	OFF	OFF	OFF	OFF	ON
N	OFF	OFF	ON	OFF	OFF	OFF	OFF
D	OFF	OFF	OFF	ON	OFF	ON	OFF
S	OFF	OFF	OFF	OFF	ON	ON	OFF

Are there any failed ON-inputs?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time.■

3. Disconnect the transmission range switch connector.
4. Check that the failed input-signal remains ON with the HDS.

Does the failed input-signal remain ON?

YES—Go to step 5.

NO—Replace the transmission range switch (see page 14-228).

5. Turn the ignition switch to LOCK (0).
6. Jump the SCS line with the HDS.
7. Disconnect PCM connector B (49P).
8. Check for continuity between transmission range switch connector terminal of the failed ON-input wire and body ground.

Seven-position Transmission

	ATP P	ATP R	ATP N	ATP D	ATP D3	ATP 2-1	ATP FWD	ATP RVS
PCM	B14	B15	B13	B22	B16	B17	B29	B23
Range Switch	2	8	3	9	4	10	7	6
Wire Color	GRN	WHT	RED	PNK	BLU	BRN	YEL	ORN

Five-position Transmission

	ATP P	ATP R	ATP N	ATP D	ATP S	ATP FWD	ATP RVS
PCM	B14	B15	B13	B22	B16	B29	B23
Range Switch	2	8	3	9	4	7	6
Wire Color	GRN	WHT	RED	PNK	BLU	YEL	ORN

Is there continuity?

YES—Repair a short in the wire between the transmission range switch connector and the PCM.■

NO—Go to step 9.

9. Check for continuity between the failed ON-input line terminal and all other terminals at the transmission range switch connector in the table in step 8.

Is there continuity between any terminals?

YES—Repair a short in the wires between the transmission range switch connector and the PCM.■

NO—Replace the PCM.■

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0706: Transmission Range Switch (Open)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Make sure the shift cable is adjusted properly.
2. Turn the ignition switch to ON (II).
3. Move the shift lever through all positions, monitor the ATPP, ATPR, ATPN, ATPD, ATPD3, ATP2-1, ATPS, ATPFWD, and ATPRVS inputs with the HDS. Check for an ON-input that should be OFF in the specific position base on the following tables.

Seven-position Transmission

	ATP P	ATP R	ATP N	ATP D	ATP D3	ATP 2-1	ATP FWD	ATP RVS
P	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
R	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON
N	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
D	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF
D3	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF
2	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF
1	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF

Five-position Transmission

	ATP P	ATP R	ATP N	ATP D	ATP S	ATP FWD	ATP RVS
P	ON	OFF	OFF	OFF	OFF	OFF	OFF
R	OFF	ON	OFF	OFF	OFF	OFF	ON
N	OFF	OFF	ON	OFF	OFF	OFF	OFF
D	OFF	OFF	OFF	ON	OFF	ON	OFF
S	OFF	OFF	OFF	OFF	ON	ON	OFF

Is there a failed OFF input-signal?

YES—If all inputs read OFF, go to step 11. If there is a failed input-signal, go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the transmission range switch connector.
6. Connect the transmission range switch connector terminal of the failed input-signal wire to body ground with a jumper wire.
7. Turn the ignition switch to ON (II), and check that the failed OFF-input changes to ON with the HDS.

Does the signal change to ON?

YES—Replace the transmission range switch (see page 14-228).

NO—Go to step 8.

8. Turn the ignition switch to LOCK (0).
9. Disconnect PCM connector B (49P).
10. Check for continuity between PCM connector terminal of the failed input-signal line and body ground.

Seven-position Transmission

	ATP P	ATP R	ATP N	ATP D	ATP D3	ATP 2-1	ATP FWD	ATP RVS
PCM	B14	B15	B13	B22	B16	B17	B29	B23
Range Switch	2	8	3	9	4	10	7	6
Wire Color	GRN	WHT	RED	PNK	BLU	BRN	YEL	ORN

Five-position Transmission

	ATP P	ATP R	ATP N	ATP D	ATP S	ATP FWD	ATP RVS
PCM	B14	B15	B13	B22	B16	B29	B23
Range Switch	2	8	3	9	4	7	6
Wire Color	GRN	WHT	RED	PNK	BLU	YEL	ORN

Is there continuity?

YES—Replace the PCM. ■

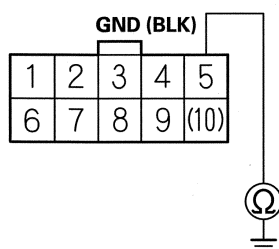
NO—Repair an open in the wire between transmission range switch and the PCM. ■

11. Turn the ignition switch to LOCK (0).
12. Disconnect the transmission range switch connector.



13. Check for continuity between transmission range switch connector terminal No. 5 and body ground.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the transmission range switch (see page 14-228).

NO—Repair an open in the wire between the transmission range switch and body ground (G101), or repair poor body ground (G101).■

DTC P0711: ATF Temperature Sensor (Range/Performance)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch to ON (II), and wait for 20 seconds.
2. Check the ATF Temperature with the HDS in the A/T data list.

Does the ATF Temperature indicate -4°F (-20°C) or below?

YES—Go to step 3.

NO—Go to step 5.

3. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
4. Check the ATF Temperature with the HDS in the A/T data list.

Does the ATF Temperature remain -4°F (-20°C) or below?

YES—Replace the ATF temperature sensor/shift solenoid harness (see page 14-189), then go to step 14.

NO—Intermittent failure, the system is OK at this time. If there is an abnormal temperature rise in the ATF temperature sensor, go to step 8.■

5. Check that the ATF Temperature indicates 230°F (110°C) or higher with the HDS in the A/T data list.

Does the ATF Temperature exceed 230°F (110°C)?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time.■

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

6. Leave the engine off until the Engine Coolant Temperature reads 122 °F (50 °C) or less with the HDS in the A/T data list.

7. Check the ATF Temperature with the HDS in the A/T data list.

Does the ATF Temperature remain 230 °F (110 °C) or higher?

YES—Replace the ATF temperature sensor/shift solenoid harness (see page 14-189), then go to step 14.

NO—Intermittent failure, the system is OK at this time. If there is an abnormal decrease in temperature of the ATF temperature sensor, go to step 8. ■

8. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
9. Turn the ignition switch to ON (II), and wait for 20 seconds, then start the engine. Warm the engine up to normal operating temperature (the radiator fan comes on).
10. Turn the engine off, and leave it off until the engine coolant cools to ambient air temperature (the Engine Coolant Temperature reads the same as ambient air temperature with the HDS).
11. Turn the ignition switch to ON (II), and wait for 20 seconds, then start the engine. Warm the engine up to normal operating temperature (the radiator fan comes on). Start off in D, accelerate with the throttle open at least 4 degrees, and drive the vehicle at steady speeds over 19 mph (30 km/h) for at least 5 minutes.
12. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0711 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 13.

13. Monitor the OBD STATUS for P0711 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 12, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the ATF temperature sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 9 and recheck.

14. Clear the DTC with the HDS.
15. Turn the ignition switch to ON (II), and wait for 20 seconds, then start the engine. Warm the engine up to normal operating temperature (the radiator fan comes on).
16. Turn the engine off, and leave it off until the engine coolant cools to ambient air temperature (the Engine Coolant Temperature reads the same as ambient air temperature with the HDS).
17. Turn the ignition switch to ON (II), and wait for 20 seconds, then start the engine. Warm the engine up to normal operating temperature (the radiator fan comes on). Start off in D, accelerate with the throttle open at least 4 degrees, and drive the vehicle at steady speeds over 19 mph (30 km/h) for at least 5 minutes.
18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0711 indicated?

YES—Check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to step 1.

NO—Go to step 19.

19. Monitor the OBD STATUS for P0711 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 15 and recheck.



DTC P0712: ATF Temperature Sensor (Short)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Turn the ignition switch to ON (II), and wait for 20 seconds.
2. Check the ATF temperature sensor voltage with the HDS in the A/T data list.

Is the ATF Temp Sensor (V) 0.07 V or less?

YES—Go to step 2.

NO—Intermittent failure, the system is OK at this time. Check for an intermittent short in the wire between the ATF temperature sensor and the PCM. ■

3. Turn the ignition switch to LOCK (0).
4. Disconnect the shift solenoid harness connector at the shift solenoid valve cover.
5. Turn the ignition switch to ON (II).
6. Check the ATF temperature sensor voltage with the HDS.

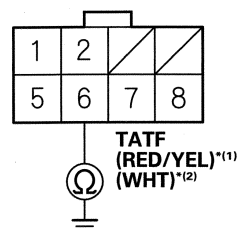
Is the ATF Temp Sensor (V) 0.07 V or less?

YES—Go to step 7.

NO—Replace the ATF temperature sensor/shift solenoid harness (see page 14-189), then go to step 16.
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector B (49P).

10. Check for continuity between shift solenoid harness connector terminal No. 6 and body ground.

SHIFT SOLENOID HARNESS CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between PCM connector terminal B28 and shift solenoid harness connector terminal No. 6, then go to step 16.

NO—Go to step 11.

11. Reconnect all connectors.
12. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
13. Turn the ignition switch to ON (II), and wait for 20 seconds, then start the engine in P. Run the engine for at least 10 seconds.
14. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0712 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 15.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

15. Monitor the OBD STATUS for P0712 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 14, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the ATF temperature sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 13 and recheck.

16. Reconnect all connectors.

17. Clear the DTC with the HDS.

18. Turn the ignition switch to ON (II), and wait for 20 seconds, then start the engine in P. Run the engine for at least 10 seconds.

19. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0712 indicated?

YES—Check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to step 1.

NO—Go to step 20.

20. Monitor the OBD STATUS for P0712 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 19, go to the indicated DTC's troubleshooting. ■

NO—Return to step 1. If the HDS indicates NOT COMPLETED, return to step 18 and recheck.

DTC P0713: ATF Temperature Sensor (Open)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:

- *(1): '09 - 10 models
- *(2): '11 - 12 model

1. Turn the ignition switch to ON (II), and wait for 20 seconds.

2. Check the ATF temperature sensor voltage with the HDS in the A/T data list.

Does the ATF Temp Sensor (V) exceed 4.93 V?

YES—Go to step 3.

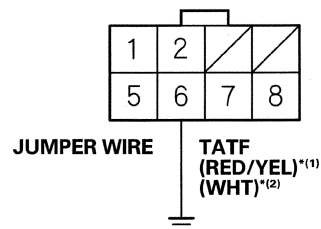
NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the ATF temperature sensor and the PCM. ■

3. Turn the ignition switch to LOCK (0).

4. Disconnect the shift solenoid harness connector at the shift solenoid valve cover.

5. Connect the shift solenoid harness connector terminal No. 6 to body ground with a jumper wire. Turn the ignition switch to ON (II), and check the ATF temperature sensor voltage with the HDS in the A/T data list.

SHIFT SOLENOID HARNESS CONNECTOR



Wire side of female terminals

Does the ATF Temp Sensor (V) drop to 0.07 V or below?

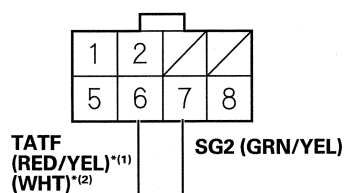
YES—Go to step 6.

NO—Go to step 8.



6. Turn the ignition switch to LOCK (0).
7. Connect a jumper wire between shift solenoid harness connector terminals No. 6 and No. 7. Turn the ignition switch to ON (II), and check the ATF temperature sensor voltage with the HDS in the A/T data list.

SHIFT SOLENOID HARNESS CONNECTOR



JUMPER WIRE

Wire side of female terminals

Does the ATF Temp Sensor (V) remain 0.07 V or below?

YES—Replace the ATF temperature sensor/shift solenoid harness (see page 14-189), then go to step 17.

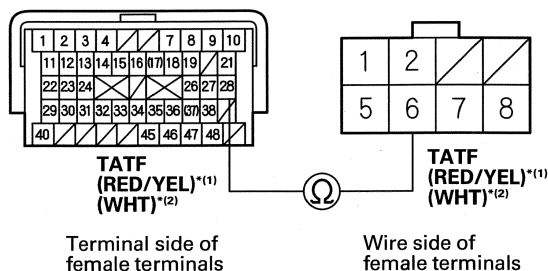
NO—Repair an open in the wire between PCM connector terminal B34 and the shift solenoid harness connector terminal No. 7, then go to step 17.

8. Turn the ignition switch to LOCK (0).
9. Jump the SCS line with the HDS.
10. Disconnect PCM connector B (49P).

11. Check for continuity between PCM connector terminal B28 and shift solenoid harness connector terminal No. 6.

PCM CONNECTOR B (49P)

SHIFT SOLENOID HARNESS CONNECTOR



Is there continuity?

YES—Go to step 12.

NO—Repair an open in the wire between PCM connector terminal B28 and the shift solenoid harness connector, then go to step 17.

12. Reconnect all connectors.
13. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
14. Turn the ignition switch to ON (II), and wait for 20 seconds, then start the engine in P. Run the engine for at least 10 seconds.
15. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0713 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 16.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

16. Monitor the OBD STATUS for P0713 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 15, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the ATF temperature sensor and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 14 and recheck.

17. Reconnect all connectors.
18. Clear the DTC with the HDS.
19. Turn the ignition switch to ON (II), and wait for 20 seconds, then start the engine in P. Run the engine for at least 10 seconds.
20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0713 indicated?

YES—Check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to step 1.

NO—Go to step 21.

21. Monitor the OBD STATUS for P0712 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 20, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the ATF temperature sensor and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 19 and recheck.

DTC P0714: ATF Temperature Sensor Intermittent Failure

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- An engine block heater must not be used.

1. Turn the ignition switch to ON (II).

2. Check the following parameters with the HDS:

- ATF Temperature in the A/T Data List.
- ECT Sensor 2 in the PGM-FI SYSTEM Data List

Are the ATF Temperature and ECT Sensor 2 about the same as the ambient air temperature?

YES—Go to step 4.

NO—Go to step 3.

3. Check the ATF Temperature with the HDS in the A/T Data List, and record the ATF temperature. Turn the ignition switch to LOCK (0), wait for 30 minutes, and check the ATF Temperature with the HDS again.

Does the ATF Temperature change?

YES—Leave the engine off for more than 6 hours, then go to step 4.

NO—Replace the ATF temperature sensor (see page 14-189). ■

4. Record the values of the ATF Temperature in the A/T Data List and ECT Sensor 2 in the PGM-FI SYSTEM Data List with the HDS.

5. Compare the values of the ATF Temperature Sensor and ECT Sensor 2.

Is the value of the ATF Temperature Sensor is higher than the value of the ECT Sensor 2 by 58 °F (32 °C) or more, or the value of the ATF Temperature Sensor is lower than the value of the ECT Sensor 2 by 43 °F (24 °C) or more?

YES—Replace the ATF temperature sensor (see page 14-189). ■

NO—Intermittent failure, the system is OK at this time. ■



DTC P0716: Problem in Input Shaft (Mainshaft) Speed Sensor Circuit

DTC P0721: Problem in Output Shaft (Countershaft) Speed Sensor Circuit

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely, or raise the vehicle on a lift.
4. Start the engine. Disable the VSA by pressing the VSA OFF switch for VSA-equipped model. Run the vehicle in D at speeds above 12 mph (20 km/h) for at least 10 seconds. Slow down and stop the wheels.

5. Check for pending or Confirmed DTCs with the HDS.

Is DTC P0718 or P0723 indicate?

YES—Go to the DTC P0718 troubleshooting (see page 14-98) or the DTC P0723 troubleshooting (see page 14-100).■

NO—Go to step 6.

6. Check for pending or Confirmed DTCs with the HDS.

Is DTC P0716 or P0721 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time.■

7. Check for loose or poor connections at the input shaft (mainshaft) speed sensor or the output shaft (countershaft) speed sensor, and check for proper speed sensor installation.

Are the connections and installation OK?

YES—Replace the input shaft (mainshaft) speed sensor (see page 14-187) or the output shaft (countershaft) speed sensor (see page 14-187), then go to step 8.

NO—Install the speed sensor properly, and connect the connector securely, then go to step 8.

8. Turn the ignition switch to ON (II).

9. Clear the DTC with the HDS.

10. Start the engine. Disable the VSA by pressing the VSA OFF switch for VSA-equipped model. Run the vehicle in D at speeds above 12 mph (20 km/h) for at least 10 seconds. Slow down and stop the wheels.

11. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0716 or P0721 indicated?

YES—Go to step 1.

NO—Troubleshooting is complete.■

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0717: Input Shaft (Mainshaft) Speed Sensor Circuit (No Signal Input)

DTC P0718: Input Shaft (Mainshaft) Speed Sensor (Intermittent Failure)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely, or raise the vehicle on a lift.
4. Start the engine. Disable the VSA by pressing the VSA OFF switch for VSA-equipped model. Run the vehicle with the shift lever in D at speeds above 12 mph (20 km/h). Compare the input shaft (mainshaft) speed and the output shaft (countershaft) speed in the Data List with the HDS. Slow down, and stop the wheels.

Are the speeds about the same?

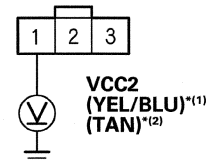
YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Disconnect the input shaft (mainshaft) speed sensor connector.
7. Turn the ignition switch to ON (II).

8. Measure the voltage between input shaft (mainshaft) speed sensor connector terminal No. 1 and body ground.

INPUT SHAFT (MAINSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

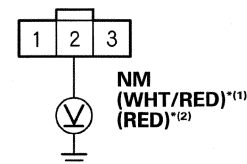
Is there about 5 V?

YES—Go to step 9.

NO—Repair an open in the wire between PCM connector terminal B19 and the input shaft (mainshaft) speed sensor, then go to step 15.

9. Measure the voltage between input shaft (mainshaft) speed sensor connector terminal No. 2 and body ground.

INPUT SHAFT (MAINSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there about 5 V?

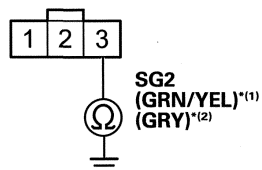
YES—Go to step 10.

NO—Go to step 11.



10. Check for continuity between input shaft (mainshaft) speed sensor connector terminal No. 3 and body ground.

**INPUT SHAFT (MAINSHAFT)
SPEED SENSOR CONNECTOR**



Wire side of female terminals

Is there continuity?

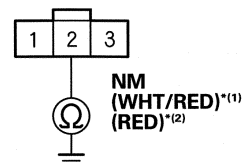
YES—Replace the input shaft (mainshaft) speed sensor (see page 14-187), then go to step 15.

NO—Repair an open in the wire between PCM connector terminal B34 and the input shaft (mainshaft) speed sensor, then go to step 15.

11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect PCM connector B (49P).

14. Check for continuity between input shaft (mainshaft) speed sensor connector terminal No. 2 and body ground.

**INPUT SHAFT (MAINSHAFT)
SPEED SENSOR CONNECTOR**



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between PCM connector terminal B18 and the input shaft (mainshaft) speed sensor, then go to step 15.

NO—Repair an open in the wire between PCM connector terminal B18 and the input shaft (mainshaft) speed sensor, then go to step 15.

15. Reconnect all connectors.
16. Turn the ignition switch to ON (II).
17. Clear the DTC with the HDS.
18. Start the engine. Disable the VSA by pressing the VSA OFF switch for VSA-equipped model. Run the vehicle with the shift lever in D at speeds above 12 mph (20 km/h). Compare the input shaft (mainshaft) speed and the output shaft (countershaft) speed in the Data List with the HDS. Slow down, and stop the wheels.

Are the speeds about the same?

YES—Troubleshooting is complete. ■

NO—Go to step 1.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0722: Output Shaft (Countershaft) Speed Sensor Circuit (No Signal Input)

DTC P0723: Output Shaft (Countershaft) Speed Sensor (Intermittent Failure)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Raise the front of the vehicle, make sure it is securely supported, and allow the front wheels to rotate freely, or raise the vehicle on a lift.
4. Start the engine. Disable the VSA by pressing the VSA OFF switch for VSA-equipped model. Run the vehicle with the shift lever in D at speeds above 12 mph (20 km/h). Compare the input shaft (mainshaft) speed and the output shaft (countershaft) speed in the Data List with the HDS. Slow down, and stop the wheels.

Are the speeds about the same?

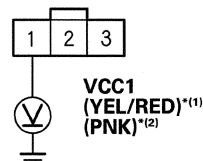
YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Disconnect the output shaft (countershaft) speed sensor connector.
7. Turn the ignition switch to ON (II).

8. Measure the voltage between output shaft (countershaft) speed sensor connector terminal No. 1 and body ground.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

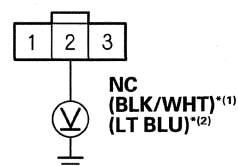
Is there about 5 V?

YES—Go to step 9.

NO—Repair an open in the wire between PCM connector terminal C13 and the output shaft (countershaft) speed sensor, then go to step 15.

9. Measure the voltage between output shaft (countershaft) speed sensor connector terminal No. 2 and body ground.

OUTPUT SHAFT (COUNTERSHAFT) SPEED SENSOR CONNECTOR



Wire side of female terminals

Is there about 5 V?

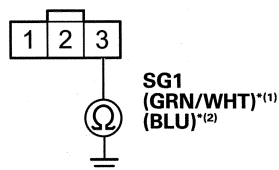
YES—Go to step 10.

NO—Go to step 11.



10. Check for continuity between output shaft (countershaft) speed sensor connector terminal No. 3 and body ground.

**OUTPUT SHAFT (COUNTERSHAFT)
SPEED SENSOR CONNECTOR**



Wire side of female terminals

Is there continuity?

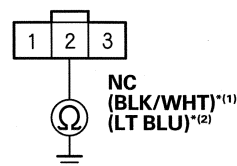
YES—Replace the output shaft (countershaft) speed sensor (see page 14-187), then go to step 15.

NO—Repair an open in the wire between PCM connector terminal C14 and the output shaft (countershaft) speed sensor, then go to step 15.

11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect PCM connector B (49P).

14. Check for continuity between output shaft (countershaft) speed sensor connector terminal No. 2 and body ground.

**OUTPUT SHAFT (COUNTERSHAFT)
SPEED SENSOR CONNECTOR**



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between PCM connector terminal B38 and the output shaft (countershaft) speed sensor, then go to step 15.

NO—Repair an open in the wire between PCM connector terminal B38 and the output shaft (countershaft) speed sensor, then go to step 15.

15. Reconnect all connectors.
16. Turn the ignition switch to ON (II).
17. Clear the DTC with the HDS.
18. Start the engine. Disable the VSA by pressing the VSA OFF switch for VSA-equipped model. Run the vehicle with the shift lever in D at speeds above 12 mph (20 km/h). Compare the input shaft (mainshaft) speed and the output shaft (countershaft) speed in the Data List with the HDS. Slow down, and stop the wheels.

Are the speeds about the same?

YES—Troubleshooting is complete. ■

NO—Go to step 1.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0731: 1st Gear Incorrect Ratio

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 10.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Measure the line pressure (see page 14-170).

Is the line pressure within the service limits?

YES—Go to step 5.

NO—Repair the ATF pump and the regulator valve, or replace the transmission, then go to step 10.

5. Measure the 1st clutch pressure (see page 14-170).

Is the 1st clutch pressure within the service limits?

YES—Go to step 6.

NO—Shift valve B is stuck. Repair this shift valve and hydraulic circuit, or replace the transmission, then go to step 10.

6. Clear the DTC with the HDS.
7. Test-drive the vehicle in 1st gear in D at speeds above 7 mph (12 km/h) with engine speed 1,000 rpm or higher, for at least 12 seconds. Slow down, and stop the wheels.
8. Check for Pending or Confirmed DTCs with the HDS.
Is DTC P0731 indicated?
YES—Repair the 1st clutch, or replace the transmission, then go to step 10.
NO—Go to step 9.

9. Monitor the OBD status for P0731 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Intermittent failure, the system is OK at this time. If any other DTCs were indicated on step 8, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then recheck. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.

10. Test-drive the vehicle in 1st gear in D at speeds above 7 mph (12 km/h) with engine speed 1,000 rpm or higher, for at least 12 seconds. Slow down, and stop the wheels.

11. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0731 indicated?

YES—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then go to step 1.

NO—Go to step 12.

12. Monitor the OBD status for P0731 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 11, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then go to step 4. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.



DTC P0732: 2nd Gear Incorrect Ratio

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 10.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Measure the line pressure (see page 14-170).

Is the line pressure within the service limits?

YES—Go to step 5.

NO—Repair the ATF pump and the regulator valve, or replace the transmission, then go to step 10.

5. Measure the 2nd clutch pressure (see page 14-170).

Is the 2nd clutch pressure within the service limits?

YES—Go to step 6.

NO—Shift valves A and B are stuck. Repair these valves and the hydraulic circuit, or replace the transmission, then go to step 10.

6. Clear the DTC with the HDS.

7. Test-drive the vehicle in 2nd gear in D at speeds above 7 mph (12 km/h) with engine speed 1,000 rpm or higher, for at least 12 seconds. Slow down, and stop the wheels.

8. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0732 indicated?

YES—Repair the 2nd clutch, or replace the transmission, then go to step 10.

NO—Go to step 9.

9. Monitor the OBD status for P0732 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Intermittent failure, the system is OK at this time. If any other DTCs were indicated on step 8, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then recheck. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.

10. Test-drive the vehicle in 2nd gear in D at speeds above 7 mph (12 km/h) with engine speed 1,000 rpm or higher, for at least 12 seconds. Slow down, and stop the wheels.

11. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0732 indicated?

YES—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then go to step 1.

NO—Go to step 12.

12. Monitor the OBD status for P0732 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 11, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then go to step 4. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0733: 3rd Gear Incorrect Ratio

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 10.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Measure the line pressure (see page 14-170).

Is the line pressure within the service limits?

YES—Go to step 5.

NO—Repair the ATF pump and the regulator valve, or replace the transmission, then go to step 10.

5. Measure the 3rd clutch pressure (see page 14-170).

Is the 3rd clutch pressure within the service limits?

YES—Go to step 6.

NO—Shift valve C is stuck. Repair this shift valve and the hydraulic circuit, or replace the transmission, then go to step 10.

6. Clear the DTC with the HDS.

7. Test-drive the vehicle in 3rd gear in D at speeds above 7 mph (12 km/h) with engine speed 1,000 rpm or higher, for at least 12 seconds. Slow down, and stop the wheels.

8. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0733 indicated?

YES—Repair the 3rd clutch, or replace the transmission, then go to step 10.

NO—Go to step 9.

9. Monitor the OBD status for P0733 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Intermittent failure, the system is OK at this time. If any other DTCs were indicated on step 8, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then recheck. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.

10. Test-drive the vehicle in 3rd gear in D at speeds above 7 mph (12 km/h) with engine speed 1,000 rpm or higher, for at least 12 seconds. Slow down, and stop the wheels.

11. Check for Pending or confirmed DTCs with the HDS.

Is DTC P0733 indicated?

YES—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then go to step 1.

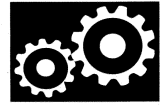
NO—Go to step 12.

12. Monitor the OBD status for P0733 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 11, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then go to step 4. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.



DTC P0734: 4th Gear Incorrect Ratio

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 10.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Measure the line pressure (see page 14-170).

Is the line pressure within the service limits?

YES—Go to step 5.

NO—Repair the ATF pump and the regulator valve, or replace the transmission, then go to step 10.

5. Measure the 4th clutch pressure (see page 14-170).

Is the 4th clutch pressure within the service limits?

YES—Go to step 6.

NO—Shift valves A, B, and C are stuck. Repair these valves and the hydraulic circuit, or replace the transmission, then go to step 10.

6. Clear the DTC with the HDS.
7. Test-drive the vehicle in 4th gear in D at speeds above 7 mph (12 km/h) with engine speed 1,000 rpm or higher, for at least 12 seconds. Slow down, and stop the wheels.

8. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0734 indicated?

YES—Repair the 4th clutch, or replace the transmission, then go to step 10.

NO—Go to step 9.

9. Monitor the OBD status for P0734 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Intermittent failure, the system is OK at this time. If any other DTCs were indicated on step 8, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then recheck. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.

10. Test-drive the vehicle in 4th gear in D at speeds above 7 mph (12 km/h) with engine speed 1,000 rpm or higher, for at least 12 seconds. Slow down, and stop the wheels.

11. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0734 indicated?

YES—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then go to step 1.

NO—Go to step 12.

12. Monitor the OBD status for P0734 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 11, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then go to step 4. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0735: 5th Gear Incorrect Ratio

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 10.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Measure the line pressure (see page 14-170).

Is the line pressure within the service limits?

YES—Go to step 5.

NO—Repair the ATF pump and the regulator valve, or replace the transmission, then go to step 10.

5. Measure the 5th clutch pressure (see page 14-170).

Is the 5th clutch pressure within the service limits?

YES—Go to step 6.

NO—Shift valve B is stuck. Repair this shift valve and the hydraulic circuit, or replace the transmission, then go to step 10.

6. Clear the DTC with the HDS.

7. Test-drive the vehicle in 5th gear in D at speeds above 7 mph (12 km/h) with engine speed 1,000 rpm or higher, for at least 12 seconds. Slow down, and stop the wheels.

8. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0735 indicated?

YES—Repair the 5th clutch, or replace the transmission, then go to step 10.

NO—Go to step 9.

9. Monitor the OBD status for P0735 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Intermittent failure, the system is OK at this time. If any other DTCs were indicated on step 8, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then recheck. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.

10. Test-drive the vehicle in 5th gear in D at speeds above 7 mph (12 km/h) with engine speed 1,000 rpm or higher, for at least 12 seconds. Slow down, and stop the wheels.

11. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0735 indicated?

YES—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then go to step 1.

NO—Go to step 12.

12. Monitor the OBD status for P0735 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 11, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the input shaft (mainshaft) speed sensor, the output shaft (countershaft) speed sensor, and the PCM, then go to step 4. If the HDS indicates NOT COMPLETED, return to step 10 and recheck.



DTC P0741: Torque Converter Clutch Circuit Performance or Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 12.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Clear the DTC with the HDS.
5. Select Shift Solenoid D in the Miscellaneous Test Menu, and check that the shift solenoid valve D operates with the HDS.

Is a clicking sound heard?

YES—Go to step 6.

NO—Replace shift solenoid valve D (see page 14-177), then go to step 11.

6. Run the engine until the engine coolant temperature reaches at least 176 °F (80 °C).
7. Select Clutch Pressure Control (Linear) Solenoid A in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve A with the HDS.

Does the HDS indicate NORMAL?

YES—Go to step 8.

NO—Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to step 10. If any part is replaced, go to step 11.

8. Test-drive the vehicle on a level road with a steady throttle at 60 mph (96 km/h) for at least 20 seconds, or test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data. Slow down, and stop the wheels.

9. Monitor the OBD status for P0741 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Repair the faulty torque converter clutch hydraulic circuit, lock-up shift valve, or lock-up control valve, or replace the torque converter assembly, then go to step 12.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 8 and recheck. ■

10. Inspect A/T clutch pressure control solenoid valve A (see page 14-179).

Does A/T clutch pressure control solenoid valve A work properly?

YES—Repair the hydraulic system related to the lock-up shift valve, lock-up control valve, and lock-up timing valve, or replace the transmission, then go to step 12.

NO—Replace A/T clutch pressure control solenoid valve A (see page 14-181), then go to step 11.

11. Clear the DTC with the HDS.

12. Test-drive the vehicle on a level road with a steady throttle at 60 mph (96 km/h) for at least 20 seconds, or test-drive the vehicle for several minutes under the same conditions as those indicated by the freeze data. Slow down, and stop the wheels.

13. Monitor the OBD status for P0741 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. ■

NO—Return to step 5 and recheck. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0746: A/T Clutch Pressure Control Solenoid Valve A Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.

3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 11.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Clear the DTC with the HDS.

5. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears, then slow down to a stop. Shift to N, wait for at least 3 seconds, then shift to R. Move the vehicle in reverse for at least 3 seconds, then slow down and stop the wheels.

6. Monitor the OBD status for P0746 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck. ■

7. Clear the DTC with the HDS.

8. Select Clutch Pressure Control (Linear) Solenoid Valve A in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve A with the HDS.

Does the HDS indicate NORMAL?

YES—Intermittent failure, the system is OK at this time. ■

NO—Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to step 9. If any part is replaced, go to step 10.

9. Inspect A/T clutch pressure control solenoid valve A (see page 14-179).

Does A/T clutch pressure control solenoid valve A work properly?

YES—Repair the hydraulic system related with shift valve A, or replace the transmission, then go to step 11.

NO—Replace A/T clutch pressure control solenoid valve A (see page 14-181), then go to step 10.

10. Clear the DTC with the HDS.

11. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears, then slow down to a stop. Shift to N, wait for at least 3 seconds, then shift to R. Move the vehicle in reverse for at least 3 seconds, then slow down and stop the wheels.

12. Monitor the OBD status for P0746 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. ■

NO—Return to step 7 and recheck. If the HDS indicates NOT COMPLETED, return to step 11 and recheck.



DTC P0747: A/T Clutch Pressure Control Solenoid Valve A Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 11.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P0747 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.

7. Clear the DTC with the HDS.
8. Select Clutch Pressure Control (Linear) Solenoid Valve A in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve A with the HDS.

Does the HDS indicate NORMAL?

YES—Intermittent failure, the system is OK at this time. ■

NO—Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to step 9. If any part is replaced, go to step 10.

9. Inspect A/T clutch pressure control solenoid valve A (see page 14-179).

Does A/T clutch pressure control solenoid valve A work properly?

YES—Repair the hydraulic system related with shift valve A, or replace the transmission, then go to step 11.

NO—Replace A/T clutch pressure control solenoid valve A (see page 14-181), then go to step 10.

10. Clear the DTC with the HDS.
11. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
12. Monitor the OBD status for P0747 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. ■

NO—Return to step 7 and recheck. If the HDS indicates NOT COMPLETED, return to step 11 and recheck.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0751: Shift Solenoid Valve A Stuck OFF

DTC P0752: Shift Solenoid Valve A Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 12.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P0751 or P0752 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck. ■

7. Clear the DTC with the HDS.
8. Select Shift Solenoid A in the Miscellaneous Test Menu, and check that shift solenoid valve A operates with the HDS.

Is a clicking sound heard?

YES—Go to step 9.

NO—Replace shift solenoid valve A (see page 14-177), then go to step 11.

9. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.

10. Monitor the OBD status for P0751 or P0752 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Repair the hydraulic system related with shift valve A, or replace the transmission, then go to step 12.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 9 and recheck. ■

11. Clear the DTC with the HDS.

12. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.

13. Monitor the OBD status for P0751 or P0752 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. ■

NO—Return to step 7 and recheck. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.



DTC P0756: Shift Solenoid Valve B Stuck OFF

DTC P0757: Shift Solenoid Valve B Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 12.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P0756 or P0757 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck. ■

7. Clear the DTC with the HDS.
8. Select Shift Solenoid B in the Miscellaneous Test Menu, and check that shift solenoid valve B operates with the HDS.

Is a clicking sound heard?

YES—Go to step 9.

NO—Replace shift solenoid valve B (see page 14-177), then go to step 11.

9. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.

10. Monitor the OBD status for P0756 or P0757 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Repair the hydraulic system related with shift valve B, or replace the transmission, then go to step 12.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 9 and recheck. ■

11. Clear the DTC with the HDS.

12. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.

13. Monitor the OBD status for P0756 or P0757 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. ■

NO—Return to step 7 and recheck. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0761: Shift Solenoid Valve C Stuck OFF

DTC P0762: Shift Solenoid Valve C Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 12.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P0761 or P0762 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck. ■

7. Clear the DTC with the HDS.
8. Select Shift Solenoid C in the Miscellaneous Test Menu, and check that shift solenoid valve C operates with the HDS.

Is a clicking sound heard?

YES—Go to step 9.

NO—Replace shift solenoid valve C (see page 14-177), then go to step 11.

9. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.

10. Monitor the OBD status for P0761 or P0762 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail

Does the HDS indicate FAILED?

YES—Repair the hydraulic system related with shift valve C, or replace the transmission, then go to step 12.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 9 and recheck. ■

11. Clear the DTC with the HDS.

12. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.

13. Monitor the OBD status for P0761 or P0762 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. ■

NO—Return to step 7 and recheck. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.



DTC P0766: Shift Solenoid Valve D Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 12.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Clear the DTC with the HDS.
5. Start the engine, shift to N, then into R. Move the vehicle in reverse for at least 2 seconds, and stop the wheels. Shift to D, and test-drive the vehicle for at least 2 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P0766 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.
Does the HDS indicate FAILED?
YES—Go to step 7.
NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.■
7. Clear the DTC with the HDS.
8. Select Shift Solenoid D in the Miscellaneous Test Menu, and check that shift solenoid valve D operates with the HDS.
Is a clicking sound heard?
YES—Go to step 9.
NO—Replace shift solenoid valve D (see page 14-177), then go to step 11.

9. Start the engine, shift to N, then into R. Move the vehicle in reverse for at least 2 seconds, and stop the wheels. Shift to D, and test-drive the vehicle for at least 2 seconds, and let the transmission shift through all five gears. Then slow down to a stop.

10. Monitor the OBD status for P0766 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Repair the hydraulic system related with shift valve D, or replace the transmission, then go to step 12.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 9 and recheck.■

11. Clear the DTC with the HDS.

12. Start the engine, shift to N, then into R. Move the vehicle in reverse for at least 2 seconds, and stop the wheels. Shift to D, and test-drive the vehicle for at least 2 seconds, and let the transmission shift through all five gears. Then slow down to a stop.

13. Monitor the OBD status for P0766 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete.■

NO—Return to step 7 and recheck. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0767: Shift Solenoid Valve D Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 12.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 2 seconds, and let the transmission shift through all five gears. Then slow down to a stop. With the brake pedal pressed, shift to R, and wait for at least 3 seconds.
6. Monitor the OBD status for P0767 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck. ■

7. Clear the DTC with the HDS.
8. Select Shift Solenoid D in the Miscellaneous Test Menu, and check that shift solenoid valve D operates with the HDS.

Is a clicking sound heard?

YES—Go to step 9.

NO—Replace shift solenoid valve D (see page 14-177), then go to step 11.

9. Test-drive the vehicle with the shift lever in D for at least 2 seconds, and let the transmission shift through all five gears. Then slow down to a stop. With the brake pedal pressed, shift to R, and wait for at least 3 seconds.

10. Monitor the OBD status for P0767 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Repair the hydraulic system related with shift valve D, or replace the transmission, then go to step 12.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 9 and recheck. ■

11. Clear the DTC with the HDS.

12. Test-drive the vehicle with the shift lever in D for at least 2 seconds, and let the transmission shift through all five gears. Then slow down to a stop. With the brake pedal pressed, shift to R, and wait for at least 3 seconds.

13. Monitor the OBD status for P0767 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. ■

NO—Return to step 7 and recheck. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.



DTC P0776: A/T Clutch Pressure Control Solenoid Valve B Stuck OFF

DTC P0777: A/T Clutch Pressure Control Solenoid Valve B Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 11.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P0776 or P0777 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.

7. Clear the DTC with the HDS.
8. Select Clutch Pressure Control (Linear) Solenoid Valve B in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve B with the HDS.

Does the HDS indicate NORMAL?

YES—Intermittent failure, the system is OK at this time. ■

NO—Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to step 9. If any part is replaced, go to step 10.

9. Inspect A/T clutch pressure control solenoid valve B (see page 14-182).

Does A/T clutch pressure control solenoid valve B work properly?

YES—Repair the hydraulic system related with shift valve B, or replace the transmission, then go to step 11.

NO—Replace A/T clutch pressure control solenoid valve B (see page 14-186), then go to step 10.

10. Clear the DTC with the HDS.
11. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
12. Monitor the OBD status for P0776 or P0777 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. ■

NO—Return to step 7 and recheck. If the HDS indicates NOT COMPLETED, return to step 11 and recheck.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0796: A/T Clutch Pressure Control Solenoid Valve C Stuck OFF

DTC P0797: A/T Clutch Pressure Control Solenoid Valve C Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 11.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P0796 or P0797 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck. ■

7. Clear the DTC with the HDS.
8. Select Clutch Pressure Control (Linear) Solenoid Valve C in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve C with the HDS.

Does the HDS indicate NORMAL?

YES—Intermittent failure, the system is OK at this time. ■

NO—Follow the instructions indicated on the HDS by the test result, but if the HDS has not determined the cause of the failure, go to step 9. If any part is replaced, go to step 10.

9. Inspect A/T clutch pressure control solenoid valve C (see page 14-184).

Does A/T clutch pressure control solenoid valve C work properly?

YES—Repair the hydraulic system related with shift valve C, or replace the transmission, then go to step 11.

NO—Replace A/T clutch pressure control solenoid valve C (see page 14-186), then go to step 10.

10. Clear the DTC with the HDS.
11. Test-drive the vehicle with the shift lever in D for at least 12 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
12. Monitor the OBD status for P0796 or P0797 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. ■

NO—Return to step 7 and recheck. If the HDS indicates NOT COMPLETED, return to step 11 and recheck.



DTC P0812: Transmission Range Switch ATPR Switch (Open)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch to ON (II).
2. Shift to R, and verify the A/T R Switch signal with the HDS in the A/T data list.

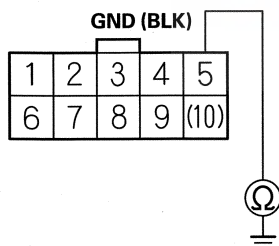
Is the A/T R Switch ON?

YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Disconnect the transmission range switch connector.
5. Check for continuity between transmission range switch connector terminal No. 5 and body ground.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

Is there continuity?

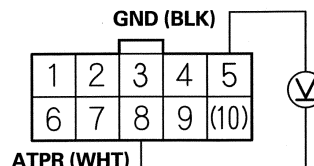
YES—Go to step 6

NO—Repair an open in the wire between transmission range switch connector terminal No. 5 and ground (G101), or repair poor ground (G101), then go to step 14.

6. Turn the ignition switch to ON (II).

7. Measure the voltage between transmission range switch connector terminals No. 5 and No. 8.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

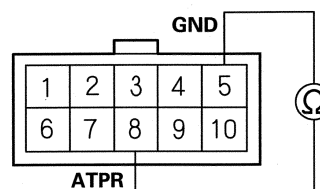
Is there battery voltage?

YES—Go to step 8.

NO—Repair an open in the wire between PCM connector terminal B15 and the transmission range switch, then go to step 14.

8. Check for continuity between transmission range switch connector terminals No. 5 and No. 8 while the shift lever is in R, and when the shift lever is shifted to any position other than R.

TRANSMISSION RANGE SWITCH CONNECTOR



Terminal side of male terminals

Is there continuity while the shift lever is in R, and no continuity when the shift lever is shifted to any position other than R?

YES—Go to step 9

NO—Replace the transmission range switch (see page 14-228), then go to step 14.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

9. Connect the transmission range switch connector.
10. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
11. Start the engine, shift to R while pressing the brake pedal, and wait for at least 2 seconds. Move the vehicle in reverse at speeds below 3 mph (5 km/h) for at least 2 seconds, then increase the speed and move at speeds above 3 mph (5 km/h) for at least 2 seconds. Slow down and stop the wheels.
12. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0812 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 13.

13. Monitor the OBD status for P0812 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 12, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 11 and recheck.

14. Connect the transmission range switch connector.
15. Clear the DTC with the HDS.
16. Start the engine, shift to R while pressing the brake pedal, and wait for at least 2 seconds. Move the vehicle in reverse at speeds below 3 mph (5 km/h) for at least 2 seconds, then increase the speed and move at speeds above 3 mph (5 km/h) for at least 2 seconds. Slow down and stop the wheels.
17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0812 indicated?

YES—Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to step 1.

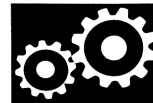
NO—Go to step 18.

18. Monitor the OBD status for P0812 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 16 and recheck.



DTC P0842: Transmission Fluid Pressure Switch A (2nd Clutch) (Short or Stuck ON)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.

2. Check the 2nd Pressure Switch signal with the HDS in the A/T data list when not in 2nd gear.

Is the 2nd Pressure Switch OFF?

YES—Go to step 3.

NO—Go to step 6.

3. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).

4. Test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 3rd gear in D or D3 for at least 2 seconds, then slow down to a stop.
- Five-position transmission: Drive the vehicle in D or in 3rd gear in the sequential sportshift mode in S for at least 2 seconds, then slow down to a stop.

5. Monitor the OBD status for P0842 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Check the OP2SW wire for an intermittent short to ground between the transmission fluid pressure switch A (2nd clutch) and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.

6. Turn the ignition switch to LOCK (0).

7. Disconnect the transmission fluid pressure switch A (2nd clutch) connector.

8. Turn the ignition switch to ON (II).

9. Check the 2nd Pressure Switch signal with the HDS in the A/T data list.

Is the 2nd Pressure Switch OFF?

YES—Replace the transmission fluid pressure switch A (2nd clutch) (see page 14-188), then go to step 20.

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).

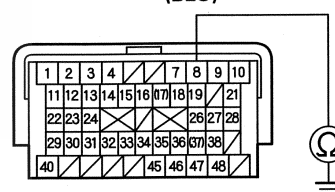
11. Jump the SCS line with the HDS.

12. Disconnect PCM connector B (49P).

13. Check for continuity between PCM connector terminal B8 and body ground.

PCM CONNECTOR B (49P)

**OP2SW
(BLU/RED)*⁽¹⁾
(BLU)*⁽²⁾**



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between PCM connector terminal B8 and the transmission fluid pressure switch A (2nd clutch), then go to step 20.

NO—Go to step 14.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

14. Reconnect all connectors.
15. Update the A/T software in the PCM if it does not have the latest gear software (see page 11-213), or substitute a known-good PCM (see page 11-7).
16. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
17. Test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in 2nd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
 - Five-position transmission: Drive the vehicle in 2nd gear in the sequential sportshift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
18. Check for Pending or Confirmed DTCs with the HDS.
- Is DTC P0842 indicated?*
- YES**—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.
- NO**—Go to step 19.
19. Monitor the OBD status for P0842 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.
- Does the HDS indicate PASSED?*
- YES**—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting. ■
- NO**—Check for an intermittent short in the wire between the transmission fluid pressure switch A (2nd clutch) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.

20. Reconnect all connectors.
21. Clear the DTC with the HDS.
22. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
23. Test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in 2nd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
 - Five-position transmission: Drive the vehicle in 2nd gear in the sequential sportshift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
24. Check for Pending or Confirmed DTCs with the HDS.
- Is DTC P0842 indicated?*
- YES**—Check for an intermittent short in the wire between the transmission fluid pressure switch A (2nd clutch) and the PCM, then go to step 1.
- NO**—Go to step 25.
25. Monitor the OBD status for P0842 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.
- Does the HDS indicate PASSED?*
- YES**—Troubleshooting is complete. If any other DTCs were indicated on step 24, go to the indicated DTC's troubleshooting. ■
- NO**—Check for an intermittent short in the wire between the transmission fluid pressure switch A (2nd clutch) and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 23 and recheck.



DTC P0843: Transmission Fluid Pressure Switch A (2nd Clutch) (Open or Stuck OFF)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:

- *(1): '09 - 10 models
- *(2): '11 - 12 model

1. Clear the DTC with the HDS.

2. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).

3. Shift into 2nd gear, and verify Shift Control display in the HDS:

- Seven-position transmission: Shift to 2 while pressing the brake pedal, and verify with the HDS in the A/T data list that the Shift Control indicates 2nd.
- Five-position transmission: Shift to S while pressing the brake pedal, upshift to 2nd gear by pulling the paddle shifter + (upshift switch), and verify with the HDS in the A/T data list that the Shift Control indicates 2nd.

4. Check the 2nd Pressure Switch signal with the HDS in the A/T data list.

Is the 2nd Pressure Switch ON?

YES—Go to step 5.

NO—Go to step 7.

5. Test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 2 for at least 2 seconds, then slow down to a stop.
- Five-position transmission: Drive the vehicle in 2nd gear in the sequential sportshift mode in S for at least 2 seconds, then slow down to a stop.

6. Monitor the OBD status for P0843 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at the transmission fluid pressure switch A (2nd clutch) and the PCM. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.

7. Measure the 2nd clutch pressure (see page 14-170).

Is the 2nd clutch pressure within the service limits?

YES—Go to step 8.

NO—Repair shift valves A, B, and C, and related hydraulic circuit, or replace the transmission, then go to step 22.

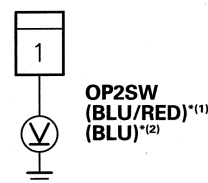
8. Turn the ignition switch to LOCK (0).

9. Disconnect the transmission fluid pressure switch A (2nd clutch) connector.

10. Turn the ignition switch to ON (II).

11. Measure the voltage between the transmission fluid pressure switch A (2nd clutch) connector terminal and body ground.

TRANSMISSION FLUID PRESSURE SWITCH A (2ND CLUTCH) CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Replace the transmission fluid pressure switch A (2nd clutch) (see page 14-188), then go to step 22.

NO—Go to step 12.

12. Turn the ignition switch to LOCK (0).

13. Jump the SCS line with the HDS.

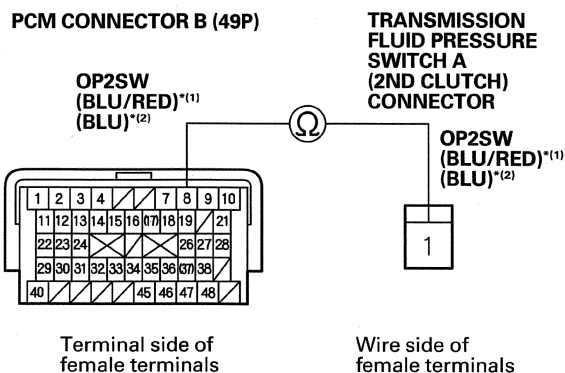
14. Disconnect PCM connector B (49P).

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

15. Check for continuity between PCM connector terminal B8 and the transmission fluid pressure switch A (2nd clutch) connector terminal.



Is there continuity?

YES—Go to step 16.

NO—Repair an open in the wire between PCM connector terminal B8 and the transmission fluid pressure switch A (2nd clutch), then go to step 22.

16. Reconnect all connectors.
17. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
18. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
19. Test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in 2nd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
 - Five-position transmission: Drive the vehicle in 2nd gear in the sequential sportshift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
20. Check for Pending or Confirmed DTCs with the HDS.
- Is DTC P0843 indicated?*
- YES**—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.
- NO**—Go to step 21.

21. Monitor the OBD status for P0843 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 20, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the transmission fluid pressure switch A (2nd clutch) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 19 and recheck.

22. Reconnect all connectors.
23. Clear the DTC with the HDS.
24. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
25. Test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in 2nd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
 - Five-position transmission: Drive the vehicle in 2nd gear in the sequential sportshift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
26. Check for Pending or Confirmed DTCs with the HDS.
- Is DTC P0843 indicated?*
- YES**—Check for poor connections and loose terminals at the transmission fluid pressure switch A (2nd clutch) and the PCM, then go to step 1.
- NO**—Go to step 27.



27. Monitor the OBD status for P0843 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 26, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the transmission fluid pressure switch A (2nd clutch) and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 25 and recheck.

DTC P0847: Transmission Fluid Pressure Switch B (3rd Clutch) (Short or Stuck ON)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.

2. Check the 3rd Pressure Switch signal with the HDS in the A/T data list when not in 3rd gear.

Is the 3rd Pressure Switch OFF?

YES—Go to step 3.

NO—Go to step 6.

3. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).

4. Test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 4th gear in D for at least 2 seconds, then slow down to a stop.
- Five-position transmission: Drive the vehicle in 4th gear in the sequential sportshift mode in S for at least 2 seconds, then slow down to a stop.

5. Monitor the OBD status for P0847 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Check the OP3SW wire for an intermittent short to ground between the transmission fluid pressure switch B (3rd clutch) and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

6. Turn the ignition switch to LOCK (0).
7. Disconnect the transmission fluid pressure switch B (3rd clutch) connector.
8. Turn the ignition switch to ON (II).
9. Check the 3rd Pressure Switch signal with the HDS in the A/T data list.

Is the 3rd Pressure Switch OFF?

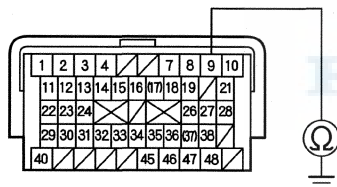
YES—Replace the transmission fluid pressure switch B (3rd clutch) (see page 14-188), then go to step 20.

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).
11. Jump the SCS line with the HDS.
12. Disconnect PCM connector B (49P).
13. Check for continuity between PCM connector terminal B9 and body ground.

PCM CONNECTOR B (49P)

OP3SW
(BLU/WHT)⁽¹⁾
(PNK)⁽²⁾



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between PCM connector terminal B9 and the transmission fluid pressure switch B (3rd clutch), then go to step 20.

NO—Go to step 14.

14. Reconnect all connectors.
15. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
16. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
17. Test-drive the vehicle:
 - Seven-position transmission: Drive the vehicle in 3rd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
 - Five-position transmission: Drive the vehicle in 3rd gear in the sequential sportshift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0847 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 19.

19. Monitor the OBD status for P0847 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting. ■

NO—Check for an intermittent short in the wire between the transmission fluid pressure switch B (3rd clutch) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.



20. Reconnect all connectors.
21. Clear the DTC with the HDS.
22. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
23. Test-drive the vehicle:
 - Seven-position transmission: Drive the vehicle in 3rd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
 - Five-position transmission: Drive the vehicle in 3rd gear in the sequential sportshift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
24. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0847 indicated?

YES—Check for an intermittent short in the wire between the transmission fluid pressure switch B (3rd clutch) and the PCM, then go to step 1.

NO—Go to step 25.

25. Monitor the OBD status for P0847 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 24, go to the indicated DTC's troubleshooting. ■

NO—Check for an intermittent short in the wire between the transmission fluid pressure switch B (3rd clutch) and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 23 and recheck.

DTC P0848: Transmission Fluid Pressure Switch B (3rd Clutch) (Open or Stuck OFF)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.
2. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
3. Verify Shift Control display in the HDS while driving in 3rd gear:
 - Seven-position transmission: Drive the vehicle in 3rd gear in D3, and verify with the HDS in the A/T data list that the Shift Control indicates 3rd.
 - Five-position transmission: Drive the vehicle in 3rd gear in the sequential sportshift mode in S, and verify with the HDS in the A/T data list that the Shift Control indicates 3rd.
4. Check the 3rd Pressure Switch signal with the HDS in the A/T data list.
5. Test-drive the vehicle:
 - Seven-position transmission: Drive the vehicle in 3rd gear in D3 for at least 2 seconds, then slow down to a stop.
 - Five-position transmission: Drive the vehicle in 3rd gear in the sequential sportshift mode in S for at least 2 seconds, then slow down to a stop.
6. Monitor the OBD status for P0848 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Is the 3rd Pressure Switch ON?

YES—Go to step 5.

NO—Go to step 7.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at the transmission fluid pressure switch B (3rd clutch) and the PCM. If the HDS indicates NOT COMPLETED, return to step 5 and recheck.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

7. Measure the 3rd clutch pressure (see page 14-170).

Is the 3rd clutch pressure within the service limits?

YES—Go to step 8.

NO—Repair shift valves A, B, and C, and related hydraulic circuit, or replace the transmission, then go to step 22.

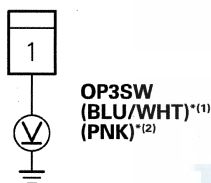
8. Turn the ignition switch to LOCK (0).

9. Disconnect the transmission fluid pressure switch B (3rd clutch) connector.

10. Turn the ignition switch to ON (II).

11. Measure the voltage between the transmission fluid pressure switch B (3rd clutch) connector terminal and body ground.

TRANSMISSION FLUID PRESSURE SWITCH B (3RD CLUTCH) CONNECTOR



Wire side of female terminals

Is there about 5 V?

YES—Replace the transmission fluid pressure switch B (3rd clutch) (see page 14-188), then go to step 22.

NO—Go to step 12.

12. Turn the ignition switch to LOCK (0).

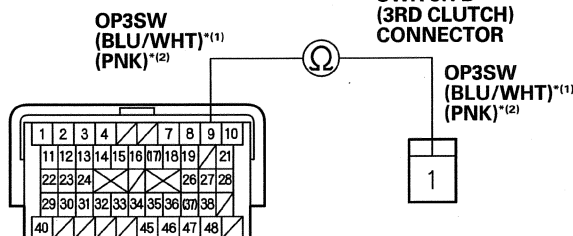
13. Jump the SCS line with the HDS.

14. Disconnect PCM connector B (49P).

15. Check for continuity between PCM connector terminal B9 and the transmission fluid pressure switch B (3rd clutch) connector terminal.

PCM CONNECTOR B (49P)

TRANSMISSION FLUID PRESSURE SWITCH B (3RD CLUTCH) CONNECTOR



Terminal side of female terminals

Wire side of female terminals

Is there continuity?

YES—Go to step 16.

NO—Repair an open in the wire between PCM connector terminal B9 and the transmission fluid pressure switch B (3rd clutch), then go to step 22.

16. Reconnect all connectors.

17. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).

18. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).

19. Test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 3rd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
- Five-position transmission: Drive the vehicle in 3rd gear in the sequential sportshift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.

20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0848 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 21.



21. Monitor the OBD status for P0848 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 20, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the transmission fluid pressure switch B (3rd clutch) and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 19 and recheck.

22. Reconnect all connectors.

23. Clear the DTC with the HDS.

24. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).

25. Test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 3rd gear in D for at least 2 seconds, then press the accelerator pedal so that the transmission upshifts into 4th gear, and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.
- Five-position transmission: Drive the vehicle in 3rd gear in the sequential sportshift mode in S for at least 2 seconds, then upshift to 4th gear by pulling the paddle shifter + (upshift switch), and drive in 4th gear for at least 2 seconds. Slow down and stop the engine.

26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0848 indicated?

YES—Check for poor connections and loose terminals at the transmission fluid pressure switch B (3rd clutch) and the PCM, then go to step 1.

NO—Go to step 27.

27. Monitor the OBD status for P0848 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 26, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the transmission fluid pressure switch B (3rd clutch) and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 25 and recheck.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0962: A/T Clutch Pressure Control Solenoid Valve A (Open or Short)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.
2. Check that DTC P0962 recurs.

Is DTC P0962 indicated?

YES—Go to step 6.

NO—Go to step 3.

3. Select Clutch Pressure Control (Linear) Solenoid Valve A in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve A with the HDS.

Does the HDS indicate NORMAL?

YES—Go to step 4.

NO—Go to step 6.

4. In the Clutch Pressure Control Solenoid Control menu, select Clutch Pressure Control Solenoid Valve A at 1.0 A.

5. Monitor the OBD status for P0962 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

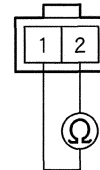
YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM. If the HDS indicates NOT COMPLETED, return to step 3 and recheck.

6. Turn the ignition switch to LOCK (0).
7. Disconnect the A/T clutch pressure control solenoid valve A connector.

8. Measure the resistance between A/T clutch pressure control solenoid valve A connector terminals No. 1 and No. 2.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Terminal side of male terminals

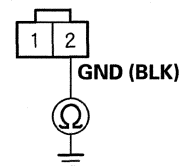
Is there 3—10 Ω?

YES—Go to step 9.

NO—Replace A/T clutch pressure control solenoid valve A (see page 14-181), then go to step 19.

9. Check for continuity between A/T clutch pressure control solenoid valve A connector terminal No. 2 and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Wire side of female terminals

Is there continuity?

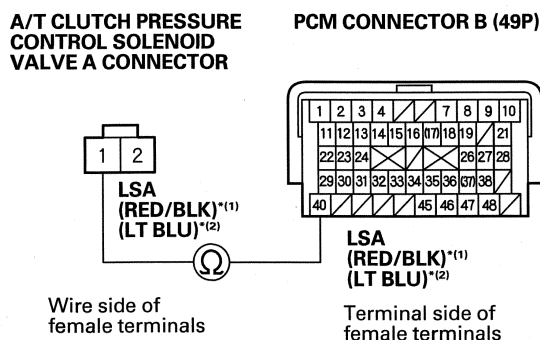
YES—Go to step 10.

NO—Repair an open in the wire between A/T clutch pressure control solenoid valve A and ground (G101), or repair poor ground (G101), then go to step 19.

10. Jump the SCS line with the HDS.
11. Disconnect PCM connector B (49P).



12. Check for continuity between PCM connector terminal B40 and A/T clutch pressure control solenoid valve A connector terminal No. 1.



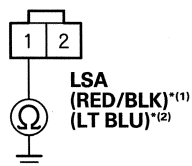
Is there continuity?

YES—Go to step 13.

NO—Repair an open in the wire between PCM connector terminal B40 and A/T clutch pressure control solenoid valve A, then go to step 19.

13. Check for continuity between A/T clutch pressure control solenoid valve A connector terminal No. 1 and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE A CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between PCM connector terminal B40 and A/T clutch pressure control solenoid valve A, then go to step 19.

NO—Go to step 14.

14. Reconnect all connectors.

15. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).

16. Start the engine, and wait for at least 1 second.

17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0962 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 18.

18. Monitor the OBD status for P0962 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 16 and recheck.

19. Reconnect all connectors.

20. Clear the DTC with the HDS.

21. Start the engine, and wait for at least 1 second.

22. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0962 indicated?

YES—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM, then go to step 1.

NO—Go to step 23.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

23. Monitor the OBD status for P0962 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

DTC P0963: A/T Clutch Pressure Control Solenoid Valve A

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.

2. Check that DTC P0963 recurs.

Is DTC P0963 indicated?

YES—Go to step 6.

NO—Go to step 3.

3. Select Clutch Pressure Control (Linear) Solenoid Valve A in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve A with the HDS.

Does the HDS indicate NORMAL?

YES—Go to step 4.

NO—Go to step 6.

4. In the Clutch Pressure Control Solenoid Control menu, select Clutch Pressure Control Solenoid Valve A at 0.2 A.

5. Monitor the OBD status for P0963 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM. If the HDS indicates NOT COMPLETED, return to step 3 and recheck.

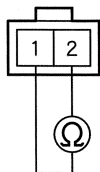
6. Turn the ignition switch to LOCK (0).

7. Disconnect the A/T clutch pressure control solenoid valve A connector.



8. Measure the resistance between A/T clutch pressure control solenoid valve A connector terminals No. 1 and No. 2.

**A/T CLUTCH PRESSURE CONTROL
SOLENOID VALVE A CONNECTOR**



Terminal side of male terminals

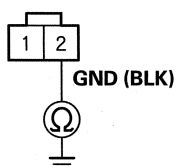
Is there 3–10 Ω ?

YES—Go to step 9.

NO—Replace A/T clutch pressure control solenoid valve A (see page 14-181), then go to step 15.

9. Check for continuity between A/T clutch pressure control solenoid valve A connector terminal No. 2 and body ground.

**A/T CLUTCH PRESSURE CONTROL
SOLENOID VALVE A CONNECTOR**



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair an open in the wire between A/T clutch pressure control solenoid valve A and ground (G101), or repair poor ground (G101), then go to step 15.

10. Connect the A/T clutch pressure control solenoid valve A connector.

11. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).

12. Start the engine, and wait for at least 1 second.

13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0963 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 14.

14. Monitor the OBD status for P0963 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 13, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

15. Connect the A/T clutch pressure control solenoid valve A connector.

16. Clear the DTC with the HDS.

17. Start the engine, and wait for at least 1 second.

18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0963 indicated?

YES—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM, then go to step 1.

NO—Go to step 19.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

19. Monitor the OBD status for P0963 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve A and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.

DTC P0966: A/T Clutch Pressure Control Solenoid Valve B (Open or Short)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.

2. Check that DTC P0966 recurs.

Is DTC P0966 indicated?

YES—Go to step 6.

NO—Go to step 3.

3. Select Clutch Pressure Control (Linear) Solenoid Valve B in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve B with the HDS.

Does the HDS indicate NORMAL?

YES—Go to step 4.

NO—Go to step 6.

4. In the Clutch Pressure Control Solenoid Control menu, select Clutch Pressure Control Solenoid Valve B at 1.0 A.

5. Monitor the OBD status for P0966 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM. If the HDS indicates NOT COMPLETED, return to step 3 and recheck.

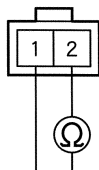
6. Turn the ignition switch to LOCK (0).

7. Disconnect the A/T clutch pressure control solenoid valve B connector.



8. Measure the resistance between A/T clutch pressure control solenoid valve B connector terminals No. 1 and No. 2.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Terminal side of male terminals

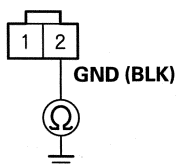
Is there 3–10 Ω?

YES—Go to step 9.

NO—Replace A/T clutch pressure control solenoid valve B (see page 14-186), then go to step 19.

9. Check for continuity between A/T clutch pressure control solenoid valve B connector terminal No. 2 and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair an open in the wire between A/T clutch pressure control solenoid valve B and ground (G101), or repair poor ground (G101), then go to step 19.

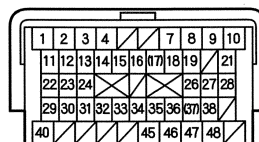
10. Jump the SCS line with the HDS.

11. Disconnect PCM connector B (49P).

12. Check for continuity between PCM connector terminal B48 and A/T clutch pressure control solenoid valve B connector terminal No. 1.

PCM CONNECTOR B (49P)

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



LSB
(BRN/WHT)^{*(1)}
(YEL)^{*(2)}

Terminal side of female terminals



LSB
(BRN/WHT)^{*(1)}
(YEL)^{*(2)}

Wire side of female terminals

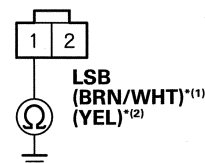
Is there continuity?

YES—Go to step 13.

NO—Repair an open in the wire between PCM connector terminal B48 and A/T clutch pressure control solenoid valve B, then go to step 19.

13. Check for continuity between A/T clutch pressure control solenoid valve B connector terminal No. 1 and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between PCM connector terminal B48 and A/T clutch pressure control solenoid valve B, then go to step 19.

NO—Go to step 14.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

14. Reconnect all connectors.
15. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
16. Start the engine, and wait for at least 1 second.
17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0966 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 18.

18. Monitor the OBD status for P0966 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 16 and recheck.

19. Reconnect all connectors.
20. Clear the DTC with the HDS.
21. Start the engine, and wait for at least 1 second.
22. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0966 indicated?

YES—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM, then go to step 1.

NO—Go to step 23.

23. Monitor the OBD status for P0966 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.



DTC P0967: A/T Clutch Pressure Control Solenoid Valve B

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0967 recurs.

Is DTC P0967 indicated?

YES—Go to step 6.

NO—Go to step 3.

3. Select Clutch Pressure Control (Linear) Solenoid Valve B in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve B with the HDS.

Does the HDS indicate NORMAL?

YES—Go to step 4.

NO—Go to step 6.

4. In the Clutch Pressure Control Solenoid Control menu, select Clutch Pressure Control Solenoid Valve B at 0.2 A.

5. Monitor the OBD status for P0967 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

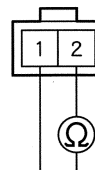
YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM. If the HDS indicates NOT COMPLETED, return to step 3 and recheck.

6. Turn the ignition switch to LOCK (0).
7. Disconnect the A/T clutch pressure control solenoid valve B connector.

8. Measure the resistance between A/T clutch pressure control solenoid valve B connector terminals No. 1 and No. 2.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Terminal side of male terminals

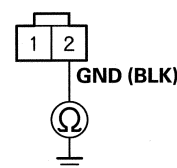
Is there 3—10 Ω?

YES—Go to step 9.

NO—Replace A/T clutch pressure control solenoid valve B (see page 14-186), then go to step 15.

9. Check for continuity between A/T clutch pressure control solenoid valve B connector terminal No. 2 and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE B CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair an open in the wire between A/T clutch pressure control solenoid valve B and ground (G101), or repair poor ground (G101), then go to step 15.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

10. Connect the A/T clutch pressure control solenoid valve B connector.
11. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).

12. Start the engine, and wait for at least 1 second.

13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0967 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 14.

14. Monitor the OBD status for P0967 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 13, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

15. Connect the A/T clutch pressure control solenoid valve B connector.
16. Clear the DTC with the HDS.
17. Start the engine, and wait for at least 1 second.
18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0967 indicated?

YES—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM, then go to step 1.

NO—Go to step 19.

19. Monitor the OBD status for P0967 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve B and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.



DTC P0970: A/T Clutch Pressure Control Solenoid Valve C (Open or Short)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.
2. Check that DTC P0970 recurs.

Is DTC P0970 indicated?

YES—Go to step 6.

NO—Go to step 3.

3. Select Clutch Pressure Control (Linear) Solenoid Valve C in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve C with the HDS.

Does the HDS indicate NORMAL?

YES—Go to step 4.

NO—Go to step 6.

4. In the Clutch Pressure Control Solenoid Control menu, select Clutch Pressure Control Solenoid Valve C at 1.0 A.
5. Monitor the OBD status for P0970 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

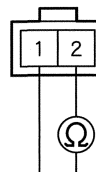
YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM. If the HDS indicates NOT COMPLETED, return to step 3 and recheck.

6. Turn the ignition switch to LOCK (0).
7. Disconnect the A/T clutch pressure control solenoid valve C connector.

8. Measure the resistance between A/T clutch pressure control solenoid valve C connector terminals No. 1 and No. 2.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C CONNECTOR



Terminal side of male terminals

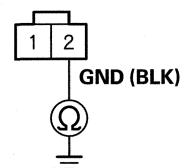
Is there 3—10 Ω?

YES—Go to step 9.

NO—Replace A/T clutch pressure control solenoid valve C (see page 14-186), then go to step 19.

9. Check for continuity between A/T clutch pressure control solenoid valve C connector terminal No. 2 and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair an open in the wire between A/T clutch pressure control solenoid valve C and ground (G101), or repair poor ground (G101), then go to step 19.

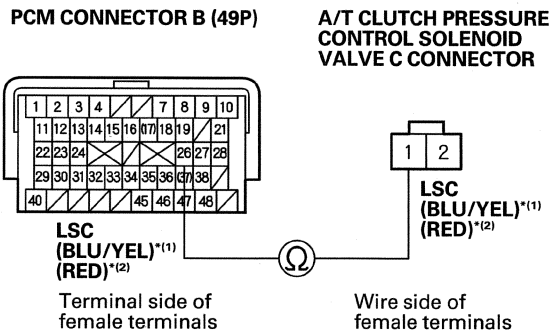
10. Jump the SCS line with the HDS.
11. Disconnect PCM connector B (49P).

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

12. Check for continuity between PCM connector terminal B26 and A/T clutch pressure control solenoid valve C connector terminal No. 1.



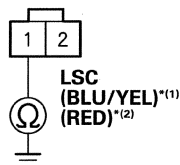
Is there continuity?

YES—Go to step 13.

NO—Repair an open in the wire between PCM connector terminal B26 and A/T clutch pressure control solenoid valve C, then go to step 19.

13. Check for continuity between A/T clutch pressure control solenoid valve C connector terminal No. 1 and body ground.

A/T CLUTCH PRESSURE CONTROL SOLENOID VALVE C CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between PCM connector terminal B26 and A/T clutch pressure control solenoid valve C, then go to step 19.

NO—Go to step 14.

14. Reconnect all connectors.

15. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).

16. Start the engine, and wait for at least 1 second.

17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0970 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 18.

18. Monitor the OBD status for P0970 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, go to step 16 and recheck.

19. Reconnect all connectors.

20. Clear the DTC with the HDS.

21. Start the engine, and wait for at least 1 second.

22. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0970 indicated?

YES—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM, then go to step 1.

NO—Go to step 23.



23. Monitor the OBD status for P0970 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

DTC P0971: A/T Clutch Pressure Control Solenoid Valve C

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Clear the DTC with the HDS.
2. Check that DTC P0971 recurs.

Is DTC P0971 indicated?

YES—Go to step 6.

NO—Go to step 3.

3. Select Clutch Pressure Control (Linear) Solenoid Valve C in the Miscellaneous Test Menu, and test A/T clutch pressure control solenoid valve C with the HDS.

Does the HDS indicate NORMAL?

YES—Go to step 4.

NO—Go to step 6.

4. In the Clutch Pressure Control Solenoid Control menu, select Clutch Pressure Control Solenoid Valve C at 0.2 A.
5. Monitor the OBD status for P0971 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM. If the HDS indicates NOT COMPLETED, return to step 3 and recheck.

6. Turn the ignition switch to LOCK (0).
7. Disconnect the A/T clutch pressure control solenoid valve C connector.

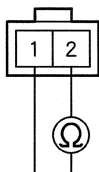
(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

8. Measure the resistance between A/T clutch pressure control solenoid valve C connector terminals No. 1 and No. 2.

A/T CLUTCH PRESSURE CONTROL
SOLENOID VALVE C CONNECTOR



Terminal side of male terminals

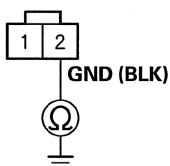
Is there 3–10 Ω ?

YES—Go to step 9.

NO—Replace A/T clutch pressure control solenoid valve C (see page 14-186), then go to step 15.

9. Check for continuity between A/T clutch pressure control solenoid valve C connector terminal No. 2 and body ground.

A/T CLUTCH PRESSURE CONTROL
SOLENOID VALVE C CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair an open in the wire between A/T clutch pressure control solenoid valve C and ground (G101), or repair poor ground (G101), then go to step 12.

10. Connect the A/T clutch pressure control solenoid valve C connector.

11. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).

12. Start the engine, and wait for at least 1 second.

13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0971 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 14.

14. Monitor the OBD status for P0971 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 13, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

15. Connect the A/T clutch pressure control solenoid valve C connector.

16. Clear the DTC with the HDS.

17. Start the engine, and wait for at least 1 second.

18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0971 indicated?

YES—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM, then go to step 1.

NO—Go to step 19.



19. Monitor the OBD status for P0971 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at A/T clutch pressure control solenoid valve C and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.

DTC P0973: Shift Solenoid Valve A (Short)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.

2. Start the engine, and test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second, then slow down to a stop.
- Five-position transmission: Drive the vehicle in D or in 2nd gear in the sequential sportshift mode in S for at least 1 second, then slow down to a stop.

3. Check that DTC P0973 recurs.

Is DTC P0973 indicated?

YES—Go to step 7.

NO—Go to step 4.

4. Select Shift Solenoid A in the Miscellaneous Test Menu, and test shift solenoid valve A with the HDS.

Is a clicking sound heard?

YES—Go to step 5.

NO—Go to step 7.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

5. Test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second. Slow down to a stop, and wait for at least 1 second.
- Five-position transmission: Drive the vehicle in D or in 2nd gear in the sequential sportshift mode in S for at least 1 second. Slow down to a stop, and wait for at least 1 second.

6. Monitor the OBD status for P0973 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

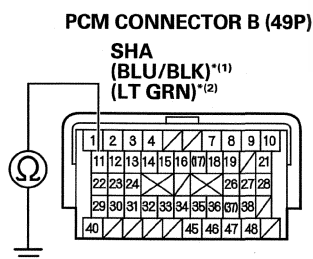
NO—Intermittent failure, the system is OK at this time. Check the SHA wire for an intermittent short to ground between shift solenoid valve A and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.

7. Turn the ignition switch to LOCK (0).

8. Jump the SCS line with the HDS.

9. Disconnect PCM connector B (49P).

10. Measure the resistance between PCM connector terminal B11 and body ground.



Terminal side of female terminals

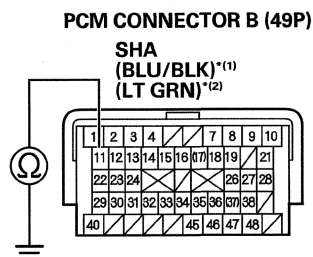
Is there less than 12 Ω?

YES—Go to step 11.

NO—Go to step 14.

11. Disconnect the shift solenoid harness connector.

12. Check for continuity between PCM connector terminal B11 and body ground.



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between PCM connector terminal B11 and the shift solenoid harness connector, then go to step 19.

NO—Go to step 13.

13. Inspect shift solenoid valve A (see page 14-174).

Is shift solenoid valve A OK?

YES—Go to step 14.

NO—Replace shift solenoid valve A or the shift solenoid harness (see page 14-177), then go to step 19.

14. Reconnect all connectors.

15. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).

16. Test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second. Slow down to a stop, and wait for at least 1 second.
- Five-position transmission: Drive the vehicle in D or in 2nd gear in the sequential sportshift mode in S for at least 1 second. Slow down to a stop, and wait for at least 1 second.

17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0973 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 18.



18. Monitor the OBD status for P0973 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting. ■

NO—Check for an intermittent short in the wire between shift solenoid valve A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 16 and recheck.

19. Reconnect all connectors.

20. Clear the DTC with the HDS.

21. Test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second. Slow down to a stop, and wait for at least 1 second.
- Five-position transmission: Drive the vehicle in D or in 2nd gear in the sequential sportshift mode in S for at least 1 second. Slow down to a stop, and wait for at least 1 second.

22. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0973 indicated?

YES—Check for an intermittent short in the wire between shift solenoid valve A and the PCM, then go to step 1.

NO—Go to step 23.

23. Monitor the OBD status for P0973 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting. ■

NO—Check for an intermittent short in the wire between shift solenoid valve A and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

DTC P0974: Shift Solenoid Valve A (Open)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.

2. Start the engine in P, and wait for at least 1 second.

3. Check that DTC P0974 recurs.

Is DTC P0974 indicated?

YES—Go to step 7.

NO—Go to step 4.

4. Select Shift Solenoid A in the Miscellaneous Test Menu, and test shift solenoid valve A with the HDS.

Is a clicking sound heard?

YES—Go to step 5.

NO—Go to step 7.

5. Start the engine in P, and wait for at least 1 second. Then:

- Seven-position transmission: Test-drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second. Slow down to a stop, and wait for at least 1 second.
- Five-position transmission: Test-drive the vehicle in D or in 2nd gear in the sequential sportshift mode in S for at least 1 second. Slow down to a stop, and wait for at least 1 second.

6. Monitor the OBD status for P0974 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at shift solenoid valve A and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.

7. Turn the ignition switch to LOCK (0).

8. Jump the SCS line with the HDS.

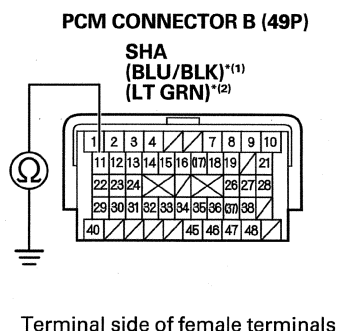
9. Disconnect PCM connector B (49P).

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

10. Measure the resistance between PCM connector terminal B11 and body ground.

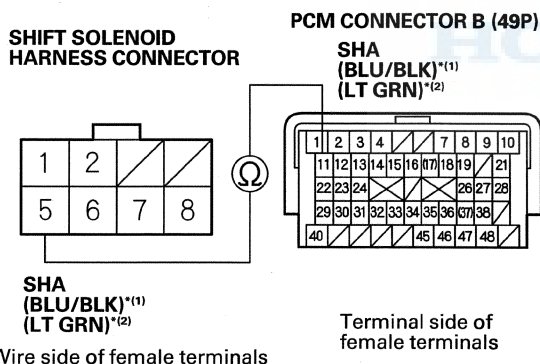


Is there 12–25 Ω ?

YES—Go to step 15.

NO—Go to step 11.

11. Disconnect the shift solenoid harness connector.
12. Check for continuity between PCM connector terminal B11 and shift solenoid harness connector terminal No. 5.



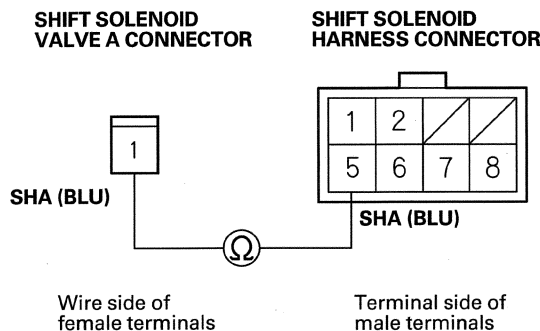
Is there continuity?

YES—Go to step 13.

NO—Repair an open in the wire between PCM connector terminal B11 and the shift solenoid harness connector, then go to step 20.

13. Remove the shift solenoid harness (see page 14-177).

14. Check for continuity between shift solenoid harness connector terminal No. 5 and the shift solenoid valve A connector terminal.



Is there continuity?

YES—Replace shift solenoid valve A (see page 14-177), then go to step 20.

NO—Replace the shift solenoid harness (see page 14-177), then go to step 20.

15. Connect PCM connectors.
16. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
17. Test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second. Slow down to a stop, and wait for at least 1 second.
 - Five-position transmission: Drive the vehicle in D or in 2nd gear in the sequential sportshift mode in S for at least 1 second. Slow down to a stop, and wait for at least 1 second.
18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0974 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 19.



19. Monitor the OBD status for P0974 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at shift solenoid valve A and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.

20. Reconnect all connectors.

21. Clear the DTC with the HDS.

22. Test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 2nd gear in D, D3, or 2 for at least 1 second. Slow down to a stop, and wait for at least 1 second.
- Five-position transmission: Drive the vehicle in D or in 2nd gear in the sequential sportshift mode in S for at least 1 second. Slow down to a stop, and wait for at least 1 second.

23. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0974 indicated?

YES—Check for poor connections and loose terminals at shift solenoid valve A and the PCM, then go to step 1.

NO—Go to step 24.

24. Monitor the OBD status for P0974 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 23, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at shift solenoid valve A and the PCM, go to step 1. If the HDS indicates NOT COMPLETED, return to step 22 and recheck.

DTC P0976: Shift Solenoid Valve B (Short)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.

2. Start the engine, and test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 1st gear in D, D3, or 1 for at least 1 second, then slow down to a stop.
- Five-position transmission: Drive the vehicle in D or in 1st gear in the sequential sportshift mode in S for at least 1 second. Then slow down to a stop.

3. Check that DTC P0976 recurs.

Is DTC P0976 indicated?

YES—Go to step 7.

NO—Go to step 4.

4. Select Shift Solenoid B in the Miscellaneous Test Menu, and test shift solenoid valve B with the HDS.

Is a clicking sound heard?

YES—Go to step 5.

NO—Go to step 7.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

5. Start the engine, and test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 1st gear in D3 for at least 1 second, then press the accelerator pedal so that the transmission upshifts into 3rd gear, and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
- Five-position transmission: Drive the vehicle in 1st gear in the sequential sportshift mode in S for at least 1 second, then upshift to 3rd gear by pulling the paddle shifter + (upshift switch), and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.

6. Monitor the OBD status for P0976 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check the SHB wire for an intermittent short to ground between shift solenoid valve B and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.

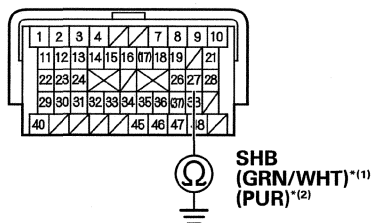
7. Turn the ignition switch to LOCK (0).

8. Jump the SCS line with the HDS.

9. Disconnect PCM connector B (49P).

10. Measure the resistance between PCM connector terminal B27 and body ground.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there less than 12 Ω ?

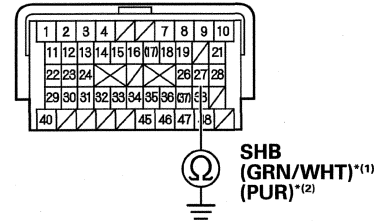
YES—Go to step 11.

NO—Go to step 17.

11. Disconnect the shift solenoid harness connector.

12. Check for continuity between PCM connector terminal B27 and body ground.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between PCM connector terminal B27 and the shift solenoid harness connector, then go to step 22.

NO—Go to step 13.

13. Inspect shift solenoid valve B (see page 14-174).

Is shift solenoid valve B OK?

YES—Go to step 14.

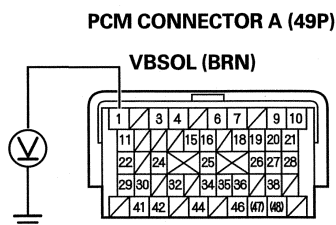
NO—Replace shift solenoid valve B or the shift solenoid harness (see page 14-177), then go to step 22.

14. Disconnect PCM connector A (49P).

15. Turn the ignition switch to ON (II).



16. Measure the voltage between PCM connector terminal A1 and body ground.



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 17.

NO—Check for a blown No. 7 (10 A) fuse in the under-hood fuse/relay box. If the fuse is OK, repair an open in the wire between PCM connector terminal A1 and the under-hood fuse/relay box, then go to step 22.

17. Reconnect all connectors.
18. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
19. Test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in 1st gear in D3 for at least 1 second, then press the accelerator pedal so that the transmission upshifts into 3rd gear, and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
 - Five-position transmission: Drive the vehicle in 1st gear in the sequential sportshift mode in S for at least 1 second, then upshift to 3rd gear by pulling the paddle shifter + (upshift switch), and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
20. Check for Pending or Confirmed DTCs with the HDS.
- Is DTC P0976 indicated?*
- YES**—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.
- NO**—Go to step 21.

21. Monitor the OBD status for P0976 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 20, go to the indicated DTC's troubleshooting. ■

NO—Check for an intermittent short in the wire between shift solenoid valve B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 19 and recheck.

22. Reconnect all connectors.
23. Clear the DTC with the HDS.
24. Test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in 1st gear in D3 for at least 1 second, then press the accelerator pedal so that the transmission upshifts into 3rd gear, and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
 - Five-position transmission: Drive the vehicle in 1st gear in the sequential sportshift mode in S for at least 1 second, then upshift to 3rd gear by pulling the paddle shifter + (upshift switch), and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
25. Check for Pending or Confirmed DTCs with the HDS.
- Is DTC P0976 indicated?*
- YES**—Check for an intermittent short in the wire between shift solenoid valve B and the PCM, then go to step 1.
- NO**—Go to step 26.
26. Monitor the OBD status for P0976 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.
- Does the HDS indicate PASSED?*
- YES**—Troubleshooting is complete. If any other DTCs were indicated on step 25, go to the indicated DTC's troubleshooting. ■
- NO**—Check for an intermittent short in the wire between shift solenoid valve B and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 24 and recheck.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P0977: Shift Solenoid Valve B (Open)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.

2. Start the engine, and test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop.
- Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential sportshift mode in S. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop.

3. Check that DTC P0977 recurs.

Is DTC P0977 indicated?

YES—Go to step 7.

NO—Go to step 4.

4. Select Shift Solenoid B in the Miscellaneous Test Menu, and test shift solenoid valve B with the HDS.

Is a clicking sound heard?

YES—Go to step 5.

NO—Go to step 7.

5. Start the engine, and test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 1st gear in D3 for at least 1 second, then press the accelerator pedal so that the transmission upshifts into 3rd gear, and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
- Five-position transmission: Drive the vehicle in 1st gear in the sequential sportshift mode in S for at least 1 second, then upshift to 3rd gear by pulling the paddle shifter + (upshift switch), and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.

6. Monitor the OBD status for P0977 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at shift solenoid valve B and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.

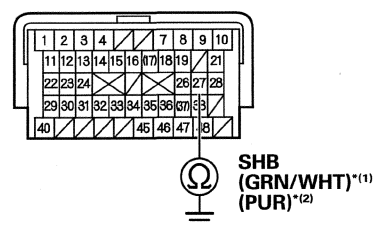
7. Turn the ignition switch to LOCK (0).

8. Jump the SCS line with the HDS.

9. Disconnect PCM connector B (49P).

10. Measure the resistance between PCM connector terminal B27 and body ground.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there 12–25 Ω ?

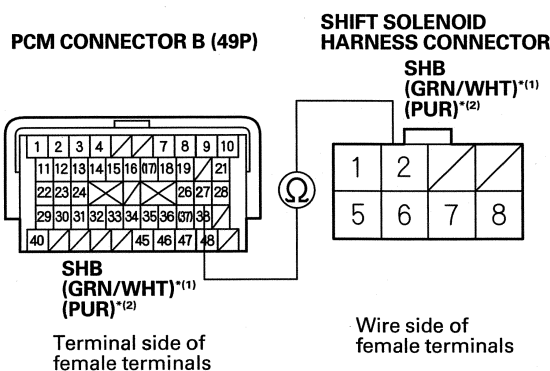
YES—Go to step 15.

NO—Go to step 11.

11. Disconnect the shift solenoid harness connector.



12. Check for continuity between PCM connector terminal B27 and shift solenoid harness connector terminal No. 2.



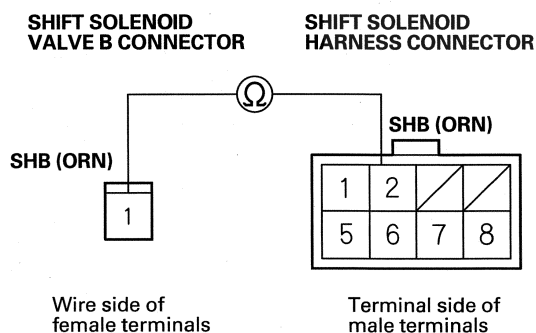
Is there continuity?

YES—Go to step 13.

NO—Repair an open in the wire between PCM connector terminal B27 and the shift solenoid harness connector, then go to step 23.

13. Remove the shift solenoid harness (see page 14-177).

14. Check for continuity between shift solenoid harness connector terminal No. 2 and the shift solenoid valve B connector terminal.



Is there continuity?

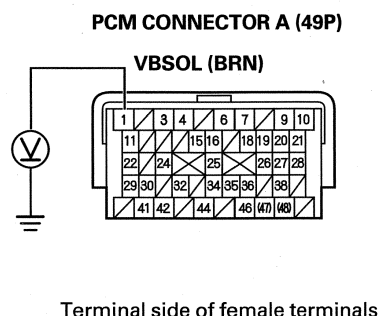
YES—Replace shift solenoid valve B (see page 14-177), then go to step 23.

NO—Replace the shift solenoid harness (see page 14-177), then go to step 23.

15. Disconnect PCM connector A (49P).

16. Turn the ignition switch to ON (II).

17. Measure the voltage between PCM connector terminal A1 and body ground.



Is there battery voltage?

YES—Go to step 18.

NO—Check for a blown No. 7 (10 A) fuse in the under-hood fuse/relay box. If the fuse is OK, repair an open in the wire between PCM connector terminal A1 and the under-hood fuse/relay box, then go to step 23.

18. Connect PCM connectors.

19. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).

20. Test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 1st gear in D3 for at least 1 second, then press the accelerator pedal so that the transmission upshifts into 3rd gear, and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
- Five-position transmission: Drive the vehicle in 1st gear in the sequential sportshift mode in S for at least 1 second, then upshift to 3rd gear by pulling the paddle shifter + (upshift switch), and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.

21. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0977 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 22.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

22. Monitor the OBD status for P0977 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 21, go to the indicated DTC's troubleshooting.■

NO—Check for poor connections and loose terminals at shift solenoid valve B and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 20 and recheck.

23. Reconnect all connectors.

24. Clear the DTC with the HDS.

25. Test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in 1st gear in D3 for at least 1 second, then press the accelerator pedal so that the transmission upshifts into 3rd gear, and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.
- Five-position transmission: Drive the vehicle in 1st gear in the sequential sportshift mode in S for at least 1 second, then upshift to 3rd gear by pulling the paddle shifter + (upshift switch), and drive in 3rd gear for at least 1 second. Slow down and stop the wheels.

26. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0977 indicated?

YES—Check for poor connections and loose terminals at shift solenoid valve B and the PCM, then go to step 1.

NO—Go to step 27.

27. Monitor the OBD status for P0977 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 26, go to the indicated DTC's troubleshooting.■

NO—Check for poor connections and loose terminals at shift solenoid valve B and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 25 and recheck.

DTC P0979: Shift Solenoid Valve C (Short)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.

2. Start the engine, and test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop.
- Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential sportshift mode in S. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop.

3. Check that DTC P0979 recurs.

Is DTC P0979 indicated?

YES—Go to step 7.

NO—Go to step 4.

4. Select Shift Solenoid C in the Miscellaneous Test Menu, and test shift solenoid valve C with the HDS.

Is a clicking sound heard?

YES—Go to step 5.

NO—Go to step 7.



5. Start the engine, and test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears, then slow down to a stop. Shift into P, and wait for at least 1 second.
- Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential sportshift mode in S, then slow down to a stop. Shift into P, and wait for at least 1 second.

6. Monitor the OBD status for P0979 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check the SHC wire for an intermittent short to ground between shift solenoid valve C and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.

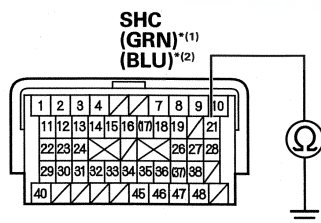
7. Turn the ignition switch to LOCK (0).

8. Jump the SCS line with the HDS.

9. Disconnect PCM connector B (49P).

10. Measure the resistance between PCM connector terminal B21 and body ground.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there less than 12 Ω ?

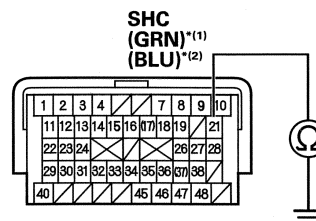
YES—Go to step 11.

NO—Go to step 17.

11. Disconnect the shift solenoid harness connector.

12. Check for continuity between PCM connector terminal B21 and body ground.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between PCM connector terminal B21 and the shift solenoid harness connector, then go to step 22.

NO—Go to step 13.

13. Inspect shift solenoid valve C (see page 14-174).

Is shift solenoid valve C OK?

YES—Go to step 14.

NO—Replace shift solenoid valve C or the shift solenoid harness (see page 14-177), then go to step 22.

14. Disconnect PCM connector A (49P).

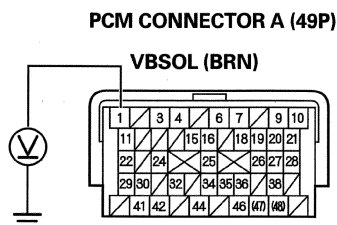
15. Turn the ignition switch to ON (II).

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

16. Measure the voltage between PCM connector terminal A1 and body ground.



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 17.

NO—Check for a blown No. 7 (10 A) fuse in the under-hood fuse/relay box. If the fuse is OK, repair an open or a short in the wire between PCM connector terminal A1 and the under-hood fuse/relay box, then go to step 22.

17. Connect PCM connectors.
18. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
19. Start the engine, and test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears, then slow down to a stop. Shift into P, and wait for at least 1 second.
 - Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential sportshift mode in S, then slow down to a stop. Shift into P, and wait for at least 1 second.
20. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0979 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 21.

21. Monitor the OBD status for P0979 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 20, go to the indicated DTC's troubleshooting. ■

NO—Check for an intermittent short in the wire between shift solenoid valve C and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 19 and recheck.

22. Reconnect all connectors.
23. Clear the DTC with the HDS.
24. Start the engine, and test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears, then slow down to a stop. Shift into P, and wait for at least 1 second.
 - Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential sportshift mode in S, then slow down to a stop. Shift into P, and wait for at least 1 second.
25. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0979 indicated?

YES—Check for an intermittent short in the wire between shift solenoid valve C and the PCM, then go to step 1.

NO—Go to step 26.

26. Monitor the OBD status for P0979 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 25, go to the indicated DTC's troubleshooting. ■

NO—Check for an intermittent short in the wire between shift solenoid valve C and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 24 and recheck.



DTC P0980: Shift Solenoid Valve C (Open)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.
2. Start the engine in P, and wait for at least 1 second.
3. Check that DTC P0980 recurs.

Is DTC P0980 indicated?

YES—Go to step 7.

NO—Go to step 4.

4. Select Shift Solenoid C in the Miscellaneous Test Menu, and test shift solenoid valve C with the HDS.

Is a clicking sound heard?

YES—Go to step 5.

NO—Go to step 7.

5. Start the engine in P, and wait for at least 1 second. Then:

- Seven-position transmission: Test-drive the vehicle in D3, and let the transmission shift through all three gears. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop. Shift into P, and wait for at least 1 second.
- Five-position transmission: Test-drive the vehicle in 1st thru 3rd gears in the sequential sportshift mode in S. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop. Shift into P, and wait for at least 1 second.

6. Monitor the OBD status for P0980 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at shift solenoid valve C and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.

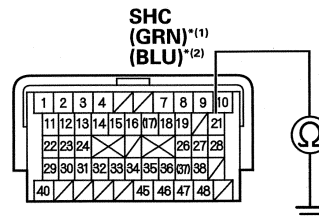
7. Turn the ignition switch to LOCK (0).

8. Jump the SCS line with the HDS.

9. Disconnect PCM connector B (49P).

10. Measure the resistance between PCM connector terminal B21 and body ground.

PCM CONNECTOR B (49P)



Terminal side of female terminals

Is there 12–25 Ω ?

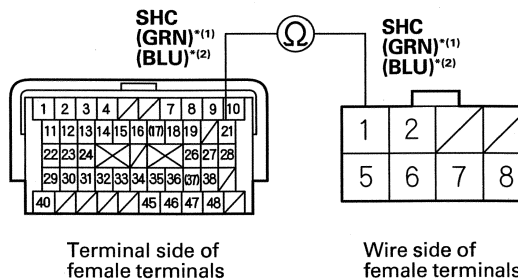
YES—Go to step 15.

NO—Go to step 11.

11. Disconnect the shift solenoid harness connector.
12. Check for continuity between PCM connector terminal B21 and shift solenoid harness connector terminal No. 1.

PCM CONNECTOR B (49P)

SHIFT SOLENOID HARNESS CONNECTOR



Terminal side of female terminals

Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair an open in the wire between PCM connector terminal B21 and the shift solenoid harness connector, then go to step 23.

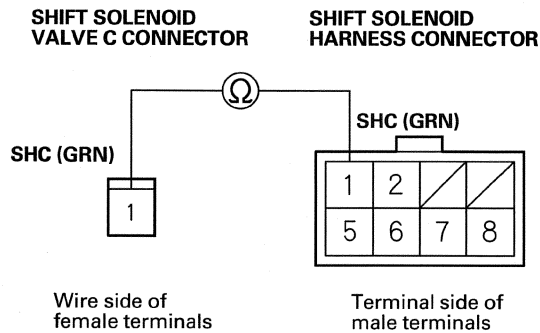
13. Remove the shift solenoid harness (see page 14-177).

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

14. Check for continuity between shift solenoid harness connector terminal No. 1 and the shift solenoid valve C connector terminal.

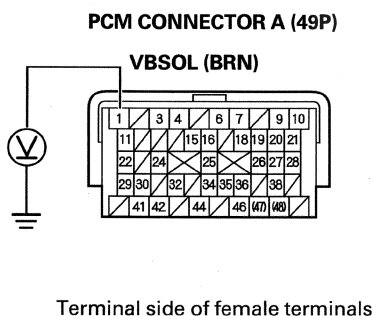


Is there continuity?

YES—Replace shift solenoid valve C (see page 14-177), then go to step 23.

NO—Replace the shift solenoid harness (see page 14-177), then go to step 23.

15. Disconnect PCM connector A (49P).
16. Turn the ignition switch to ON (II).
17. Measure the voltage between PCM connector terminal A1 and body ground.



Is there battery voltage?

YES—Go to step 18.

NO—Check for a blown No. 7 (10 A) fuse in the under-hood fuse/relay box. If the fuse is OK, repair an open in the wire between PCM connector terminal A1 and the under-hood fuse/relay box, then go to step 23.

18. Connect PCM connectors.
19. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
20. Test-drive the vehicle:
- Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop. Shift into P, and wait for at least 1 second.
 - Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential sportshift mode in S. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop. Shift into P, and wait for at least 1 second.

21. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0980 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 22.

22. Monitor the OBD status for P0980 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 21, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at shift solenoid valve C and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 20 and recheck.



23. Clear the DTC with the HDS.

24. Test-drive the vehicle:

- Seven-position transmission: Drive the vehicle in D3, and let the transmission shift through all three gears. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop. Shift into P, and wait for at least 1 second.
- Five-position transmission: Drive the vehicle in 1st thru 3rd gears in the sequential sportshift mode in S. Drive the vehicle in 3rd gear for at least 1 second, then slow down to a stop. Shift into P, and wait for at least 1 second.

25. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0980 indicated?

YES—Check for poor connections and loose terminals at shift solenoid valve C and the PCM, then go to step 1.

NO—Go to step 26.

26. Monitor the OBD status for P0980 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 25, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at shift solenoid valve C and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 24 and recheck.

DTC P0982: Shift Solenoid Valve D (Short)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.

2. Start the engine in P, and wait for at least 1 second.

3. Check that DTC P0982 recurs.

Is DTC P0982 indicated?

YES—Go to step 7.

NO—Go to step 4.

4. Select Shift Solenoid D in the Miscellaneous Test Menu, and test shift solenoid valve D with the HDS.

Is a clicking sound heard?

YES—Go to step 5.

NO—Go to step 7.

5. Start the engine in P, and wait for at least 1 second. With the brake pedal pressed, shift to N, and wait for at least 1 second.

6. Monitor the OBD status for P0982 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check the SHD wire for an intermittent short to ground between shift solenoid valve D and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.

7. Turn the ignition switch to LOCK (0).

8. Jump the SCS line with the HDS.

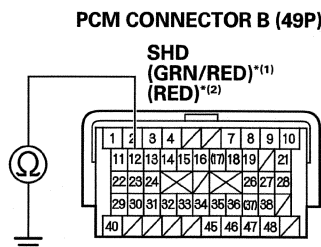
9. Disconnect PCM connector B (49P).

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

10. Measure the resistance between PCM connector terminal B12 and body ground.



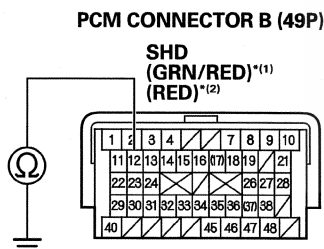
Terminal side of female terminals

Is there less than 12 Ω?

YES—Go to step 11.

NO—Go to step 14.

11. Disconnect the shift solenoid harness connector.
12. Check for continuity between PCM connector terminal B12 and body ground.



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between PCM connector terminal B12 and the shift solenoid harness connector, then go to step 19.

NO—Go to step 13.

13. Inspect shift solenoid valve D (see page 14-174).

Is shift solenoid valve D OK?

YES—Go to step 14.

NO—Replace shift solenoid valve D or the shift solenoid harness (see page 14-177), then go to step 19.

14. Reconnect all connectors.

15. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).

16. Start the engine in P, and wait for at least 1 second. With the brake pedal pressed, shift to N, and wait for at least 1 second.

17. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0982 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 18.

18. Monitor the OBD status for P0982 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 17, go to the indicated DTC's troubleshooting. ■

NO—Check for an intermittent short in the wire between shift solenoid valve D and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 16 and recheck.

19. Reconnect all connectors.

20. Clear the DTC with the HDS.

21. Start the engine in P, and wait for at least 1 second. With the brake pedal pressed, shift to N, and wait for at least 1 second.

22. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0982 indicated?

YES—Check for an intermittent short in the wire between shift solenoid valve D and the PCM, then go to step 1.

NO—Go to step 23.



23. Monitor the OBD status for P0982 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 22, go to the indicated DTC's troubleshooting. ■

NO—Check for an intermittent short in the wire between shift solenoid valve D and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 21 and recheck.

DTC P0983: Shift Solenoid Valve D (Open)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.
- Some wire colors vary according to the model year, and are indicated with an asterisk as follows:
 - *(1): '09 - 10 models
 - *(2): '11 - 12 model

1. Clear the DTC with the HDS.
2. Start the engine in P. With the brake pedal pressed, shift to N, and wait for at least 1 second.
3. Check that DTC P0983 recurs.

Is DTC P0983 indicated?

YES—Go to step 7.

NO—Go to step 4.

4. Select Shift Solenoid D in the Miscellaneous Test Menu, and test shift solenoid valve D with the HDS.

Is a clicking sound heard?

YES—Go to step 5.

NO—Go to step 7.

5. Start the engine in P, and wait for at least 1 second. With the brake pedal pressed, shift to N, and wait for at least 1 second.
6. Monitor the OBD status for P0983 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for poor connections or loose terminals at shift solenoid valve D and the PCM. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.

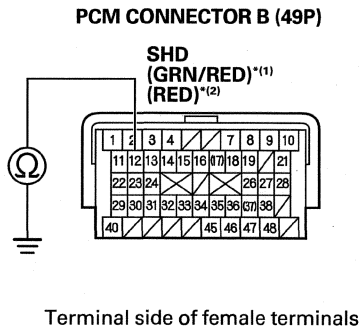
7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.
9. Disconnect PCM connector B (49P).

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

10. Measure the resistance between PCM connector terminal B12 and body ground.

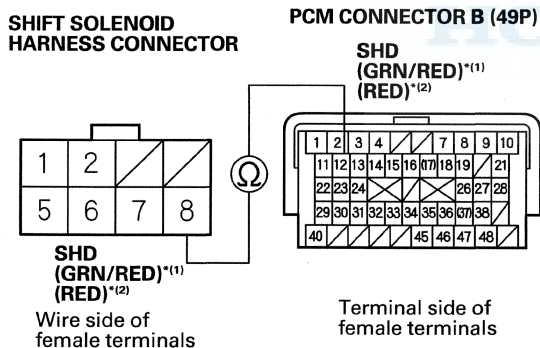


Is there 12–25 Ω?

YES—Go to step 15.

NO—Go to step 11.

11. Disconnect the shift solenoid harness connector.
12. Check for continuity between PCM connector terminal B12 and shift solenoid harness connector terminal No. 8.



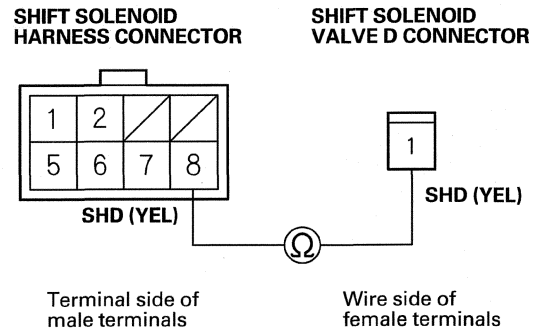
Is there continuity?

YES—Go to step 13.

NO—Repair an open in the wire between PCM connector terminal B12 and the shift solenoid harness connector, then go to step 20.

13. Remove the shift solenoid harness (see page 14-177).

14. Check for continuity between shift solenoid harness connector terminal No. 8 and the shift solenoid valve D connector terminal.



Is there continuity?

YES—Replace shift solenoid valve D (see page 14-177), then go to step 20.

NO—Replace the shift solenoid harness (see page 14-177), then go to step 20.

15. Connect PCM connectors.
16. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
17. Start the engine in P, and wait for at least 1 second. With the brake pedal pressed, shift to N, and wait for at least 1 second.
18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0983 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 19.



19. Monitor the OBD status for P0983 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at shift solenoid valve D and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.

20. Reconnect all connectors.

21. Clear the DTC with the HDS.

22. Start the engine in P, and wait for at least 1 second. With the brake pedal pressed, shift to N, and wait for at least 1 second.

23. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P0983 indicated?

YES—Check for poor connections and loose terminals at shift solenoid valve D and the PCM, then go to step 1.

NO—Go to step 24.

24. Monitor the OBD status for P0983 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 23, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at shift solenoid valve D and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 22 and recheck.

DTC P16C0: PCM A/T Control System Incomplete Update

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is indicated when PCM updating is incomplete.

1. Update the A/T software in the PCM (see page 11-213).

2. Check whether the DTC P16C0 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

Is DTC P16C0 indicated?

YES—Replace the original PCM (see page 11-215). ■

NO—PCM updating is complete. ■

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P1717: Transmission Range Switch ATPRVS Switch (Open)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by an electrical circuit problem and cannot be caused by a mechanical problem in the transmission.

1. Turn the ignition switch to ON (II).
2. Shift to R, and verify the A/T R Switch signal with the HDS in the A/T data list.

Is the A/T R Switch ON?

YES—Go to step 3.

NO—Check for proper transmission range switch installation (see page 14-226), and adjust the shift cable (see page 14-218), then recheck. If there is no change, go to step 4. ■

3. Check the Reverse Switch (ATPRVS) signal with the HDS.

Is the Reverse Switch (ATPRVS) ON?

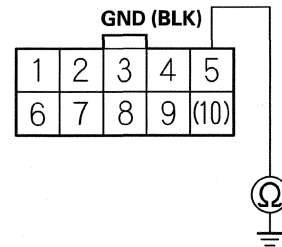
YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).
5. Disconnect the transmission range switch connector.

6. Check for continuity between transmission range switch connector terminal No. 5 and body ground.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

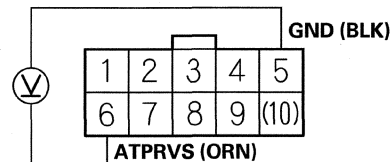
Is there continuity?

YES—Go to step 7.

NO—Repair an open in the wire between transmission range switch connector terminal No. 5 and ground (G101), or repair poor ground (G101), then go to step 15.

7. Turn the ignition switch to ON (II).
8. Measure the voltage between transmission range switch connector terminals No. 5 and No. 6.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

Is there battery voltage?

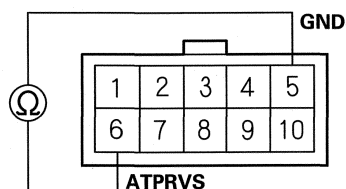
YES—Go to step 9.

NO—Repair an open in the wire between PCM connector terminal B23 and the transmission range switch, then go to step 15.



9. Check for continuity between transmission range switch connector terminals No. 5 and No. 6 while the shift lever is in R, and when the shift lever is shifted to any position other than R.

TRANSMISSION RANGE SWITCH CONNECTOR



Terminal side of male terminals

Is there continuity while the shift lever is in R, and no continuity when the shift lever is shifted to any position other than R?

YES—Go to step 10.

NO—Replace the transmission range switch (see page 14-228), then go to step 15.

10. Connect the transmission range switch connector.
11. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
12. Start the engine, and shift to R. Move the vehicle in reverse at speeds below 3 mph (5 km/h) for at least 2 seconds, then increase the speed and move at speeds above 3 mph (5 km/h) for at least 2 seconds. Slow down and stop the wheels.
13. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1717 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 14.

14. Monitor the OBD status for P1717 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 13, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the transmission range switch and the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 12 and recheck.

15. Connect the transmission range switch connector.
16. Clear the DTC with the HDS.
17. Start the engine, and shift to R. Move the vehicle in reverse at speeds below 3 mph (5 km/h) for at least 2 seconds, then increase the speed and move at speeds above 3 mph (5 km/h) for at least 2 seconds. Slow down and stop the wheels.
18. Check for Pending or Confirmed DTCs with the HDS.

Is DTC P1717 indicated?

YES—Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to step 1.

NO—Go to step 19.

19. Monitor the OBD status for P1717 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. If any other DTCs were indicated on step 18, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the transmission range switch and the PCM, then go to step 1. If the HDS indicates NOT COMPLETED, return to step 17 and recheck.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

DTC P1746: Hydraulic Control System (Cut Valve A Stuck OFF or Cut Valve B Stuck ON)

DTC P1747: Hydraulic Control System (Cut Valve A Stuck ON or Cut Valve B Stuck OFF)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is stored simultaneously with DTC P1780, which is caused by a hydraulic control system problem (DTC P1746 and P1747).

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Make sure that the transmission is filled to the proper level, and check for fluid leaks.
3. Drain the ATF through a strainer (see step 4 on page 14-191). Inspect the strainer for metal debris or excessive clutch material.

Does the strainer have metal debris or excessive clutch material?

YES—Replace the transmission, then go to step 7.

NO—Replace the ATF (see step 6 on page 14-192), then go to step 4.

4. Clear the DTC with the HDS.
5. Test-drive the vehicle with the shift lever in D for at least 3 seconds, and let the transmission shift through all five gears. Then slow down to a stop.
6. Monitor the OBD status for P1746 or P1747 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate FAILED?

YES—Repair cut valve A in the servo body (see page 14-265), repair cut valve B in the main valve body (see page 14-262), or replace the main valve body or servo body, or replace the transmission, then go to step 7.

NO—Intermittent failure, the system is OK at this time. If the HDS indicates NOT COMPLETED, return to step 5 and recheck. ■

7. Test-drive the vehicle with the shift lever in D for at least 3 seconds, and let the transmission shift through all five gears. Then slow down to a stop.

8. Monitor the OBD status for P1746 or P1747 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—Troubleshooting is complete. ■

NO—Clear the DTC with the HDS and recheck. If the HDS indicates NOT COMPLETED, return to step 4 and recheck.



DTC P1780: Shift Control System (Transmission Default Mode)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).
- This code is caused by a hydraulic control system problem (DTCs P1746 and P1747), and stored simultaneously with DTC P1746 and/or P1747.

1. Clear the DTC with the HDS.
2. Test-drive the vehicle with the shift lever in D, and let the transmission shift through all five gears. Then slow down to a stop.
3. Check whether the DTC P1746 or P1747 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

Is DTC P1746 or P1747 indicated?

YES—

- Troubleshoot DTC P1746 (see page 14-162).■
- Troubleshoot DTC P1747 (see page 14-162).■

NO—Intermittent failure, the system is OK at this time.■

DTC U0029: F-CAN Malfunction (F-CAN bus OFF)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Start the engine, and run it at idle for at least 2 minutes.
3. Check whether DTC U0029 is indicated in the DTCs/Freeze Data in PGM-FI Mode Menu with the HDS.

Is DTC U0029 indicated in the PGM-FI system?

YES—Troubleshoot DTC U0029 in the PGM-FI system (see page 11-176).■

NO—Go to step 4.

4. Check whether DTC U0029 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

Is DTC U0029 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time.■

5. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0029 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 7.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

7. Monitor the OBD status for U0029 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 6, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.

DTC U0121: F-CAN Malfunction (PCM-ABS Modulator-Control Unit)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Start the engine, and run it at idle for at least 2 minutes.
3. Check whether DTC U0121 is indicated in the DTCs/Freeze Data in PGM-FI Mode Menu with the HDS.

Is DTC U0121 indicated in the PGM-FI system?

YES—Troubleshoot DTC U0121 in the PGM-FI system (see page 11-176). ■

NO—Go to step 4.

4. Check whether DTC U0121 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

Is DTC U0121 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. ■

5. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0121 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 7.



7. Monitor the OBD status for U0121 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 6, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.

DTC U0122: F-CAN Malfunction (PCM-VSA Modulator-Control Unit)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Start the engine, and run it at idle for at least 2 minutes.
3. Check whether DTC U0122 is indicated in the DTCs/Freeze Data in PGM-FI Mode Menu with the HDS.

Is DTC U0122 indicated in the PGM-FI system?

YES—Troubleshoot DTC U0122 in the PGM-FI system (see page 11-178). ■

NO—Go to step 4.

4. Check whether DTC U0122 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

Is DTC U0122 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. ■

5. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0122 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 7.

(cont'd)

Automatic Transmission

DTC Troubleshooting (cont'd)

7. Monitor the OBD status for U0122 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 6, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.

DTC U0155: F-CAN Malfunction (PCM-to-Gauge Control Module)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot with the HDS, and review the General Troubleshooting Information (see page 14-4).

1. Clear the DTC with the HDS.
2. Start the engine, and run it at idle for at least 2 minutes.
3. Check whether DTC U0155 is indicated in the DTCs/Freeze Data in PGM-FI Mode Menu with the HDS.

Is DTC U0155 indicated in the PGM-FI system?

YES—Troubleshoot DTC U0155 in the PGM-FI system (see page 11-181). ■

NO—Go to step 4.

4. Check whether DTC U0155 is indicated in the DTCs/Freeze Data in A/T Mode Menu with the HDS.

Is DTC U0155 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. ■

5. Update the A/T software in the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7).
6. Check for Pending or Confirmed DTCs with the HDS.

Is DTC U0155 indicated?

YES—If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1.

NO—Go to step 7.



Road Test

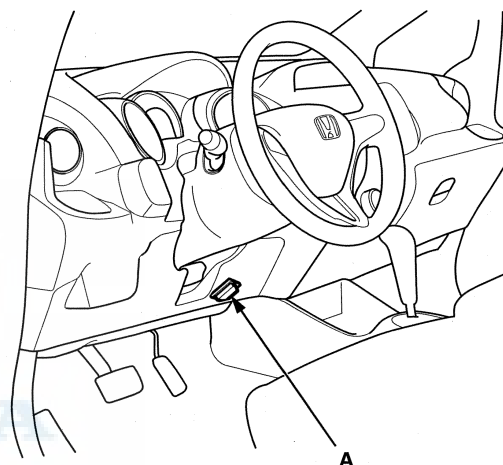
7. Monitor the OBD status for U0155 in the DTCs/Freeze Data in A/T Mode Menu for a pass/fail.

Does the HDS indicate PASSED?

YES—If the PCM was updated, troubleshooting is complete. If the PCM was substituted, replace the original PCM (see page 11-215). If any other DTCs were indicated on step 6, go to the indicated DTC's troubleshooting. ■

NO—Check for poor connections and loose terminals at the PCM. If the PCM was updated, substitute a known-good PCM (see page 11-7), then recheck. If the PCM was substituted, go to step 1. If the HDS indicates NOT COMPLETED, return to step 7 and recheck.

1. Warm up the engine to normal operating temperature (the radiator fan comes on).
2. Apply the parking brake, and block all four wheels.
3. Start the engine, then shift to D while pressing the brake pedal. Press the accelerator pedal, and release it suddenly. The engine should not stall.
4. Repeat step 3 in all shift lever positions.
5. Connect the HDS to the DLC (A), and go to the A/T data list. If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-193).



(cont'd)

Automatic Transmission

Road Test (cont'd)

6. Prepare the HDS to take a HIGH SPEED SNAPSHOT (refer to the HDS user's guide for more details if needed):

- Select High Speed icon.
- Select these parameters:
 - Vehicle Speed
 - Output Shaft (Countershaft) Speed (rpm)
 - Input Shaft (Mainshaft) Speed (rpm)
 - Engine Speed
 - TP Sensor (1)
 - APP Sensor A (V)
 - ATF Temp Sensor (V)
 - Battery Voltage
 - Shift Control
 - Brake Switch
- Set the Trigger Type to Parameter.
- Adjust the Parameter setting to APP Sensor A above 1.25 V.
- Set the recording time to 60 seconds.
- Set the trigger point to –30 seconds.

7. Find a suitable level road. When you are ready to do the test, press OK on the HDS.

8. Monitor the HDS, and accelerate quickly until the APP Sensor A reads 1.26 V. Maintain a steady throttle until the transmission shifts to 5th gear, then slow the vehicle and come to a stop.

9. Save the snapshot if the entire event was recorded, or increase the recording time setting as necessary and repeat step 8.

10. Adjust the parameter setting to 2.52 V. Test-drive the vehicle again. While monitoring the HDS, accelerate quickly until the APP Sensor A reads 2.53 V. Maintain a steady throttle until the transmission shifts to 5th gear (or reasonable speed), then slow the vehicle and come to a stop.

11. Save the snapshot if the entire event was recorded, or increase the recording time setting as necessary and repeat step 10.

12. Accelerate quickly until the accelerator pedal is to the floor. Maintain a steady pedal until the transmission shifts to 3rd gear, then slow to a stop, and save the snapshot.

13. Review each snapshot individually, and compare the Shift Control, the APP Sensor A (V), and the Vehicle Speed to the following table.

Upshifting in D

APP Sensor A (V): 1.26 V	
1st → 2nd	8–9 mph (13–15 km/h)
2nd → 3rd	16–17 mph (25–28 km/h)
3rd → 4th	24–27 mph (39–44 km/h)
4th → 5th	33–37 mph (53–59 km/h)
Lock-up ON	29–31 mph (46–50 km/h)
APP Sensor A (V): 2.53 V	
1st → 2nd	20–22 mph (32–36 km/h)
2nd → 3rd	37–40 mph (59–65 km/h)
3rd → 4th	58–62 mph (93–99 km/h)
4th → 5th	91–95 mph (147–153 km/h)
Lock-up ON	76–80 mph (123–129 km/h)
Fully-opened throttle APP Sensor A (V): 4.50 V	
1st → 2nd	30–34 mph (48–54 km/h)
2nd → 3rd	55–58 mph (88–94 km/h)
3rd → 4th	92–96 mph (148–154 km/h)

Downshifting in D (Reference)

APP Sensor A (V): 1.26 V	
Lock-up OFF	28–30 mph (45–49 km/h)
5th → 4th	27–31 mph (44–50 km/h)
4th → 3rd	20–22 mph (32–36 km/h)
3rd → 1st	5–7 mph (8–12 km/h)
APP Sensor A (V): 2.53 V	
Lock-up OFF	74–78 mph (119–125 km/h)
Fully-opened throttle APP Sensor A (V): 4.50 V	
Lock-up OFF	106–109 mph (170–176 km/h)
5th → 4th	111–114 mph (178–184 km/h)
4th → 3rd	77–81 mph (124–130 km/h)
3rd → 2nd	49–53 mph (79–85 km/h)
2nd → 1st	22–26 mph (36–42 km/h)



Stall Speed Test

14. Check for engine braking under these conditions:

- Seven-position transmission: Drive the vehicle in 4th or 5th gear in D, then shift to 2. The vehicle should immediately begin to slow down from engine braking.
- Five-position transmission: Drive the vehicle in 4th or 5th gear in S with sequential sportshift mode, then downshift to 2nd gear by pulling the paddle shifter — (downshift switch). The vehicle should immediately begin to slow down from engine braking.

15. For seven-position transmission: Shift to 1, accelerate from a stop at full throttle, and check for abnormal noise and clutch slippage. Upshifts should not occur in this position.

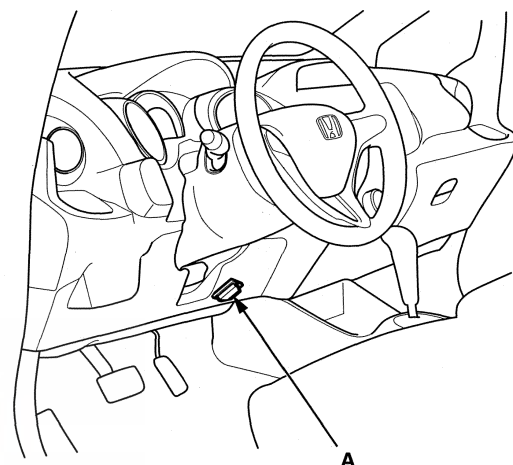
16. For seven-position transmission: Shift to 2, accelerate from a stop at full throttle, and check for abnormal noise and clutch slippage. Upshifts and downshifts should not occur in this position.

17. Shift to R. Then, from a full stop, accelerate at full throttle, and check for abnormal noise and clutch slippage.

18. Park the vehicle on a slope (about 16 degrees), apply the brake, and shift into P. Release the brake; the vehicle should not move.

NOTE: Always use the brake to hold the vehicle, when stopped on an incline in gear. Depending on the grade of the incline, the vehicle could roll if the brake is released.

1. Make sure the transmission fluid is filled to the proper level (see page 14-190).
2. Apply the parking brake, and block all four wheels.
3. Connect the HDS to the DLC (A), and go to the A/T data list. If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-193).



4. Make sure the A/C switch is OFF.
5. After the engine has warmed up to normal operating temperature (the radiator fan comes on), shift to D.
6. Firmly press and hold the brake pedal then, while still holding the brake pedal, press the accelerator pedal for six to eight seconds, and note maximum engine speed. Do not move the shift lever while raising engine speed.
7. Allow 2 minutes for cooling, repeat the test for the seven-position transmission in 2, and allow 2 minutes, then repeat test in 1.

(cont'd)

Automatic Transmission

Stall Speed Test (cont'd)

8. Allow 2 minutes for cooling, then repeat the test in R.

NOTE:

- Do not test stall speed for more than 10 seconds at a time.
- Stall speed tests should be used for diagnostic purposes only.
- The stall speed should be the same in D, 2, 1, and R.
- Do not test stall speed with the A/T pressure gauges installed.

Stall Speed rpm

Specification: 2,200 rpm

Service Limit: 2,050–2,350 rpm

9. If any of the stall speeds are out of the service limit, refer to the problems and probable causes listed in the table.

Seven-position Transmission

Problem	Probable Causes
Stall speed rpm high in D, 2, 1, and R	<ul style="list-style-type: none">• ATF pump output low• Clogged ATF strainer• Regulator valve stuck• Slipping clutch
Stall speed rpm high in 2	Slippage of 2nd clutch
Stall speed rpm high in 1	Slippage of 1st clutch
Stall speed rpm high in R	Slippage of 5th clutch
Stall speed rpm low in D, 2, 1, and R	<ul style="list-style-type: none">• Engine output low• Engine throttle valve closed• Torque converter one-way clutch slipping

Five-position Transmission

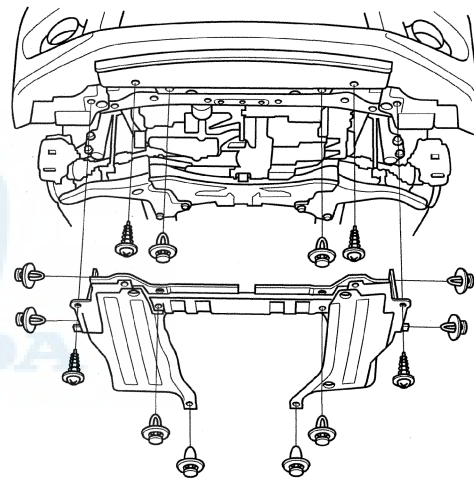
Problem	Probable Causes
Stall speed rpm high in D and R	<ul style="list-style-type: none">• ATF pump output low• Clogged ATF strainer• Regulator valve stuck• Slipping clutch
Stall speed rpm high in R	Slippage of 5th clutch
Stall speed rpm low in D and R	<ul style="list-style-type: none">• Engine output low• Engine throttle valve closed• Torque converter one-way clutch slipping

Pressure Test

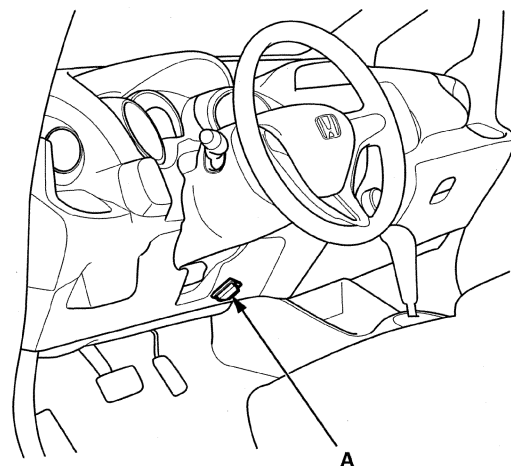
Special Tools Required

- A/T Oil Pressure Gauge Set 07406-0020400 or 07406-0020401
- A/T Pressure Hose, 2,210 mm 07MAJ-PY4011A
- A/T Pressure Adapter 07MAJ-PY40120

1. Make sure the transmission fluid is filled to the proper level (see page 14-190).
2. Raise the vehicle on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
3. Allow the front wheels to rotate freely.
4. Remove the splash shield.



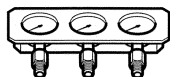
5. Connect the HDS to the DLC (A), and go to the A/T data list. If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-193).





6. Connect the oil pressure gauge to the line pressure inspection port (A). Do not allow dust or other foreign particles to enter the hole while connecting the gauge.

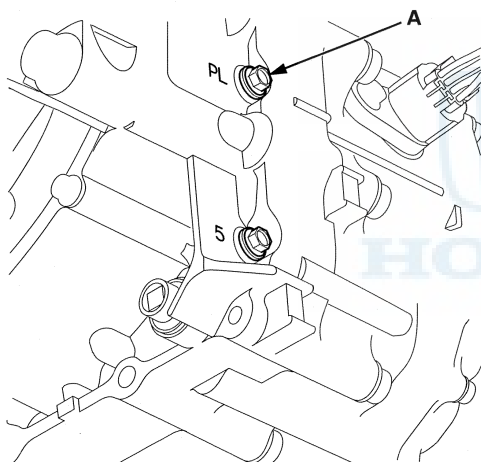
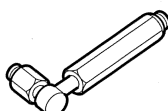
**A/T OIL PRESSURE
GAUGE SET**
07406-0020400 or
07406-0020401



A/T PRESSURE HOSE,
2,210 mm
07MAJ-PY4011A



**A/T PRESSURE
HOSE ADAPTER**
07MAJ-PY40120



7. Start the engine, and warm it up to normal operating temperature (the radiator fan comes on).
8. Measure the line pressure at the line pressure inspection port in P or N while holding the engine speed at 2,000 rpm.

NOTE: Higher pressure may be indicated if measurements are made in the shift lever position other than P or N.

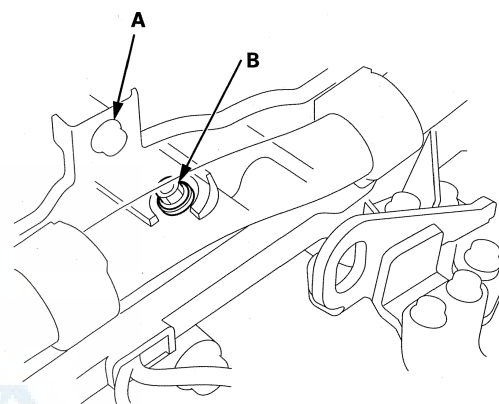
Pressure	Fluid Pressure	
	Standard	Service Limit
Line (A)	900—960 kPa (9.18—9.79 kgf/cm ² , 130.5—139.2 psi)	850 kPa (8.67 kgf/cm ² , 123.3 psi)

9. Turn the engine off, then disconnect the oil pressure gauge from the line pressure inspection port.

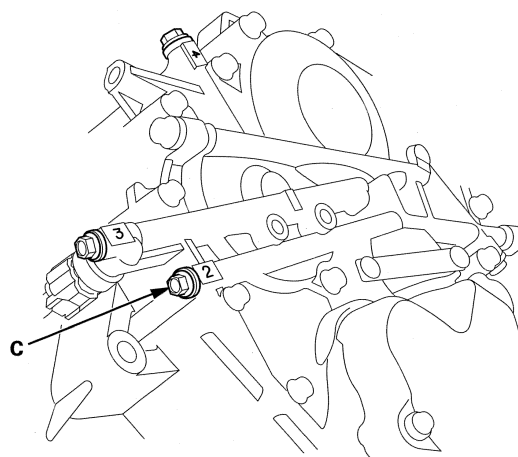
10. Install the sealing bolt to the line pressure inspection port with a new sealing washer, and tighten the bolt to 18 N·m (1.8 kgf·m, 13 lbf·ft). Do not reuse the old sealing washer.

11. Remove the air cleaner assembly (see page 11-307).

12. Remove the coolant hose bracket bolt (A). Connect the oil pressure gauge to the 1st clutch pressure inspection port (B), then temporarily install the air cleaner assembly.



13. Connect the oil pressure gauge to the 2nd clutch pressure inspection port (C).



(cont'd)

Automatic Transmission

Pressure Test (cont'd)

14. For seven-position transmission: Measure the 1st and 2nd clutch pressure.

- 1. Start the engine.
- 2. Disable the VSA by pressing the VSA OFF switch for VSA-equipped model.
- 3. Shift to 1, and measure the 1st clutch pressure at the 1st clutch pressure inspection port while holding the engine speed at 2,000 rpm.
- 4. Shift to 2, and measure the 2nd clutch pressure at the 2nd clutch pressure inspection port while holding the engine speed at 2,000 rpm.

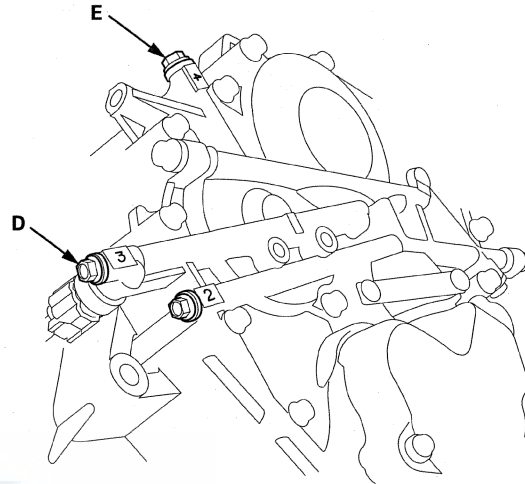
15. For five-position transmission: Measure the 1st and 2nd clutch pressure.

- 1. Start the engine.
- 2. Disable the VSA by pressing the VSA OFF switch for VSA-equipped model.
- 3. Shift to S.
- 4. Pull the paddle shifter + (upshift switch), make sure the transmission is in 1st gear, and measure the 1st clutch pressure at the 1st clutch pressure inspection port while holding the engine speed at 2,000 rpm.
- 5. Upshift to 2nd gear by pulling the paddle shifter +, and measure the 2nd clutch pressure at the 2nd clutch pressure inspection port while holding the engine speed at 2,000 rpm.

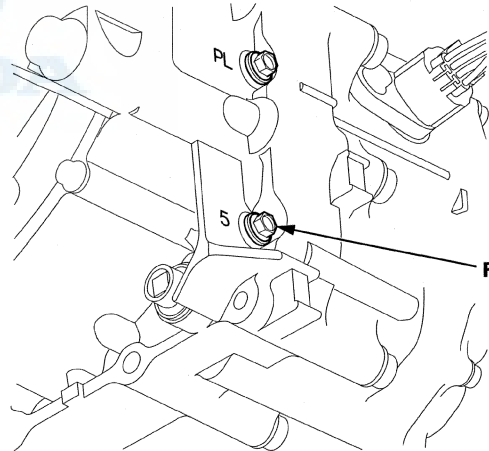
Pressure	Fluid Pressure	
	Standard	Service Limit
1st clutch (B)	890—970 kPa (9.08—9.89	840 kPa (8.57 kgf/cm ² ,
2nd clutch (C)	kgf/cm ² , 129.1—140.7 psi)	121.8 psi)

16. Turn the engine off, remove the air cleaner assembly, then disconnect the oil pressure gauges from the 1st clutch pressure and 2nd clutch pressure inspection ports. Reinstall the coolant hose bracket bolt.
17. Install the sealing bolts to the 1st clutch pressure and 2nd clutch pressure inspection ports with the new sealing washers, and tighten the bolts to 18 N·m (1.8 kgf·m, 13 lbf·ft). Do not reuse old sealing washer.
18. Install the air cleaner assembly (see page 11-307).

19. Connect the oil pressure gauge to the 3rd clutch pressure inspection port (D) and the 4th clutch pressure inspection port (E).



20. Connect the oil pressure gauge to the 5th clutch pressure inspection port (F).





21. For seven-position transmission: Measure the 3rd, 4th, and 5th clutch pressures.

- 1. Start the engine.
- 2. Disable the VSA by pressing the VSA OFF switch for VSA-equipped model.
- 3. Shift to D3, then press the accelerator pedal slowly until reaching 3rd gear.
- 4. Measure the 3rd clutch pressure at the 3rd clutch pressure inspection port while holding the engine speed at 2,000 rpm.
- 5. Shift to D, and measure the 4th clutch pressure at the 4th clutch pressure inspection port.
- 6. Measure the 5th clutch pressure at the 5th clutch pressure inspection port while holding the engine speed at 2,000 rpm.

22. For five-position transmission: Measure the 3rd, 4th, and 5th clutch pressures.

- 1. Start the engine.
- 2. Disable the VSA by pressing the VSA OFF switch for VSA-equipped model.
- 3. Shift to S.
- 4. Upshift to 3rd gear by pulling the paddle shifter +, and measure the 3rd clutch pressure at the 3rd clutch pressure inspection port while holding the engine speed at 2,000 rpm.
- 5. Upshift to 4th gear by pulling the paddle shifter +, and measure the 4th clutch pressure at the 4th clutch pressure inspection port while holding the engine speed at 2,000 rpm.
- 6. Upshift to 5th gear by pulling the paddle shifter +, and measure the 5th clutch pressure at the 5th clutch pressure inspection port while holding the engine speed at 2,000 rpm.

Pressure	Fluid Pressure	
	Standard	Service Limit
3rd clutch (D)	890—970 kPa (9.08—9.89 kgf/cm ² , 129.1—140.7 psi)	840 kPa (8.57 kgf/cm ² , 121.8 psi)
4th clutch (E)		
5th clutch (F)		

23. Bring the engine back to an idle, then press the brake pedal to stop the wheels from rotating.

24. Shift to R, then release the brake pedal. Raise the engine speed to 2,000 rpm, and measure the 5th clutch pressure at the 5th clutch pressure inspection port.

Pressure	Fluid Pressure	
	Standard	Service Limit
5th clutch (F) in R	890—970 kPa (9.08—9.89 kgf/cm ² , 129.1—140.7 psi)	840 kPa (8.57 kgf/cm ² , 121.8 psi)

25. Turn the engine off, then disconnect the oil pressure gauges from the 3rd, 4th, and 5th clutch pressure inspection ports.

26. Install the sealing bolts in the 3rd, 4th, and 5th clutch pressure inspection ports with the new sealing washers, and tighten the bolts to 18 N·m (1.8 kgf·m, 13 lbf·ft). Do not reuse the old sealing washer.

27. If any of the pressures are out of the service limit, refer to the problems and probable causes listed in the table.

Problem	Probable causes
No or low line pressure	<ul style="list-style-type: none"> • Torque converter • ATF pump • Regulator valve • Torque converter check valve • Clogged ATF strainer
No or low 1st clutch pressure	<ul style="list-style-type: none"> • 1st clutch • O-rings
No or low 2nd clutch pressure	<ul style="list-style-type: none"> • 2nd clutch • O-rings
No or low 3rd clutch pressure	<ul style="list-style-type: none"> • 3rd clutch • O-rings
No or low 4th clutch pressure	<ul style="list-style-type: none"> • 4th clutch • O-rings
No or low 5th clutch pressure	<ul style="list-style-type: none"> • 5th clutch • O-rings
No or low 5th clutch pressure in R	<ul style="list-style-type: none"> • Servo valve • 5th clutch • O-rings

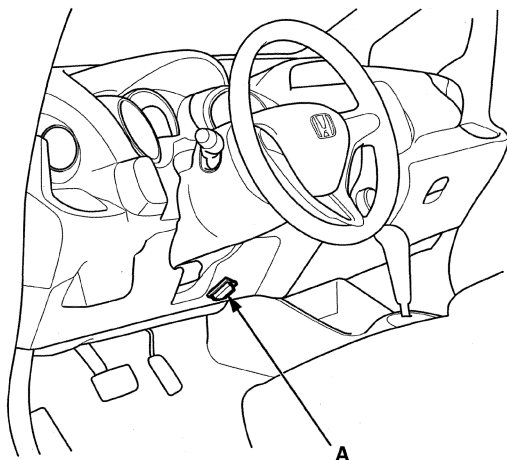
28. Install the splash shield.

29. Clear the VSA DTCs with the HDS.

Automatic Transmission

Shift Solenoid Valve Test

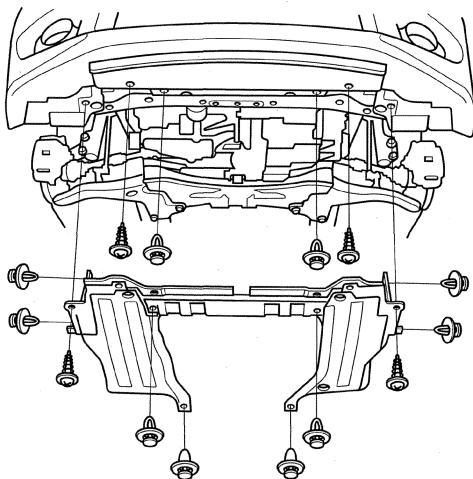
1. Connect the HDS to the DLC (A).



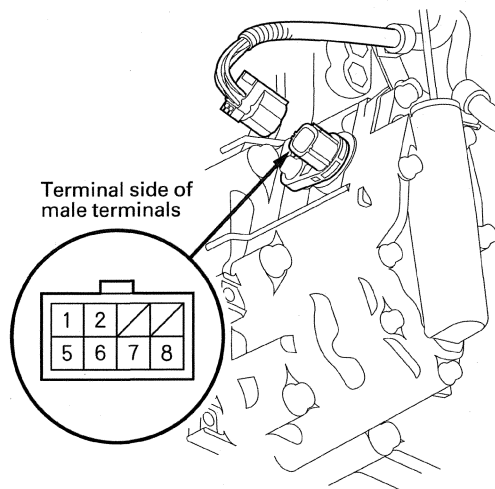
2. Select Shift Solenoid A, B, C, and D Test in Miscellaneous Test Menu on the HDS.

NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-193).

3. Check that the shift solenoid valve A, B, C, and D operate with the HDS. A clicking sound should be heard.
 - If a clicking sound is heard, the valves are OK. The test is complete, disconnect the HDS.
 - If no clicking sound is heard, go to step 4, and test the solenoid valve.
4. Raise the vehicle on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
5. Remove the splash shield.



6. Disconnect the shift solenoid harness connector.



7. Measure shift solenoid valve resistance between shift solenoid harness connector terminals below and body ground:

- No. 1: Shift solenoid valve C
- No. 2: Shift solenoid valve B
- No. 5: Shift solenoid valve A
- No. 8: Shift solenoid valve D

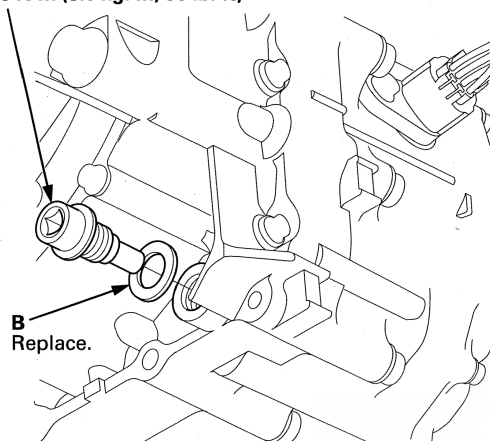
Standard: 12—25 Ω

- If the resistance is within the standard, go to step 8 and check solenoid valve for a clicking sound.
 - If the resistance is out of standard, go to step 9.
8. Connect a jumper wire from the negative battery terminal to the body ground, and connect another jumper wire from the positive battery terminal to each shift solenoid harness connector terminal individually. A clicking sound should be heard.
 - If a clicking sound is heard, the valves are OK. The test is complete, connect the connector.
 - If no clicking sound is heard, go to step 9 and test shift solenoid valves.



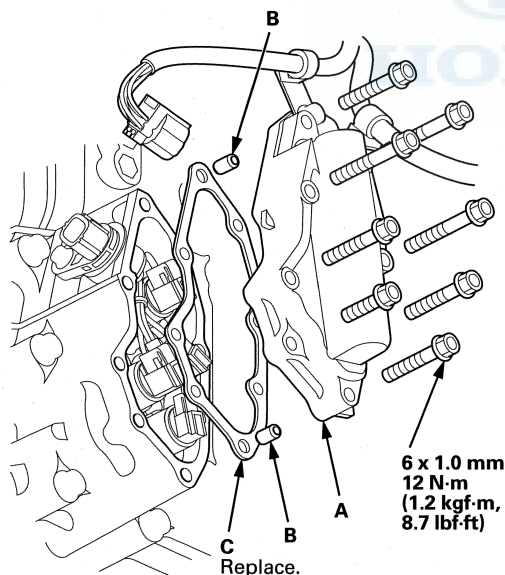
9. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).

A
18 x 1.5 mm
49 N·m (5.0 kgf-m, 36 lbf-ft)

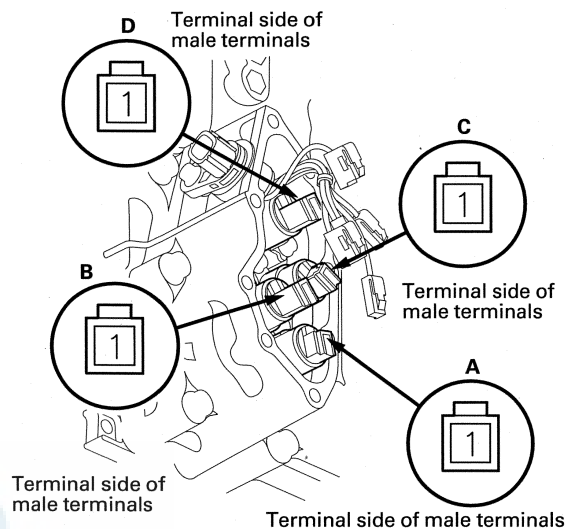


10. Reinstall the drain plug with a new sealing washer (B).

11. Remove the shift solenoid valve cover (A), the dowel pins (B), and the gasket (C).



12. Disconnect the connectors from shift solenoid valve A, shift solenoid valve B, shift solenoid valve C, and shift solenoid valve D.



13. Measure the resistance of each solenoid valve between the connector terminal and body ground.

Standard: 12 – 25 Ω

- If the resistance is out of standard, go to step 16 and replace shift solenoid valve.
- If the resistance is within the standard, go to step 14 and check solenoid valve for a clicking sound.

14. Connect a jumper wire from the negative battery terminal to the body ground, and connect another jumper wire from the positive battery terminal to each solenoid valve terminal individually.

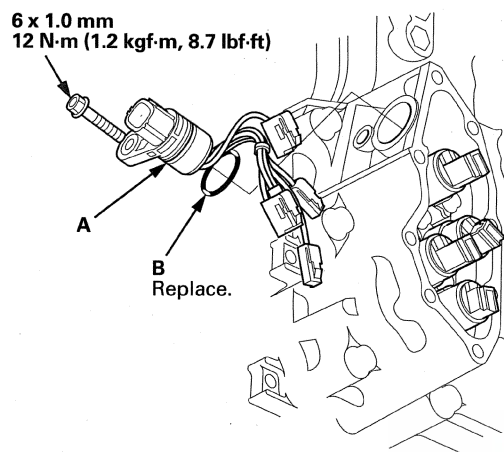
- If a clicking sound is heard, go to step 15 and replace the shift solenoid harness.
- If no clicking sound is heard, go to step 16 and replace shift solenoid valve.

(cont'd)

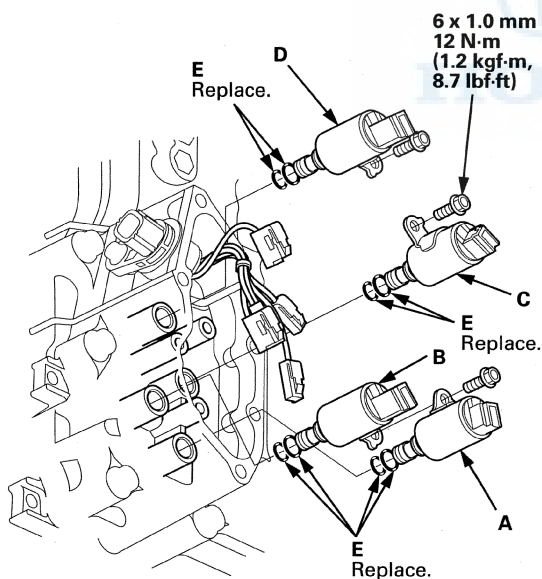
Automatic Transmission

Shift Solenoid Valve Test (cont'd)

15. Remove the shift solenoid harness connector (A), and replace it. Install a new O-ring (B) on the shift solenoid harness connector, and install the connector in the transmission housing, then go to step 21.



16. Remove the mounting bolts, then hold the solenoid valve body and remove the solenoid valves. Do not hold the connector to remove the solenoid valve.



17. Install new O-rings (two O-rings per solenoid valve) (E) on the reused solenoid valve.

NOTE: A new solenoid valve comes with new O-rings. If you install a new solenoid valve, use the O-rings provided on it.

18. Install shift solenoid valve D (black connector) and shift solenoid valve C (brown connector) by holding the shift solenoid valve body; make sure the mounting bracket contacts the servo body.

NOTE: Do not hold the solenoid valve connector to install the solenoid valve. Be sure to hold the solenoid valve body.

19. Install shift solenoid valve B (black connector) by holding the solenoid valve body; make sure the mounting bracket contacts the servo body.

20. Install shift solenoid valve A (brown connector) by holding the shift solenoid valve body; make sure the mounting bracket contacts the bracket of shift solenoid valve B.

NOTE: Do not install shift solenoid valve A before installing shift solenoid valve B. If shift solenoid valve A is installed before installing shift solenoid valve B, it may damage the hydraulic control system.

21. Connect the harness terminals to the solenoids:

- BLU wire connector to shift solenoid valve A.
- ORN wire connector to shift solenoid valve B.
- GRN wire connector to shift solenoid valve C.
- YEL wire connector to shift solenoid valve D.

22. Install the shift solenoid valve cover, the dowel pins, and a new gasket.

23. Check the connector for rust, dirt, or oil, then connect the connector securely.

24. Refill the transmission with ATF (see step 6 on page 14-192).

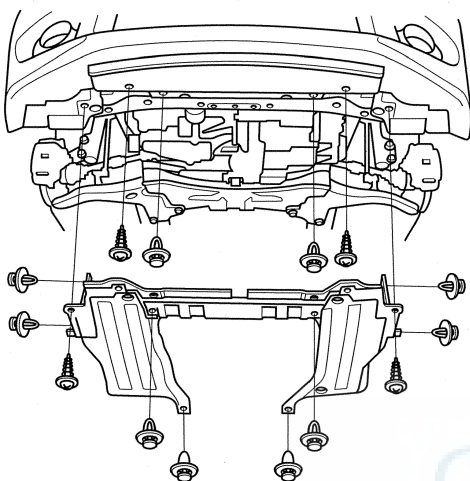
25. Install the splash shield.



Shift Solenoid Valve and Shift Solenoid Wire Harness Replacement

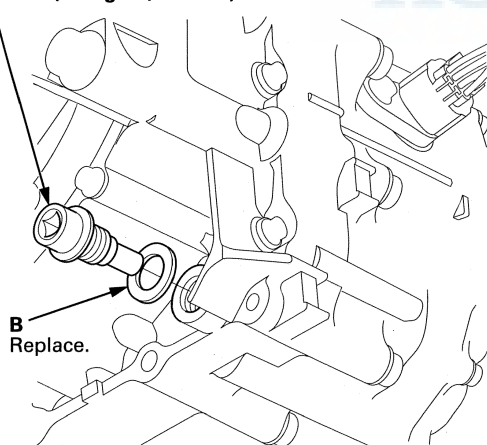
1. Raise the vehicle on a lift, or apply the parking brake, block rear wheels, and raise the front of the vehicle. Make sure it is securely supported.

2. Remove the splash shield.



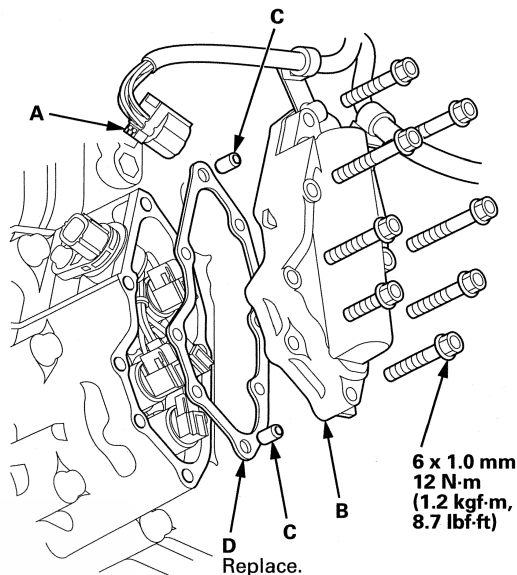
3. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).

A
18 x 1.5 mm
49 N·m (5.0 kgf·m, 36 lbf·ft)



4. Reinstall the drain plug with a new sealing washer (B).

5. Disconnect the shift solenoid harness connector (A).



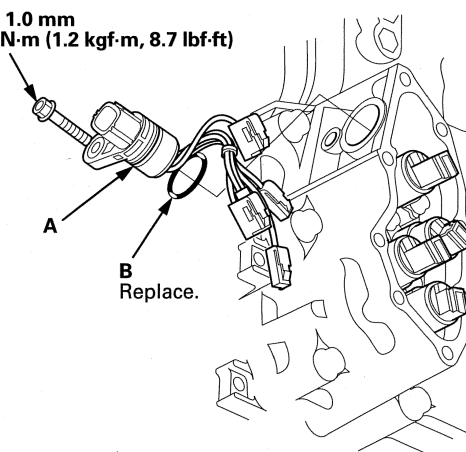
6 x 1.0 mm
12 N·m
(1.2 kgf·m, 8.7 lbf·ft)

6. Remove the shift solenoid valve cover (B), the dowel pins (C), and the gasket (D).

7. Disconnect the shift solenoid valve connectors.

- If replacing shift solenoid valve(s), go to step 8.
- If replacing the shift solenoid harness, remove the shift solenoid harness connector (A), and replace it. Install a new O-ring (B) on the new shift solenoid harness connector, and install it in the transmission housing, then go to step 13.

6 x 1.0 mm
12 N·m (1.2 kgf·m, 8.7 lbf·ft)

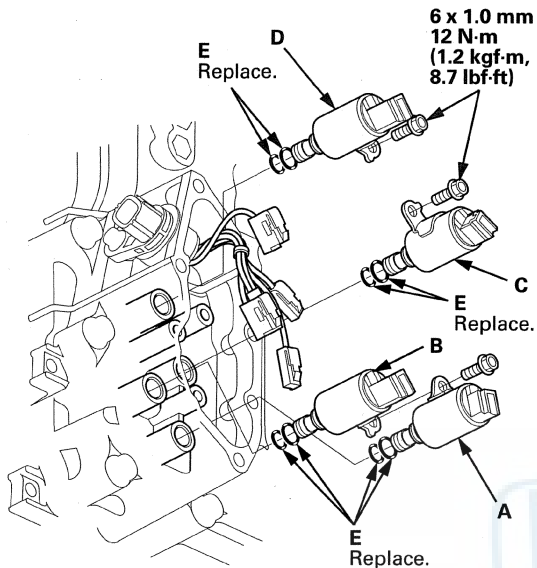


(cont'd)

Automatic Transmission

Shift Solenoid Valve and Shift Solenoid Wire Harness Replacement (cont'd)

8. Remove the mounting bolts, then hold the solenoid valve body and remove the solenoid valves. Do not hold the connector to remove the solenoid valve.



9. Install new O-rings (two O-rings per solenoid valve) (E) on the reused solenoid valve.

NOTE: A new solenoid valve comes with new O-rings. If you install a new solenoid valve, use the O-rings provided on it.

10. Install shift solenoid valve D (black connector) and shift solenoid valve C (brown connector) by holding the shift solenoid valve body; make sure the mounting bracket contacts the servo body.
- NOTE:** Do not hold the solenoid valve connector to install the solenoid valve. Be sure to hold the solenoid valve body.
11. Install shift solenoid valve B (black connector) by holding the solenoid valve body; make sure the mounting bracket contacts the servo body.

12. Install shift solenoid valve A (brown connector) by holding the shift solenoid valve body; make sure the mounting bracket contacts the bracket of shift solenoid valve B.

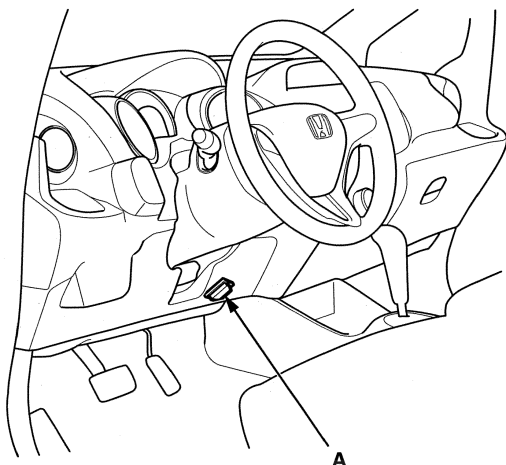
NOTE: Do not install shift solenoid valve A before installing shift solenoid valve B. If shift solenoid valve A is installed before installing shift solenoid valve B, it may damage the hydraulic control system.

13. Connect the harness terminals to the solenoids:
- BLU wire connector to shift solenoid valve A.
 - ORN wire connector to shift solenoid valve B.
 - GRN wire connector to shift solenoid valve C.
 - YEL wire connector to shift solenoid valve D.
14. Install the shift solenoid valve cover, the dowel pins, and a new gasket.
15. Check the connector for rust, dirt, or oil, then connect the connector
16. Refill the transmission with ATF (see step 6 on page 14-192).
17. Install the splash shield.



A/T Clutch Pressure Control Solenoid Valve A Test

1. Connect the HDS to the DLC (A).

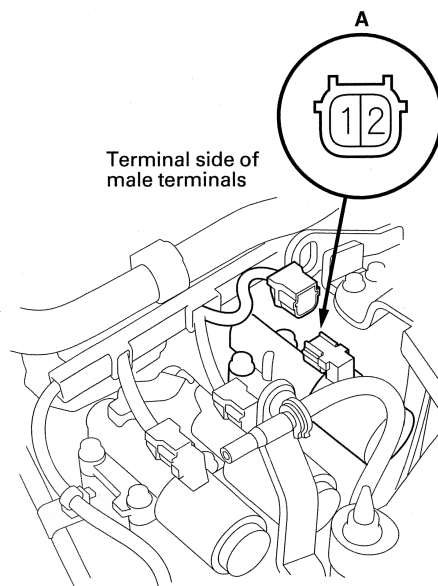


2. Select Clutch Pressure Control (Linear) Solenoid A in Miscellaneous Test Menu on the HDS.

NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-193).

3. Test A/T clutch pressure control solenoid valve A with the HDS.
 - If the valve tests OK, the test is complete. Disconnect the HDS.
 - If the valve does not test OK, follow the instructions on the HDS.
 - If the valve does not test OK, and the HDS does not determine the cause, go to step 4.
4. Remove the air cleaner assembly (see page 11-307).

5. Disconnect the A/T clutch pressure control solenoid valve A connector.



6. Measure the A/T clutch pressure control solenoid valve A resistance at the connector terminals.

Standard: 3—10 Ω

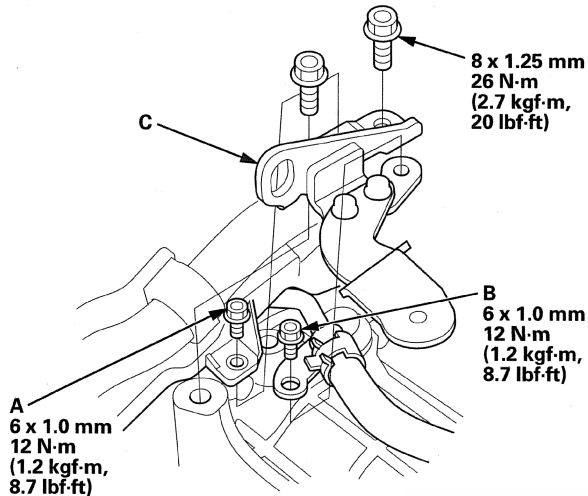
- If the resistance is out of standard, replace A/T clutch pressure control solenoid valve A (see page 14-181).
 - If the resistance is within the standard, go to step 7.
7. Connect a jumper wire from the negative battery terminal to the solenoid valve A connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1.
 - If a clicking sound is heard, the valve is OK. Reconnect the connector, and install all removed parts.
 - If no clicking sound is heard, go to step 8.

(cont'd)

Automatic Transmission

A/T Clutch Pressure Control Solenoid Valve A Test (cont'd)

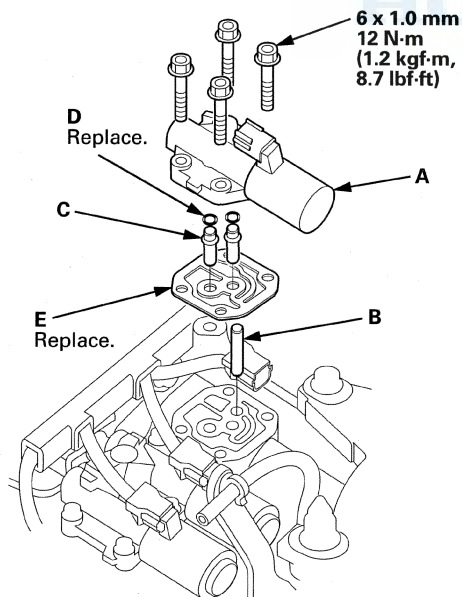
8. Remove the bolt (A) securing the harness cover.



9. Remove the bolt (B) securing the ATF cooler line/hose bracket.

10. Remove the transmission hanger/air cleaner housing bracket (C).

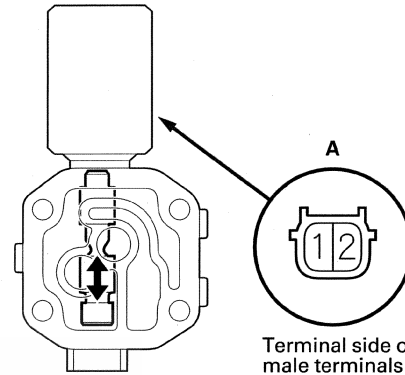
11. Remove the mounting bolts and A/T clutch pressure control solenoid valve A.



12. Remove the ATF pipe (B), the ATF joint pipes (C), the O-rings (D), and the gasket (E).

13. Check the fluid passage of the solenoid valve for contamination.

14. Connect a jumper wire from the negative battery terminal to A/T clutch pressure control solenoid valve A connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1. Make sure A/T clutch pressure control solenoid valve A moves.



15. Disconnect one of the jumper wires, and check valve movement at the fluid passage in the valve body mounting surface. If the valve binds or moves sluggishly, or if the solenoid valve does not operate, replace A/T clutch pressure control solenoid valve A.

16. Clean the mounting surfaces and fluid passages of the solenoid valve body and transmission housing.

17. Install a new gasket with blue side facing down and the white side facing up on the transmission housing.

18. Install the ATF pipe and the ATF joint pipes, and install new O-rings over the ATF joint pipes.

19. Install A/T clutch pressure control solenoid valve A.

20. Install the transmission hanger/air cleaner housing bracket, and secure the ATF cooler line/hose bracket and harness cover with the bolts.

21. Check the connector for rust, dirt, or oil, clean or repair if necessary, then connect the connector securely.

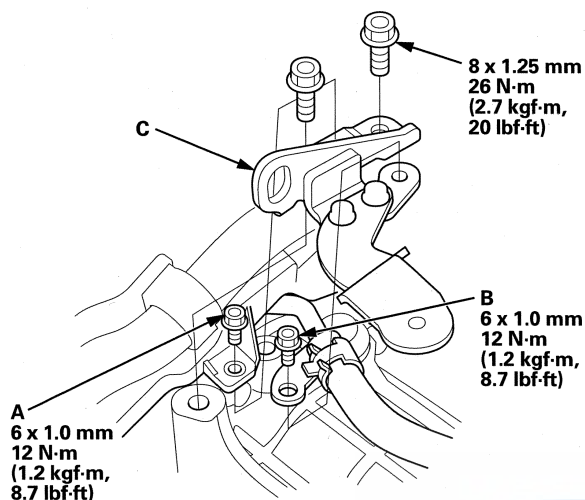
22. Install the air cleaner assembly (see page 11-307).



A/T Clutch Pressure Control Solenoid Valve A Replacement

1. Remove the air cleaner assembly (see page 11-307).

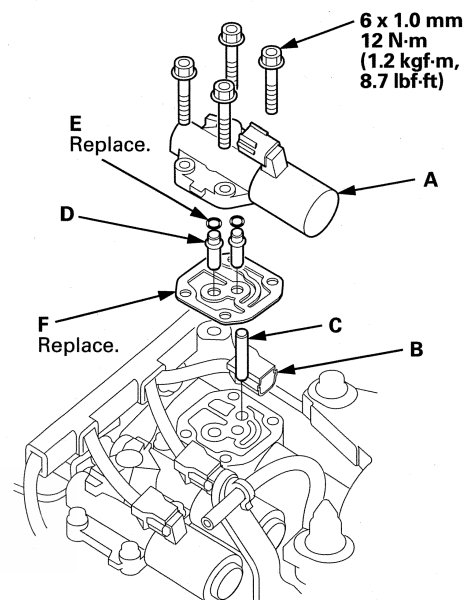
2. Remove the bolt (A) securing the harness cover.



3. Remove the bolt (B) securing the ATF cooler line/hose bracket.

4. Remove the transmission hanger/air cleaner housing bracket (C).

5. Disconnect A/T clutch pressure control solenoid valve connector (B).



6. Remove the mounting bolts and A/T clutch pressure control solenoid valve A.

7. Remove the ATF pipe (C), the ATF joint pipes (D), the O-rings (E), and the gasket (F).

8. Clean the mounting surface and fluid passages of the transmission housing.

9. Install a new gasket with blue side facing down and the white side facing up on the transmission housing.

10. Install the ATF pipe and the ATF joint pipes, and install new O-rings over the ATF joint pipes.

11. Install A/T clutch pressure control solenoid valve A.

12. Install the transmission hanger/air cleaner housing bracket, and secure the ATF cooler line/hose bracket and harness cover with the bolts.

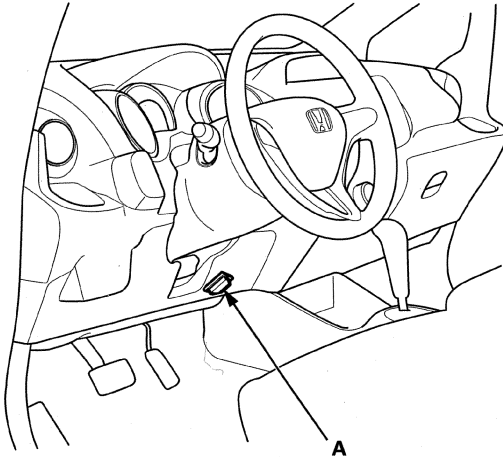
13. Check the connector for rust, dirt, or oil, clean or repair if necessary, then connect the connector securely.

14. Install the air cleaner assembly (see page 11-307).

Automatic Transmission

A/T Clutch Pressure Control Solenoid Valve B Test

1. Connect the HDS to the DLC (A).

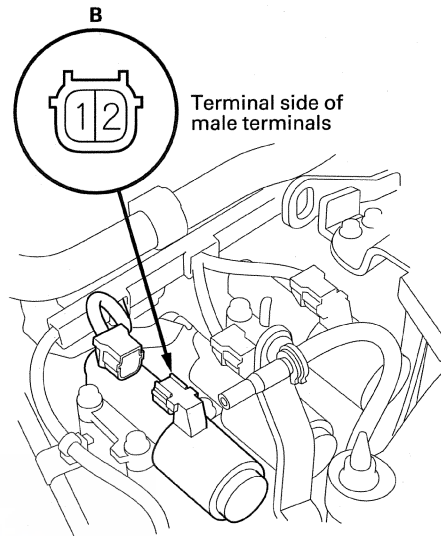


2. Select Clutch Pressure Control (Linear) Solenoid B in Miscellaneous Test Menu on the HDS.

NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-193).

3. Test A/T clutch pressure control solenoid valve B with the HDS.
 - If the valve tests OK, the test is complete. Disconnect the HDS.
 - If the valve does not test OK, follow the instructions on the HDS.
 - If the valve does not test OK, and the HDS does not determine the cause, go to step 4.
4. Remove the air cleaner assembly (see page 11-307).

5. Disconnect the A/T clutch pressure control solenoid valve B connector.



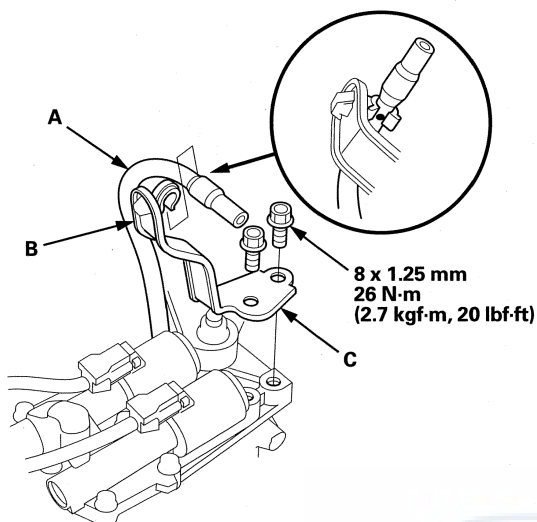
6. Measure the A/T clutch pressure control solenoid valve B resistance at the connector terminals.

Standard: 3 – 10 Ω

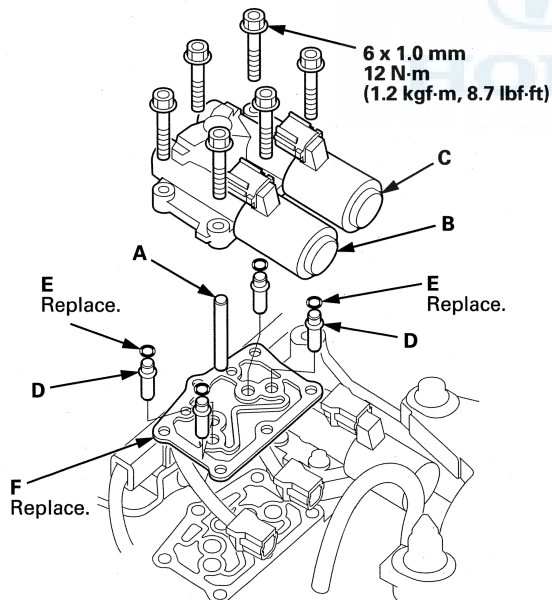
- If the resistance is out of standard, replace A/T clutch pressure control solenoid valve B (see page 14-186).
 - If the resistance is within the standard, go to step 7.
7. Connect a jumper wire from the negative battery terminal to the solenoid valve B connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1.
 - If a clicking sound is heard, the valve is OK. Reconnect the connector, and install all removed parts.
 - If no clicking sound is heard, go to step 8.



8. Remove the breather hose (A) from its clamp (B), and remove the breather hose clamp bracket (C).

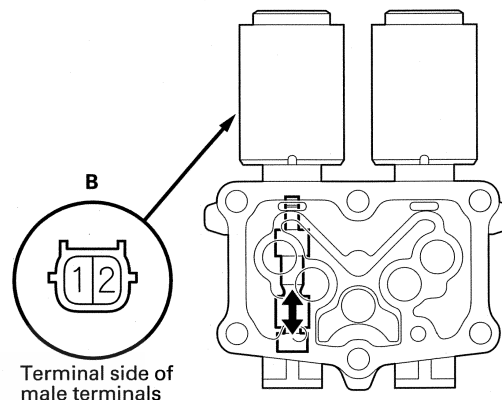


9. Remove A/T clutch pressure control solenoid valve B and C.



10. Remove the ATF pipe (A), the ATF joint pipes (D), the O-rings (E), and the gasket (F).
11. Check the fluid passage of the solenoid valve for contamination.

12. Connect a jumper wire from the negative battery terminal to A/T clutch pressure control solenoid valve B connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1. Make sure A/T clutch pressure control solenoid valve B moves.

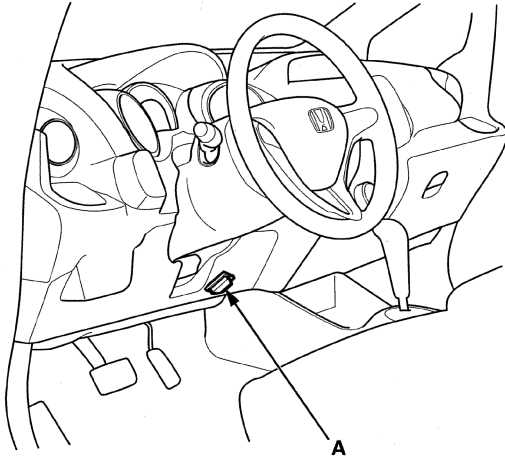


13. Disconnect one of the jumper wires, and check valve movement at the fluid passage in the valve body mounting surface. If the valve binds or moves sluggishly, or if the solenoid valve does not operate, replace A/T clutch pressure control solenoid valve B and C.
14. Clean the mounting surfaces and fluid passages of the solenoid valve body and the transmission housing.
15. Install a new gasket with blue side down; white side up on the transmission housing.
16. Install the ATF pipe and the ATF joint pipes, and install new O-rings over the ATF joint pipes.
17. Install A/T clutch pressure control solenoid valve B and C.
18. Check the connectors for rust, dirt, or oil, clean or repair if necessary, then connect the connectors securely.
19. Install the breather hose clamp bracket, and install the breather hose on its clamp at the dot.
20. Install the air cleaner assembly (see page 11-307).

Automatic Transmission

A/T Clutch Pressure Control Solenoid Valve C Test

1. Connect the HDS to the DLC (A).

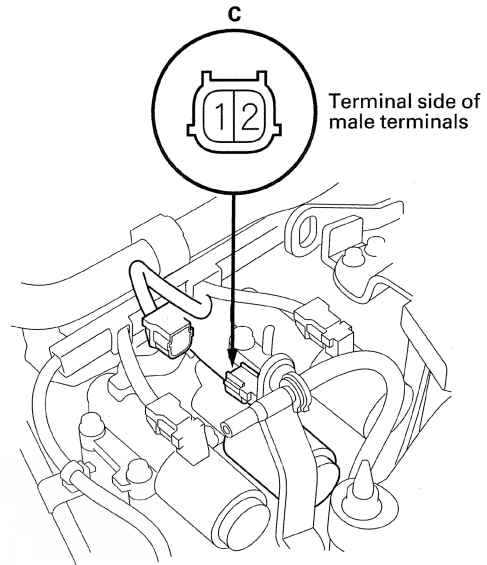


2. Select Clutch Pressure Control (Linear) Solenoid valve C in Miscellaneous Test Menu on the HDS.

NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-193).

3. Test A/T clutch pressure control solenoid valve C with the HDS.
 - If the valve tests OK, the test is complete. Disconnect the HDS.
 - If the valve does not test OK, follow the instructions on the HDS.
 - If the valve does not test OK, and the HDS does not determine the cause, go to step 4.
4. Remove the air cleaner assembly (see page 11-307).

5. Disconnect the A/T clutch pressure control solenoid valve C connector.



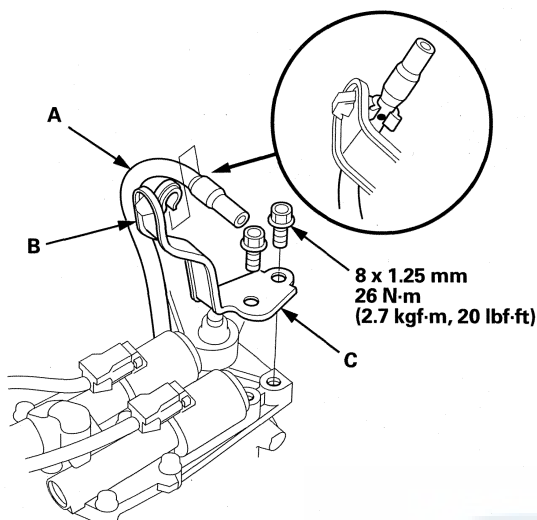
6. Measure the A/T clutch pressure control solenoid valve C resistance at the connector terminals.

Standard: 3—10 Ω

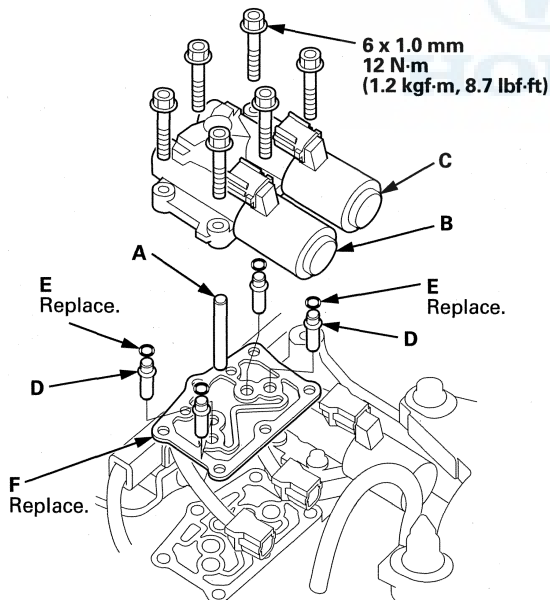
- If the resistance is out of standard, replace A/T clutch pressure control solenoid valve C (see page 14-186).
 - If the resistance is within the standard, go to step 7.
7. Connect a jumper wire from the negative battery terminal to the solenoid valve C connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1.
 - If a clicking sound is heard, the valve is OK. Reconnect the connector, and install all removed parts.
 - If no clicking sound is heard, go to step 8.



8. Remove the breather hose (A) from its clamp (B), and remove the breather hose clamp bracket (C).



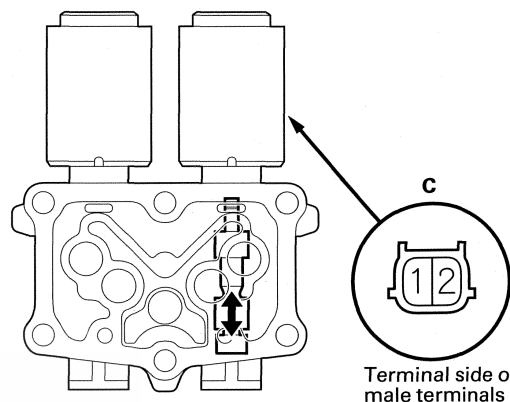
9. Remove A/T clutch pressure control solenoid valve B and C.



10. Remove the ATF pipe (A), the ATF joint pipes (D), the O-rings (E), and the gasket (F).

11. Check the fluid passage of the solenoid valve for contamination.

12. Connect a jumper wire from the negative battery terminal to A/T clutch pressure control solenoid valve C connector terminal No. 2, and connect another jumper wire from the positive battery terminal to the connector terminal No. 1. Make sure A/T clutch pressure control solenoid valve C moves.



13. Disconnect one of the jumper wires, and check valve movement at the fluid passage in the valve body mounting surface. If the valve binds or moves sluggishly, or if the solenoid valve does not operate, replace A/T clutch pressure control solenoid valve B and C.

14. Clean the mounting surfaces and fluid passages of the solenoid valve body and the transmission housing.

15. Install a new gasket with blue side down; white side up on the transmission housing.

16. Install the ATF pipe and the ATF joint pipes, and install new O-rings over the ATF joint pipes.

17. Install A/T clutch pressure control solenoid valve B and C.

18. Check the connectors for rust, dirt, or oil, clean or repair if necessary, then connect the connectors securely.

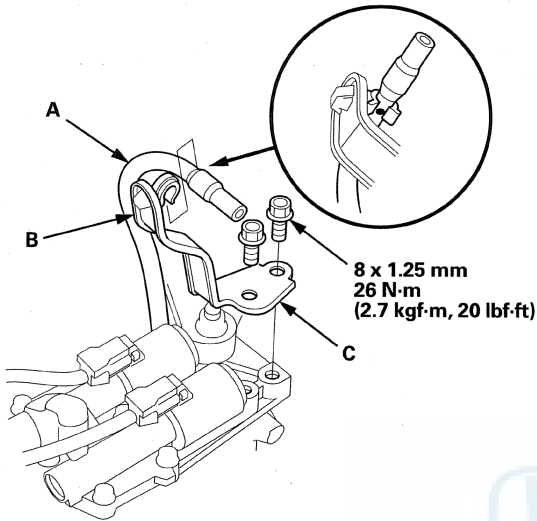
19. Install the breather hose clamp bracket, and install the breather hose on its clamp at the dot.

20. Install the air cleaner assembly (see page 11-307).

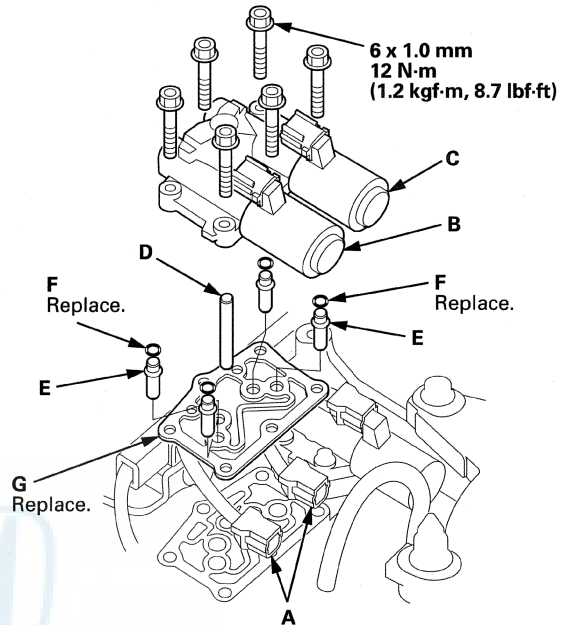
Automatic Transmission

A/T Clutch Pressure Control Solenoid Valve B and C Replacement

1. Remove the air cleaner assembly (see page 11-307).
2. Remove the breather hose (A) from its clamp (B), and remove the breather hose clamp bracket (C).



3. Disconnect the connectors (A) from A/T clutch pressure control solenoid valve B and C.

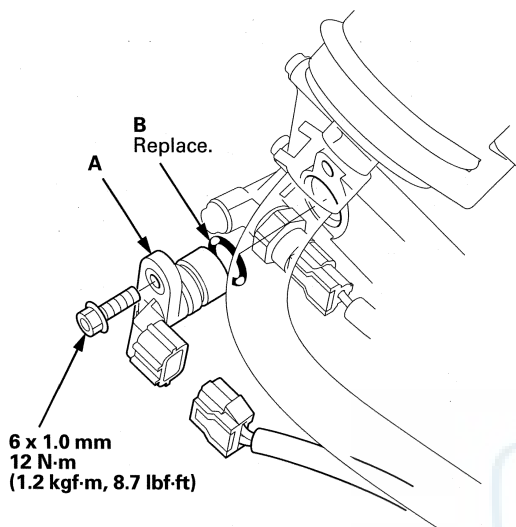


4. Remove A/T clutch pressure control solenoid valve B and C.
5. Remove the ATF pipe (D), the ATF joint pipes (E), the O-rings (F), and the gasket (G).
6. Clean the mounting surface and fluid passages of the transmission housing.
7. Install a new gasket with blue side down; white side up on the transmission housing.
8. Install the ATF pipe and the ATF joint pipes, and install new O-rings over the ATF joint pipes.
9. Install A/T clutch pressure control solenoid valve B and C.
10. Check the connectors for rust, dirt, or oil, clean or repair if necessary, then connect the connectors securely.
11. Install the breather hose clamp bracket, and install the breather hose on its clamp at the dot.
12. Install the air cleaner assembly (see page 11-307).



Input Shaft (Mainshaft) Speed Sensor Replacement

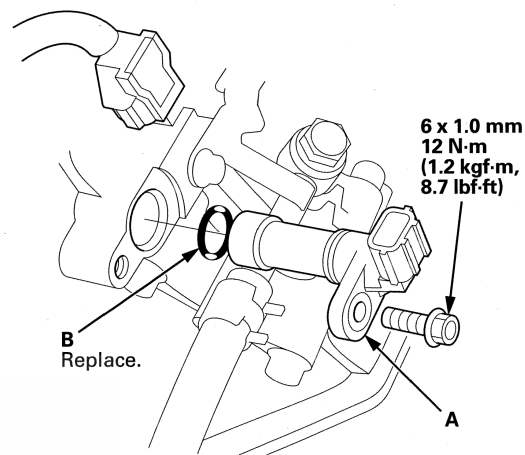
1. Remove the air cleaner assembly (see page 11-307).
2. Disconnect the input shaft (mainshaft) speed sensor connector, and remove the input shaft (mainshaft) speed sensor (A).



3. Install a new O-ring (B) on the new input shaft (mainshaft) speed sensor, then install the input shaft (mainshaft) speed sensor.
4. Check the connector for rust, dirt, or oil, then connect the connector securely.
5. Install the air cleaner assembly (see page 11-307).

Output Shaft (Countershaft) Speed Sensor Replacement

1. Remove the air cleaner assembly (see page 11-307).
2. Disconnect the output shaft (countershaft) speed sensor connector, and remove the output shaft (countershaft) speed sensor (A).

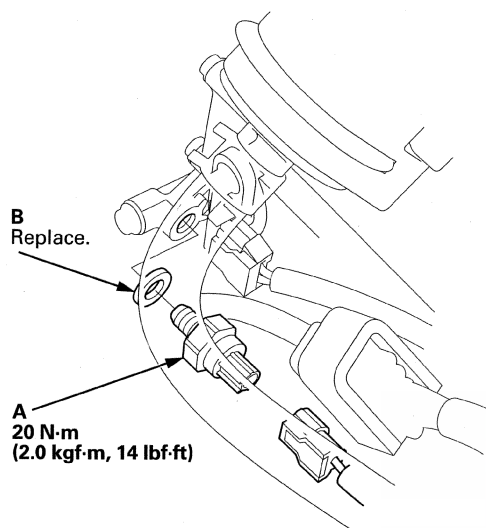


3. Install a new O-ring (B) on the new output shaft (countershaft) speed sensor, then install the output shaft (countershaft) speed sensor.
4. Check the connector for rust, dirt, or oil, then connect the connector securely.
5. Install the air cleaner assembly (see page 11-307).

Automatic Transmission

Transmission Fluid Pressure Switch A (2nd Clutch) Replacement

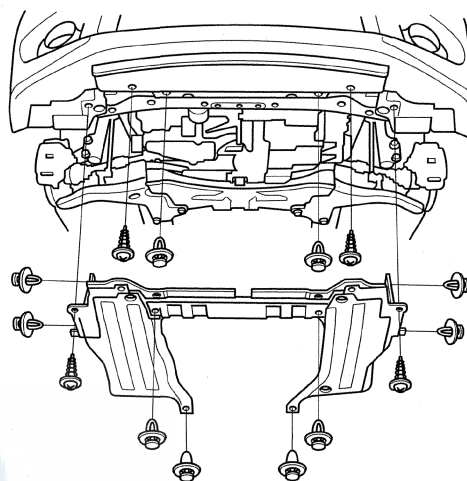
1. Remove the air cleaner assembly (see page 11-307).
2. Disconnect the transmission fluid pressure switch A (2nd clutch) connector, and remove the transmission fluid pressure switch A (2nd clutch).



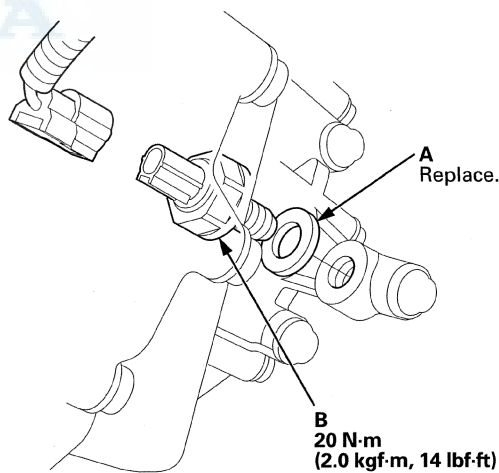
3. Install the new transmission fluid pressure switch A (2nd clutch) with a new sealing washer (B), and tighten the metal part of the switch.
4. Make sure there is no water, oil, dust, or foreign particles inside the connectors.
5. Connect the connector securely.
6. Install the air cleaner assembly (see page 11-307).

Transmission Fluid Pressure Switch B (3rd Clutch) Replacement

1. Raise the vehicle on a lift, or apply the parking brake, block rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
2. Remove the splash shield.



3. Disconnect the transmission fluid pressure switch B (3rd clutch) connector, then remove the transmission fluid pressure switch B (3rd clutch).

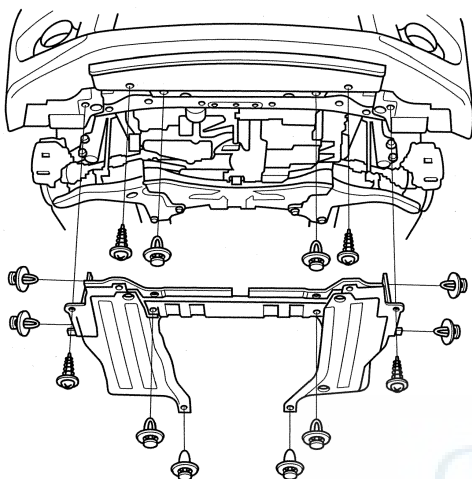


4. Install the new transmission fluid pressure switch B (3rd clutch) with a new sealing washer (A), and tighten the metal part of the switch.
5. Make sure there is no water, oil, dust, or foreign particles inside the connector.
6. Connect the connector securely.
7. Install the splash shield.

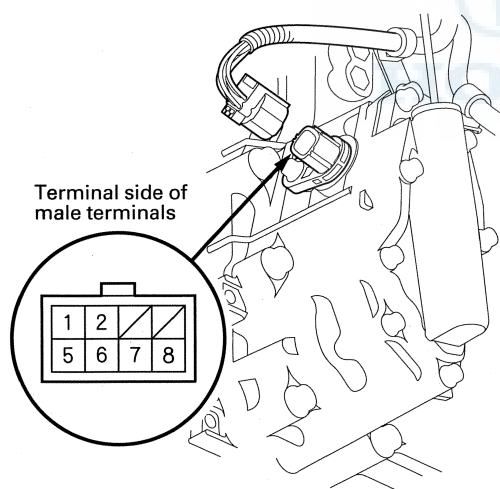


ATF Temperature Sensor Test/Replacement

1. Raise the vehicle on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
2. Remove the splash shield.



3. Disconnect the shift solenoid harness connector.



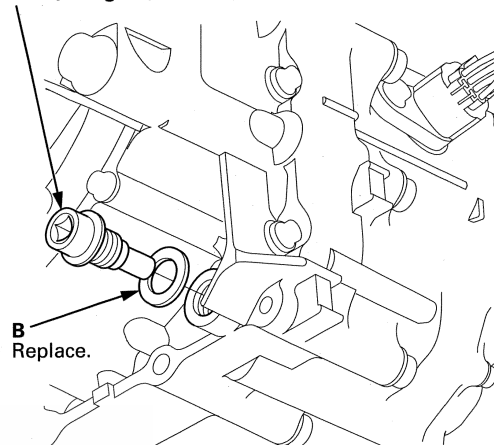
4. Measure the ATF temperature sensor resistance between shift solenoid harness connector terminals No. 6 and No. 7.

Standard: 50 Ω – 25 k Ω

5. If the resistance is out of standard, replace the ATF temperature sensor and the solenoid harness; go to step 6. The ATF temperature sensor is not available separately from the shift solenoid harness. If the resistance is within the standard, connect the connector securely, and install the splash shield.

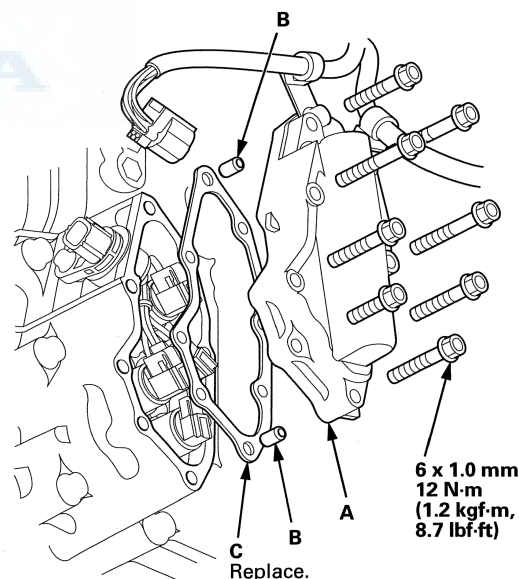
6. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).

A
18 x 1.5 mm
49 N·m (5.0 kgf·m, 36 lbf·ft)



7. Reinstall the drain plug with a new sealing washer (B).

8. Remove the shift solenoid valve cover (A), the dowel pins (B), and the gasket (C).

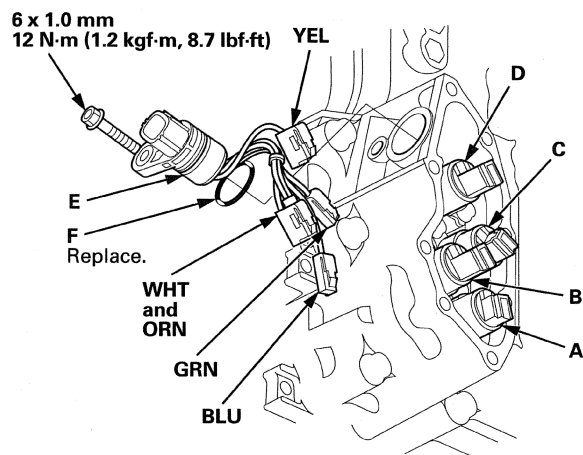


(cont'd)

Automatic Transmission

ATF Temperature Sensor Test/Replacement (cont'd)

9. Disconnect the connectors, remove the shift solenoid harness connector (E), and replace it.



10. Install a new O-ring (F) on the new shift solenoid harness connector, and install the connector in the transmission housing.
11. Connect the WHT and ORN wires connector to shift solenoid valve B. The ATF temperature sensor is assembled in the WHT wires connector.
12. Connect the harness terminals to the solenoids:
- BLU wire connector to shift solenoid valve A.
 - GRN wire connector to shift solenoid valve C.
 - YEL wire connector to shift solenoid valve D.
13. Install the shift solenoid valve cover, the dowel pins, and a new gasket.
14. Check the connector for rust, dirt, or oil, then connect it securely.
15. Refill the transmission with ATF (see step 6 on page 14-192).
16. Install the splash shield.

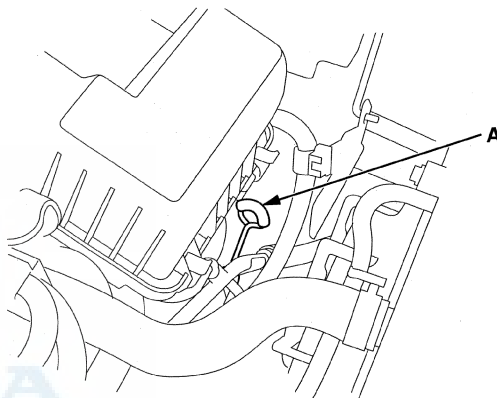
ATF Level Check

NOTE: Keep all foreign particles out of the transmission.

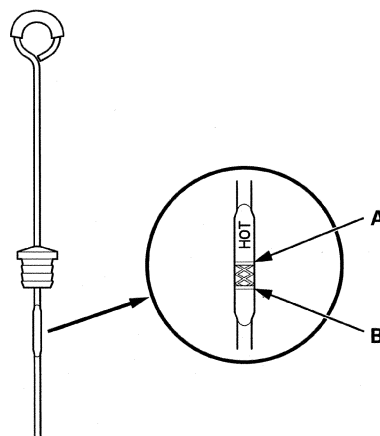
1. Park the vehicle on level ground.
2. Warm up the engine to normal operating temperature (the radiator fan comes on), then turn the engine off. Do not allow the engine to warm up longer than the time it takes for the radiator fan to come on twice.

NOTE: Check the fluid level within 60–90 seconds after turning the engine off. Higher fluid level may be indicated if the radiator fan comes on twice or more.

3. Remove the dipstick (yellow loop) (A), and wipe it with a clean cloth.



4. Insert the dipstick into the transmission.
5. Remove the dipstick and check the fluid level. It should be between the upper mark (A) and lower mark (B).





ATF Replacement

6. If the level is below the lower mark, check for fluid leaks at the transmission, and hose and line joints. If a problem is found, fix it before filling the transmission.

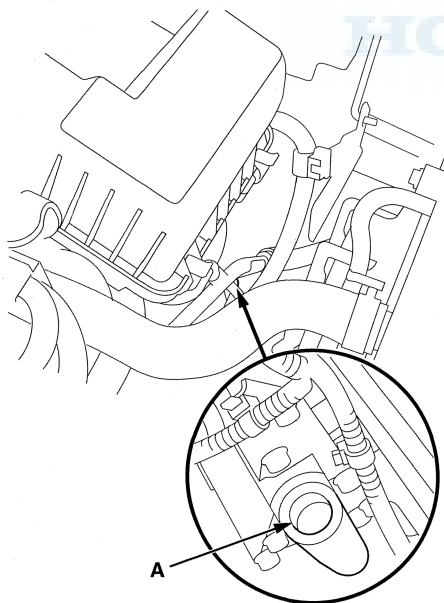
NOTE: If the vehicle is driven when the ATF level is below the lower mark, one or more of these symptoms may occur:

- Transmission damage.
- Vehicle does not move in any gear.
- Vehicle accelerates poorly, and flares when starting off in the forward and reverse positions.
- The engine vibrates at idle.

7. If the level is above the upper mark, drain the ATF to proper level (see step 4 on page 14-191).

NOTE: If the vehicle is driven when the ATF level is above the upper mark, the vehicle may creep forward while in N, or have shifting problems.

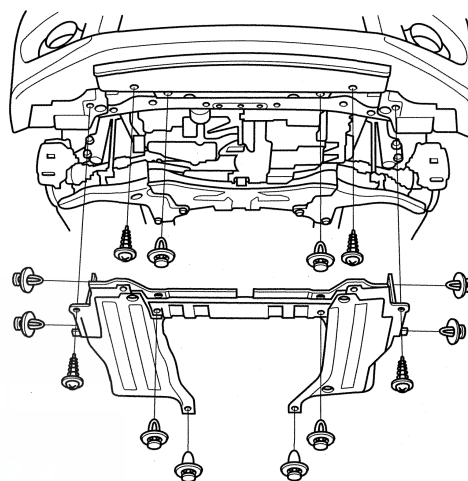
8. If necessary, fill the transmission with the ATF through the dipstick guide opening (A) to bring the fluid level midway between the upper mark and lower mark of the dipstick. Do not fill past the upper mark. Always use Honda ATF DW-1 Automatic Transmission Fluid (ATF). Using a non-Honda ATF can affect shift quality.



9. Insert the dipstick back into the transmission.

NOTE: Keep all foreign particles out of the transmission.

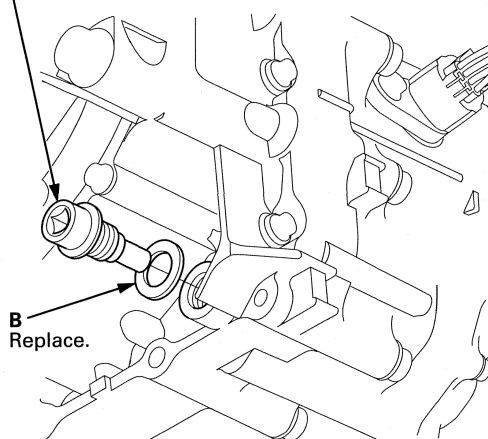
1. Warm up the engine to normal operating temperature (the radiator fan comes on), and turn the engine off.
2. Raise the vehicle on a lift, or apply the parking brake, block both rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
3. Remove the splash shield.



4. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).

NOTE: If a cooler cleaning is done, refer to ATF cooler cleaning (see page 14-209).

A
18 x 1.5 mm
49 N·m (5.0 kgf·m, 36 lbf·ft)



5. Reinstall the drain plug with a new sealing washer (B).

(cont'd)

Automatic Transmission

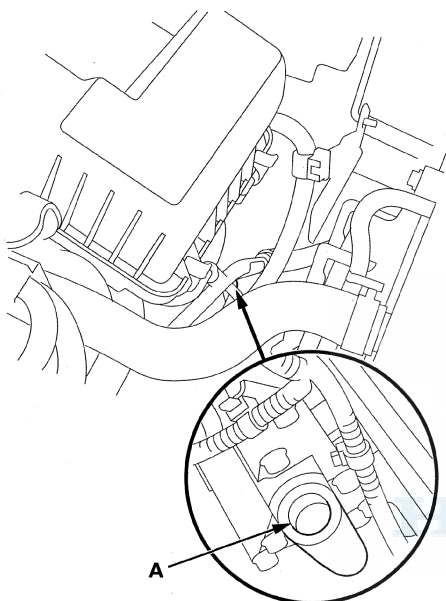
ATF Replacement (cont'd)

6. Remove the dipstick, and refill the transmission with the recommended fluid into the dipstick guide opening (A). Always use Honda ATF DW-1 Automatic Transmission Fluid (ATF). Using a non-Honda ATF can affect shift quality.

Automatic Transmission Fluid Capacity:

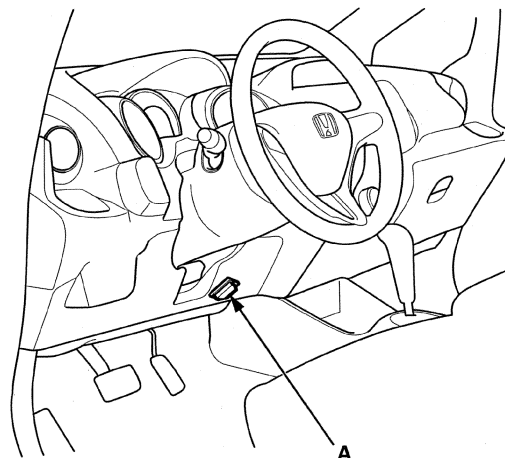
2.5 L (2.6 US qt) at change

5.85 L (6.18 US qt) at overhaul

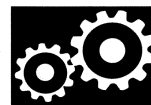


7. Insert the dipstick back into the transmission.
8. Check the ATF level (see page 14-190).
9. Install the splash shield.

10. Connect the HDS to the DLC (A).



11. Turn the ignition switch to ON (II), and go to the system selection menu on the HDS. If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-193).
12. Select BODY ELECTRICAL with the HDS.
13. Select ADJUSTMENT in the GAUGE MENU with the HDS.
14. Select RESET in the MAINTENANCE MINDER with the HDS.
15. Select MAINTENANCE SUB ITEM 3 Reset, and reset the ATF life with the HDS.



Transmission Removal

Special Tools Required

- Universal Lifting Eyelet 07AAK-SNAA120
 - 1.8 Support Bolt 07AAK-SNAA500
 - Engine Support Hanger, A and Reds AAR-T1256*
- *: Reds engine support hanger AAR-T1256 is available through the Honda Tool and Equipment Program 888-424-6857.

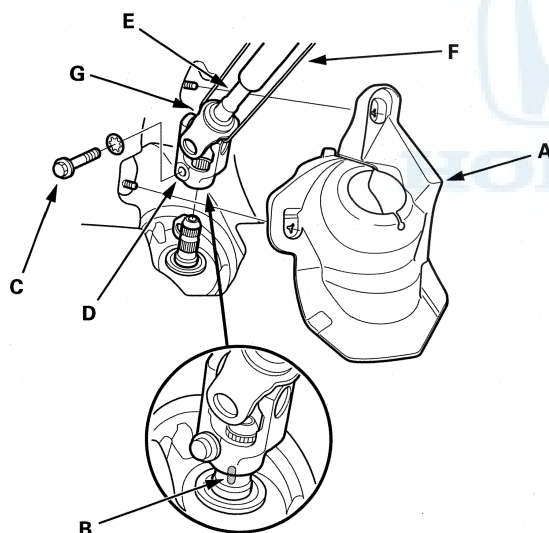
SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

NOTE:

- Use fender covers to avoid damaging painted surfaces.
- Special tool Reds engine support hanger AAR-T1256 must be used with the side engine mount installed.

1. Remove the steering wheel (see page 17-6).

2. Remove the steering joint cover (A).



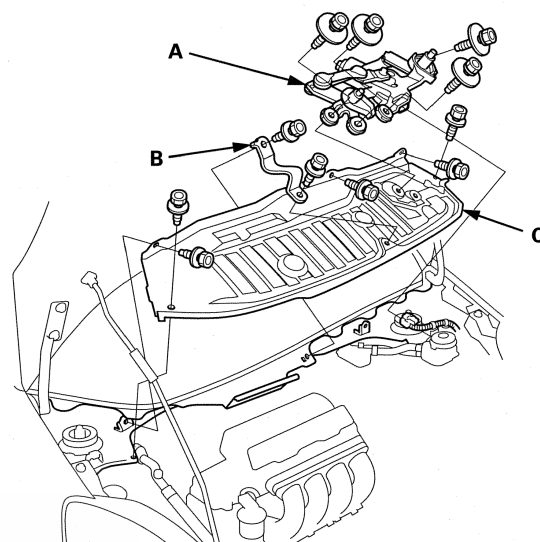
3. Make a reference mark (B) across the steering joint and the steering gearbox pinion shaft. Remove the steering joint bolt (C), and disconnect the steering joint (D) by removing the steering joint toward the steering column. Hold the slider shaft (E) on the column with a piece of wire (F) between the joint yoke (G) on the slider shaft to the joint yoke on the upper shaft (see step 6 on page 17-63).

4. Remove the battery base.

5. Remove the cowl cover (see page 20-168).

6. Fix the hood in a vertical position.

7. Remove the windshield wiper motor (A).



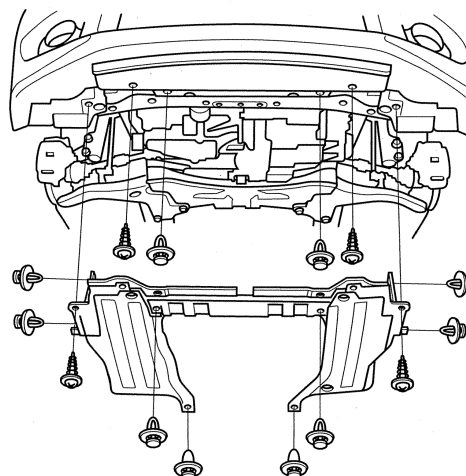
8. Remove the cowl cover stiffener (B) and center-front cowl cover (C).

9. Remove the air cleaner assembly (see page 11-307).

10. Raise the vehicle on a lift, and make sure it is securely supported.

11. Remove the wheels.

12. Remove the splash shield.

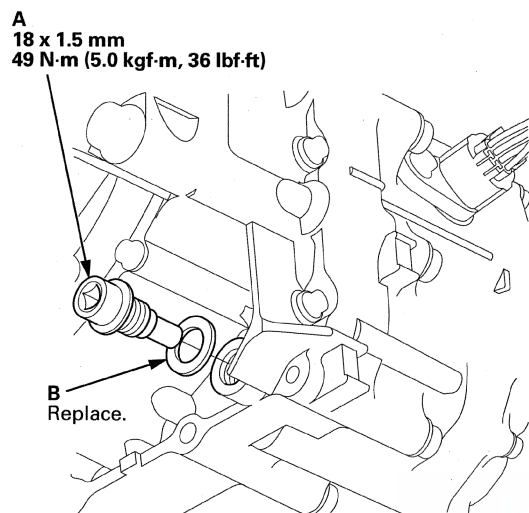


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Automatic Transmission

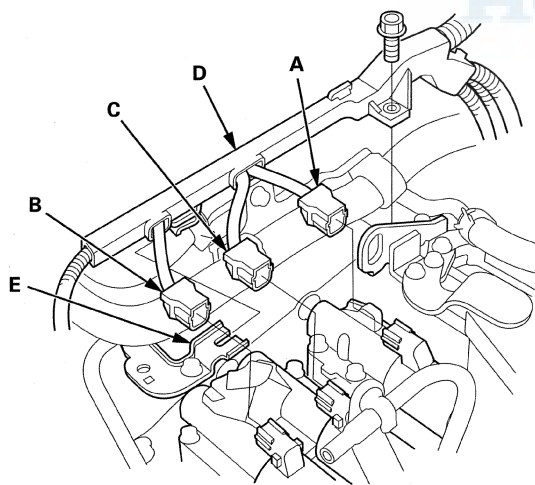
Transmission Removal (cont'd)

13. Remove the drain plug (A), and drain the automatic transmission fluid (ATF).



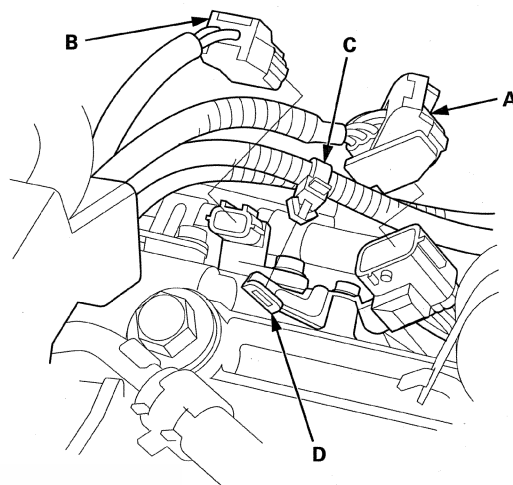
14. Reinstall the drain plug with a new sealing washer (B).

15. Disconnect the A/T clutch pressure control solenoid valve A connector (A), the A/T clutch pressure control solenoid valve B connector (B), and the A/T clutch pressure control solenoid valve C connector (C).



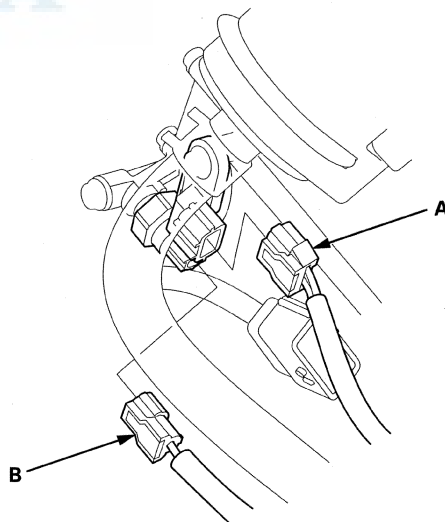
16. Remove the bolt securing the harness cover (D), and remove the harness cover from its bracket (E).

17. Disconnect the transmission range switch connector (A).



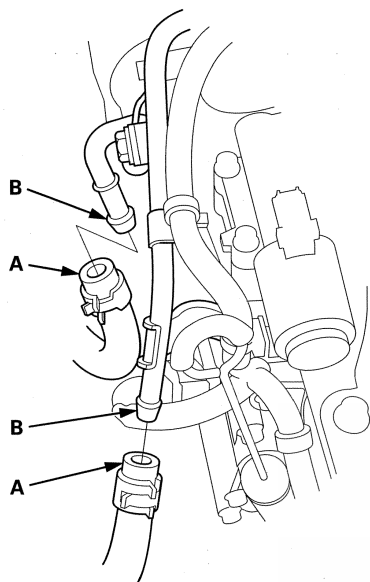
18. Disconnect the output shaft (countershaft) speed sensor connector (B), and remove the harness clamp (C) from its bracket (D).

19. Disconnect the input shaft (mainshaft) speed sensor connector (A) and the transmission fluid pressure switch A (2nd clutch) connector (B).



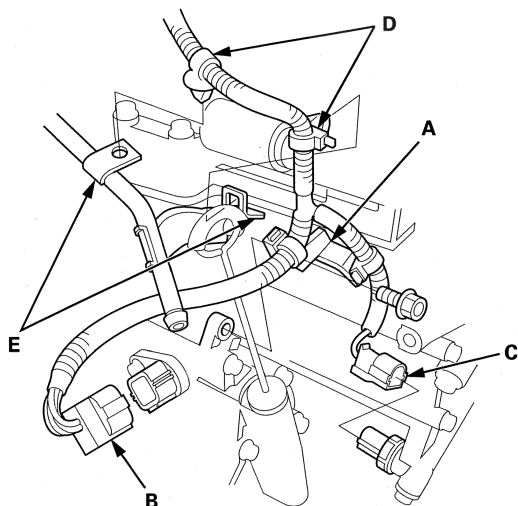


20. Remove the ATF cooler hoses (A) from the ATF cooler lines (B). Turn the ends of the cooler hoses up to prevent ATF from flowing out, then plug the cooler hoses and lines.



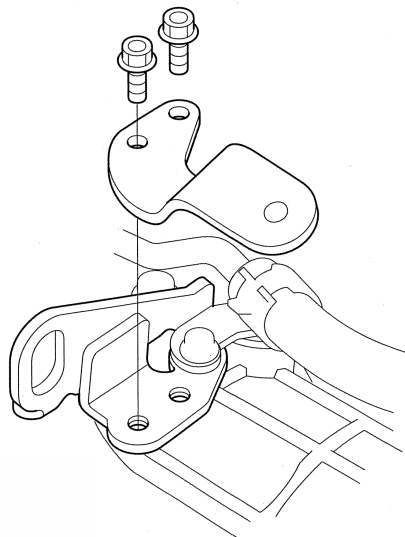
21. Check for any signs of leakage at the hose joints.

22. Remove the bolt securing the harness clamp bracket (A).

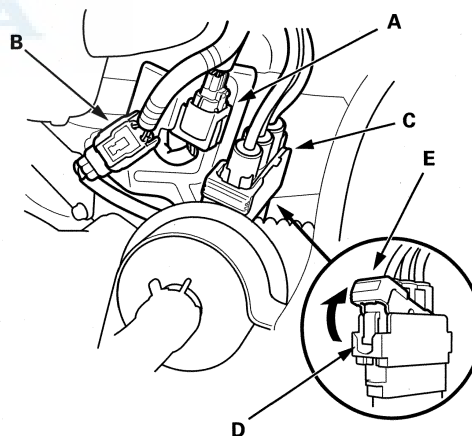


23. Disconnect the shift solenoid harness connector (B) and the transmission fluid pressure switch B (3rd clutch) connector (C), and remove the harness clamps (D) from the clamp brackets (E).

24. Remove the air cleaner housing mounting bracket from the transmission hanger.



25. Disconnect the EPS motor angle sensor 8P connector (A) and torque sensor 6P connector (B) from the steering gearbox.



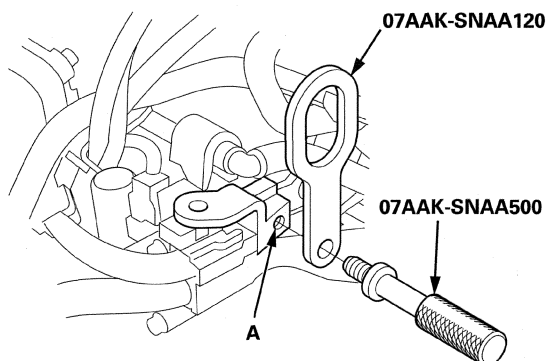
26. Disconnect the EPS motor 3P connector (C) by pushing the lock (D) and pulling up the lever (E).

(cont'd)

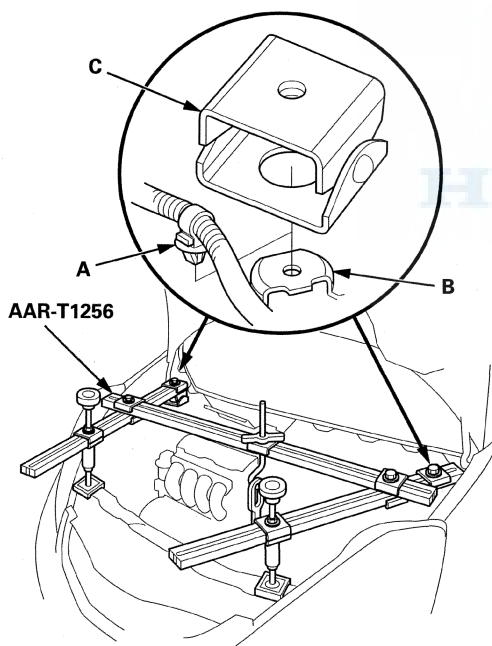
Automatic Transmission

Transmission Removal (cont'd)

27. Install the universal lifting eyelet (07AAK-SNAA120) to the bolt hole (A) at the air cleaner housing mounting bracket with the 1.8 support bolt (07AAK-SNAA500).

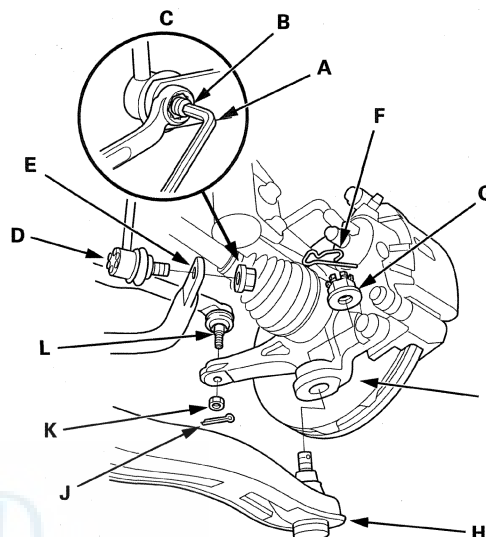


28. Remove the harness clamp (A) from its clamp bracket (B) located in front of the left damper top.



29. Set up the engine support hanger (AAR-T1256). Carefully position the engine support hanger to the vehicle; position both cross-arm foot bases (C) over the harness clamp brackets on both sides, and position both front stands on the front bulkhead. Attach the hook to the universal eyelet, tighten the wing nut by hand, and lift and support the engine.

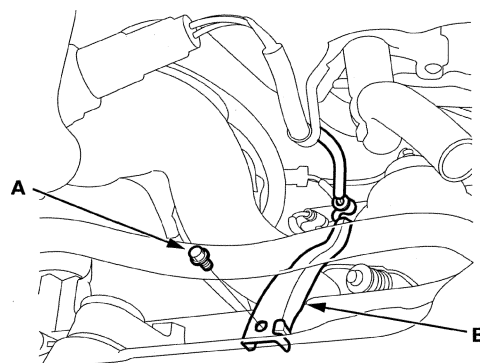
30. Insert a 5 mm Allen wrench (A) in the top of the ball joint pin (B), and remove the nuts (C), then separate the stabilizer link (D) from the stabilizer ends (E).



31. Remove the spring clips (F) and castle nuts (G), and separate the lower arms (H) from the knuckles (I) (see page 18-22).

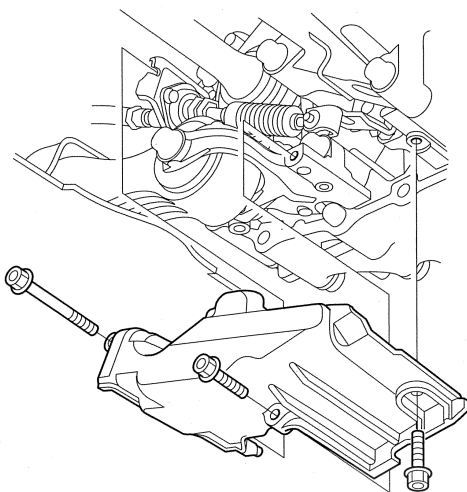
32. Remove the cotter pins (J) and the nuts (K), and separate the tie-rod end ball joint (L) from the knuckles (see page 18-16).

33. Remove the 6.0 mm bolt (A) securing the secondary HO2S wire clamp (B) on the steering gearbox. Do not disconnect secondary HO2S 4P connector and secondary HO2S.

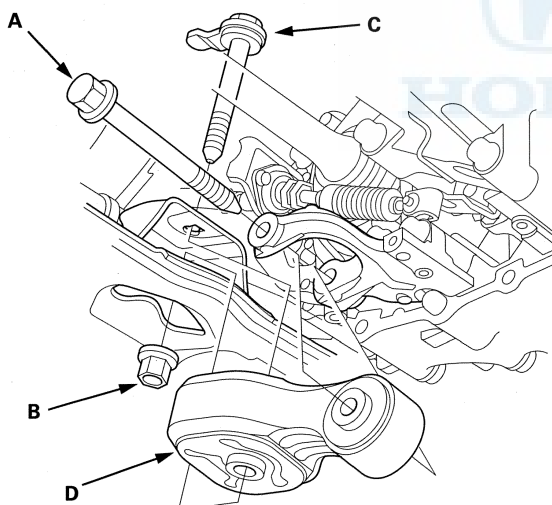




34. Remove the shift cable cover.



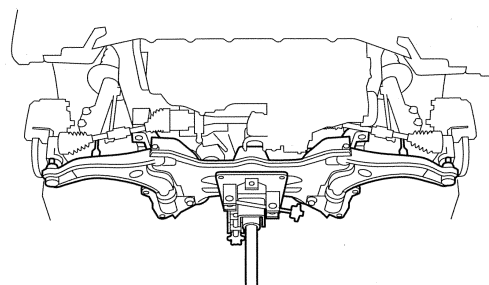
35. Place a jack under the transmission, raise it just enough to take it off of the lower torque rod, and remove the lower torque rod bolt (A) on the transmission.



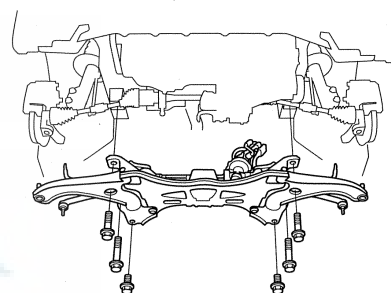
36. Remove the lower torque rod nut (B) and bolt (C) on the front subframe, and remove the lower torque rod (D).

37. Remove the jack.

38. Support the front subframe with a jack.



39. Remove the six bolts securing the front subframe.



40. Lower the front subframe and steering gearbox as an assembly by lowering the jack slowly.

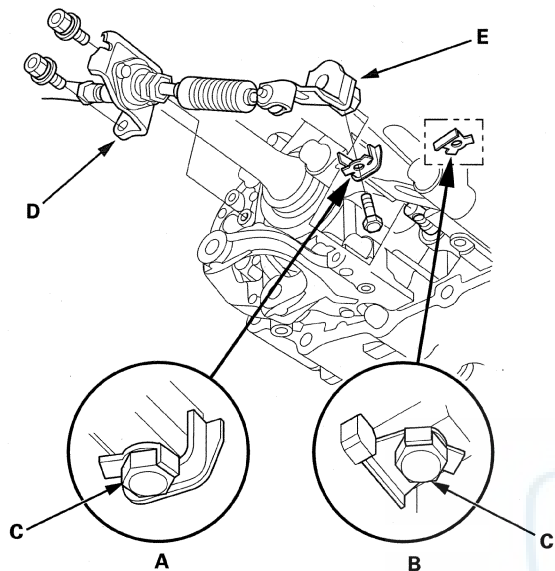
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Automatic Transmission

Transmission Removal (cont'd)

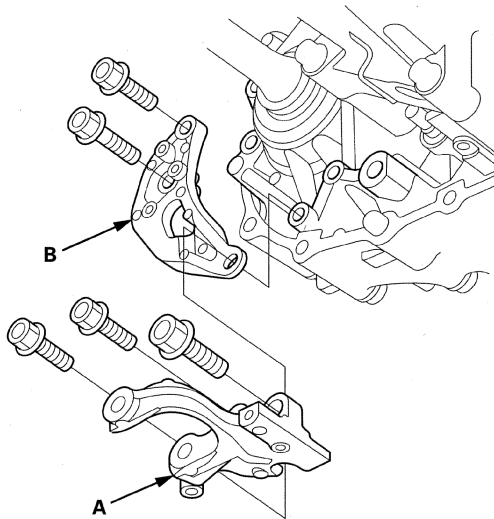
41. Pry up the lock tab of the lock washer (A or B), and remove the lock bolt (C) and the lock washer.

NOTE: Either lock washer of two types is applied.

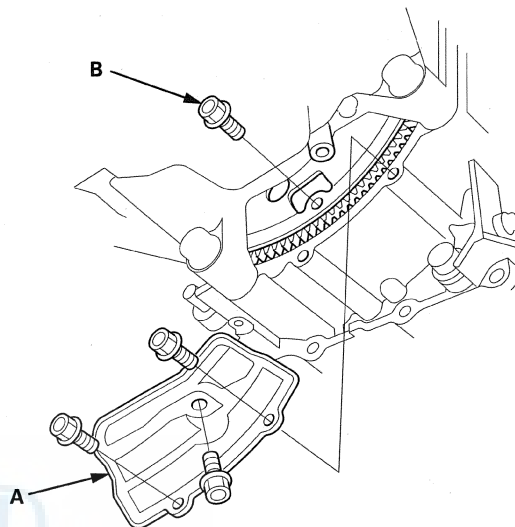


42. Remove the bolts securing the shift cable holder (D), and separate the shift cable (E) from the selector control shaft end. Do not bend the shift cable excessively.

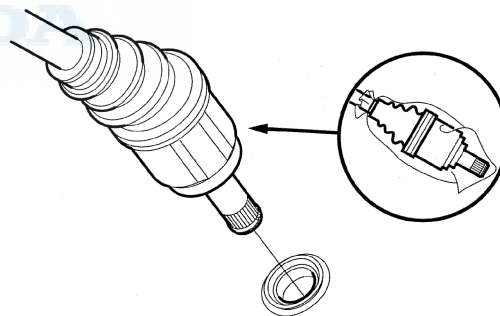
43. Remove the lower torque rod mounting bracket (A) and the shift cable holder bracket (B).



44. Remove the torque converter cover (A), and remove the drive plate bolts (B) (eight bolts) while rotating the crankshaft pulley.



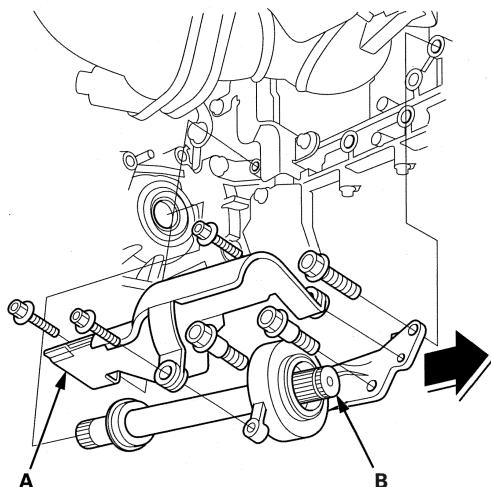
45. Pry out the driveshafts from the differential and the intermediate shaft.



46. Coat all precision machined surfaces with clean engine oil, then put plastic bags over driveshaft ends.



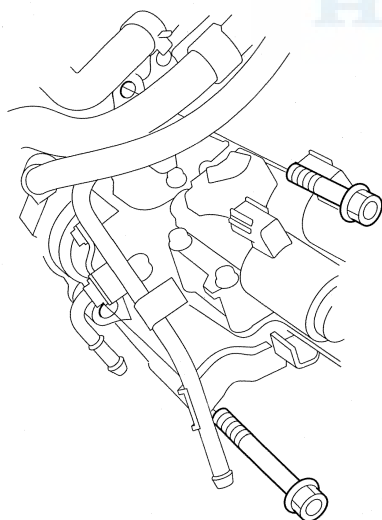
47. Remove the bolts securing the heat shield (A).



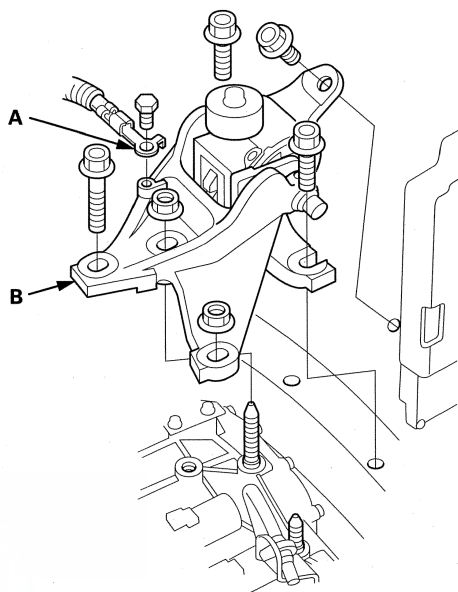
48. Remove the intermediate shaft (B) and the heat shield.

49. Coat all precision finished surfaces with clean engine oil, then put plastic bags over intermediate shaft ends.

50. Remove the front and upper transmission housing mounting bolts.



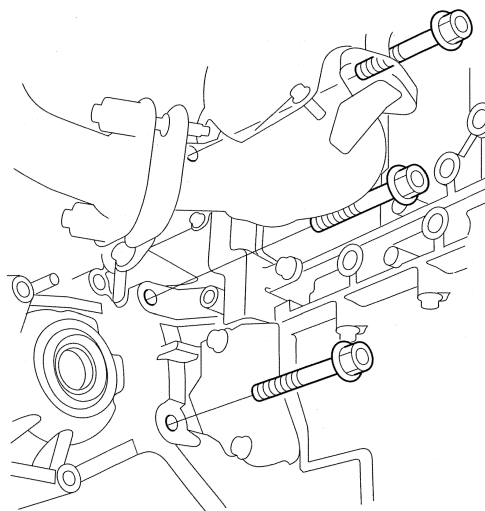
51. Remove the transmission ground cable terminal (A) from the transmission mount bracket (B).



52. Place a jack under the transmission, raise it just enough to take it off of the mount, and remove the transmission mount and mount bracket.

53. Remove the jack.

54. Remove the rear transmission housing mounting bolts.

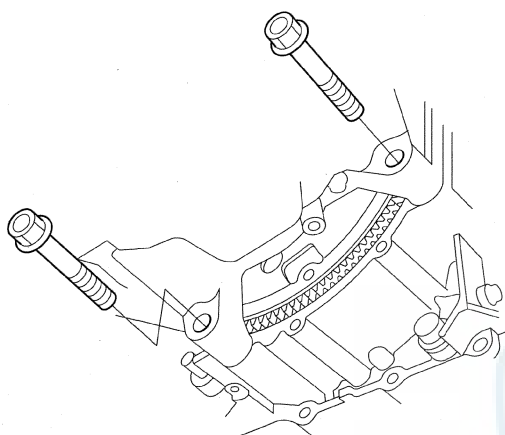


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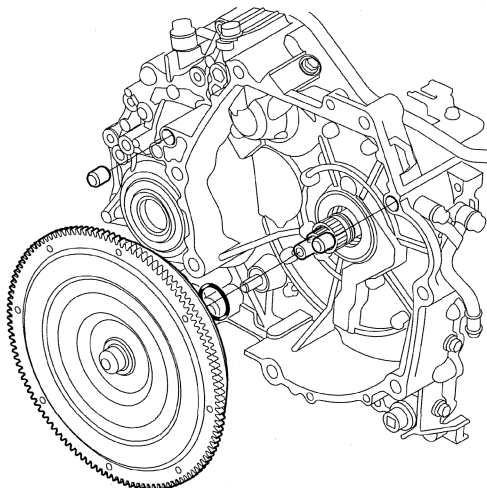
Automatic Transmission

Transmission Removal (cont'd)

55. Lower the transmission by loosening the wing nut on the engine support hanger, and tilt the engine just enough for the end of the transmission to clear the side frame.
56. Place a jack under the transmission.
57. Remove the lower transmission housing mounting bolts.



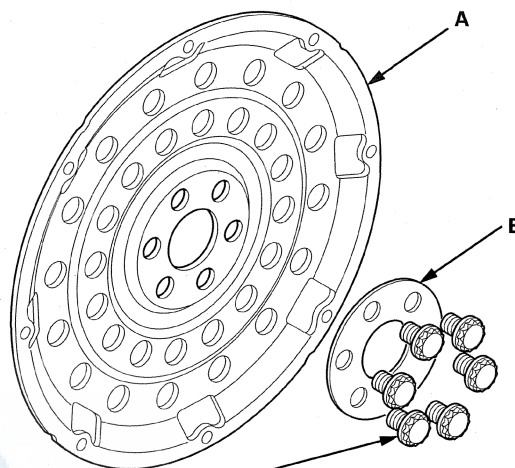
58. Slide the transmission away from the engine to remove it from the vehicle.
59. Remove the torque converter and the dowel pins.



60. Inspect the drive plate, and replace it if it's damaged (see page 14-200).

Drive Plate Removal and Installation

1. Remove the transmission assembly (see page 14-193).
2. Remove the drive plate (A) and the washer (B) from the engine crankshaft.



12 x 1.0 mm
74 N·m
(7.5 kgf-m, 54 lbf-ft)

3. Install the drive plate and the washer on the engine crankshaft, and tighten the six bolts in a crisscross pattern in at least two steps.
4. Install the transmission assembly (see page 14-201).



Transmission Installation

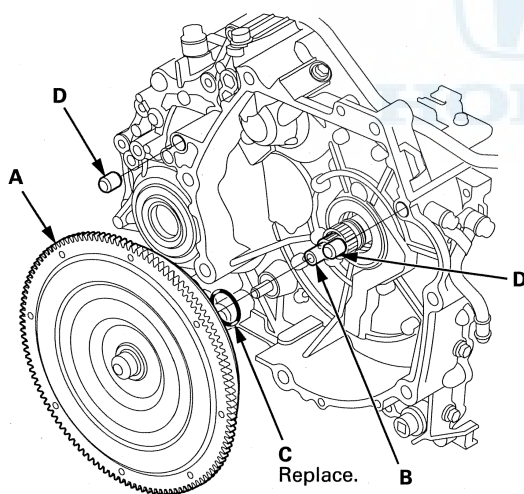
Special Tools Required

- Universal Lifting Eyelet 07AAK-SNAA120
 - 1.8 Support Bolt 07AAK-SNAA500
 - Engine Support Hanger, A and Reds AAR-T1256*
- *: Reds engine support hanger AAR-T1256 is available through the Honda Tool and Equipment Program 888-424-6857.

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

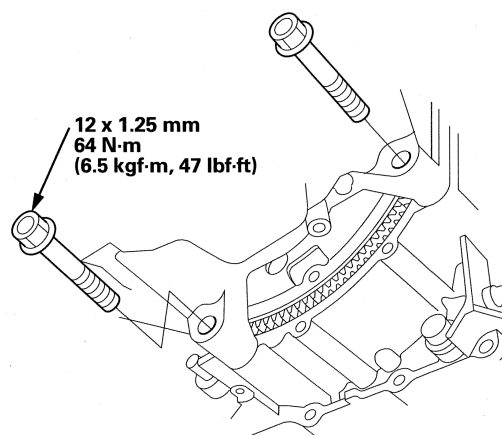
NOTE: Use fender covers to avoid damaging painted surfaces.

1. Clean the ATF cooler (see page 14-209).
2. Check that the crankshaft end bushing is secured in the crankshaft. If it is not secured or installed, install the end bushing securely in the crankshaft (see page 7-23).
3. Install the torque converter (A) on the mainshaft (B) with a new O-ring (C).

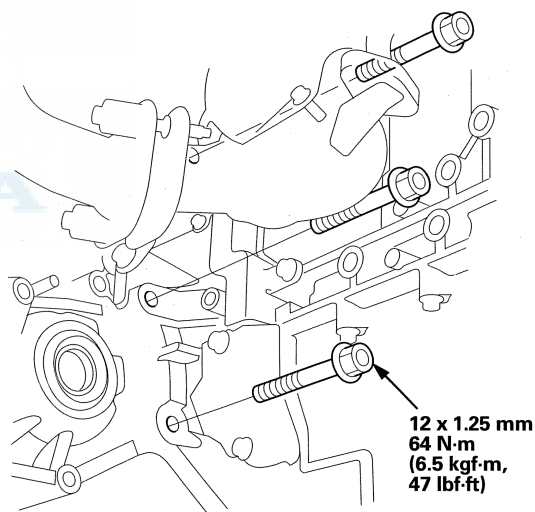


4. Install the 14 mm dowel pins (D) in the torque converter housing.
5. Place the transmission on the jack, raise the transmission to the engine level, and fit the transmission to the engine.

6. Install the lower transmission housing mounting bolts.



7. Install the rear transmission housing mounting bolt.

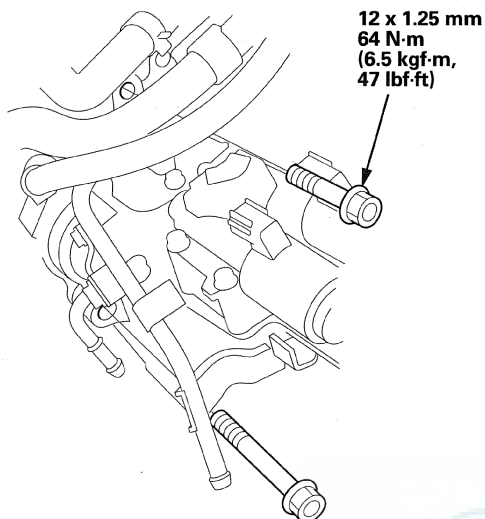


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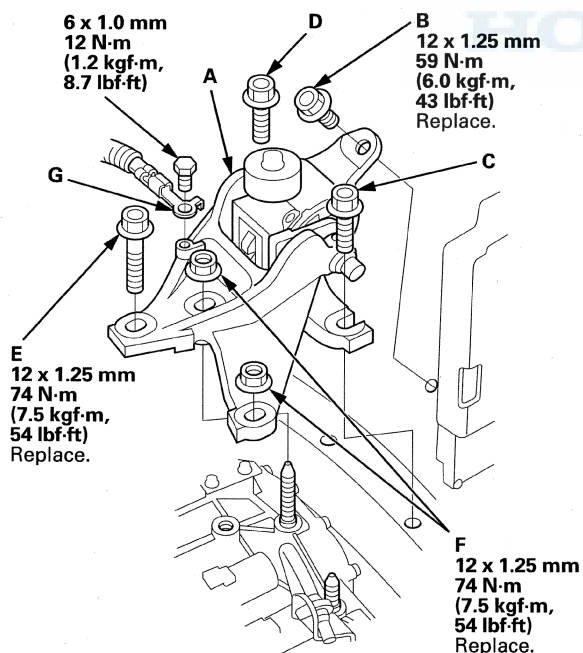
Automatic Transmission

Transmission Installation (cont'd)

8. Install the front and upper transmission housing mounting bolts.



9. Raise the transmission with the jack, and secure the transmission mount and mount bracket (A) on the body and transmission housing with the new mounting bolts and new nuts loose.

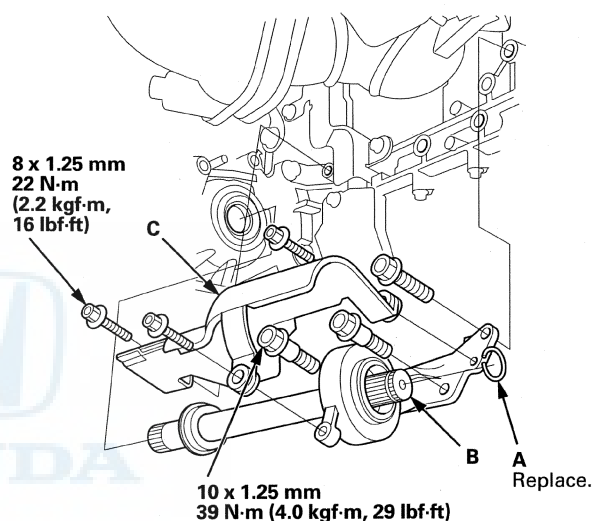


10. Tighten the transmission mount bolts to the specified torque in the following order; on the middle (B), on the front (C), and on the rear (D).

11. Remove the jack, and tighten the bolt (E) and nuts (F) on the transmission mount bracket to the specified torque.

12. Install the transmission ground cable terminal (G).

13. Install the new set ring (A) on the intermediate shaft (B).

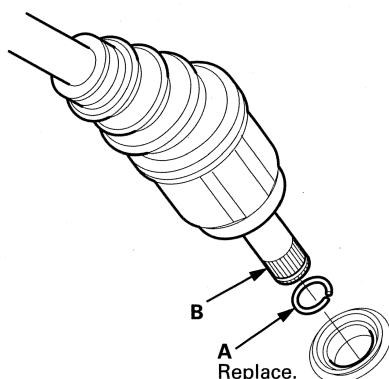


14. Clean the areas where the intermediate shaft contacts the transmission (differential) with solvent, and dry with compressed air. Apply ATF to the intermediate shaft splines, put the heat shield (C) on the intermediate shaft, then install the intermediate shaft carefully to prevent damaging the oil seal; be sure not to allow dust or other foreign particles to enter the transmission.

15. Secure the heat shield with the mounting bolts.

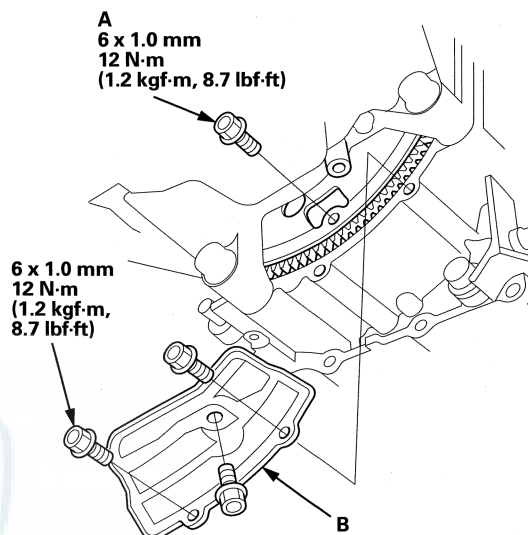


16. Install the new set ring (A) on the left driveshaft (B).

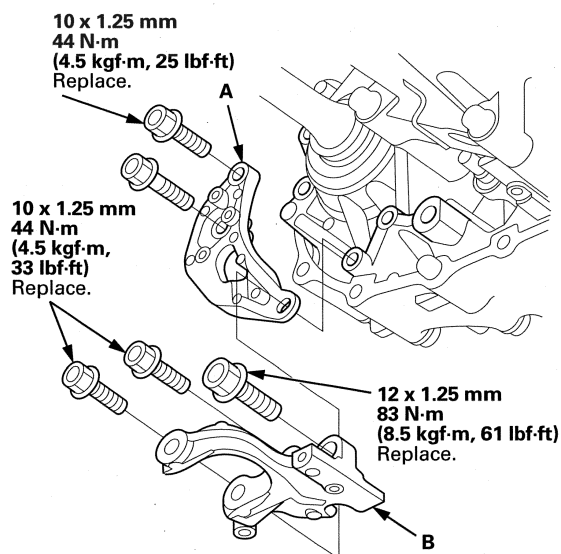


17. Clean the areas where the left driveshaft contacts the transmission (differential) with solvent, and dry with compressed air. Then install the left driveshaft carefully to prevent damaging oil seal; be sure not to allow dust or other foreign particles to enter the transmission. Turn the steering knuckle fully outward, and slide the driveshaft into the differential until you feel its set ring fully engage the side gear.
18. Coat the right driveshaft inboard-joint splines with the recommended grease (see page 16-20).
19. Slide the right driveshaft over the intermediate shaft splines until you feel the driveshaft fully engage the intermediate shaft set ring.

20. Attach the torque converter to the drive plate with eight bolts (A). Rotate the crankshaft pulley as necessary to tighten the bolts to 1/2 of the specified torque, then to the final torque, in a crisscross pattern. After tightening the last bolt, check that the crankshaft rotates freely.



21. Install the torque converter cover (B).
22. Install the shift cable holder bracket (A) and the lower torque rod mounting bracket (B) on the transmission.



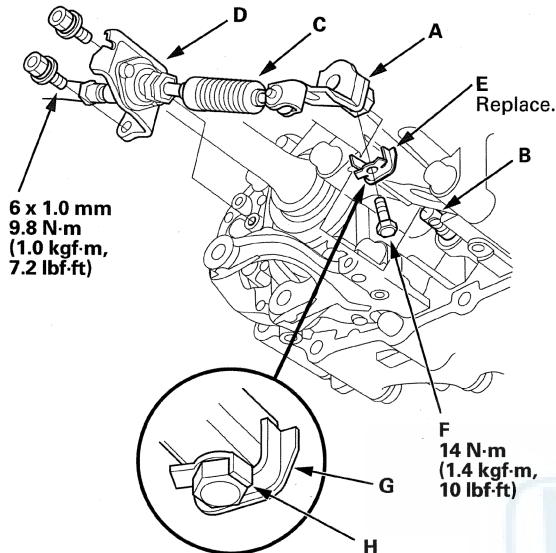
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Automatic Transmission

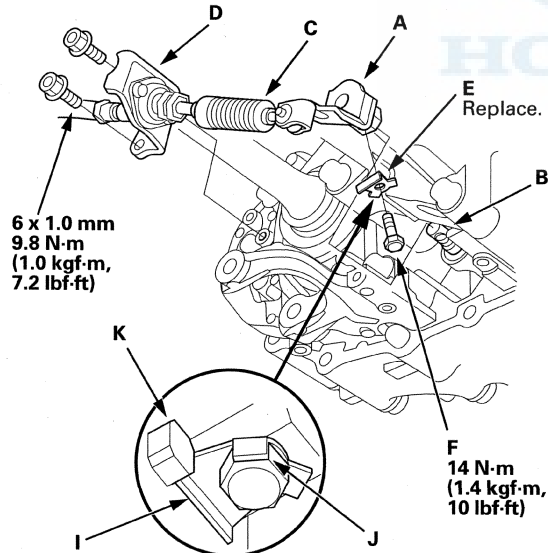
Transmission Installation (cont'd)

23. Install the control lever (A) over the control shaft (B).
Do not twist the boot (C).

With Type A Lock Washer



With Type B Lock Washer

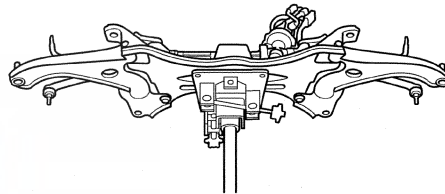


24. Secure the shift cable bracket (D) with the bolts.

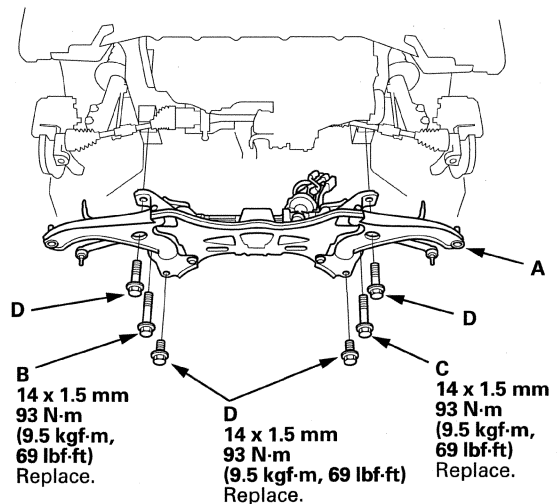
25. Secure the control lever with a new lock washer (E) and the lock bolt (F):

- With type A lock washer: Install the flange (G) of the lock washer facing the transmission housing as shown, then bend the lock tab (H) of the lock washer against the bolt head securely.
- With type B lock washer: Install the flange (I) of the lock washer facing the control lever as shown, then bend the lock tab (J) of the lock washer against the bolt head securely. Do not ride the lock washer on the stop (K) on the control lever.

26. Support the front subframe with a jack.



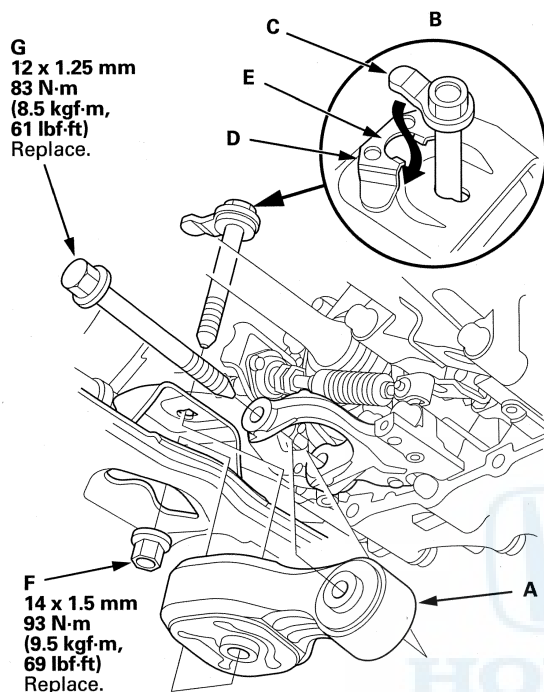
27. Lift the front subframe (A) up to body, and secure it loosely with new mounting bolts.



28. Tighten the right middle mounting bolt (B) first, then the left middle bolt (C), and the four remaining bolts (D) to the specified torque.

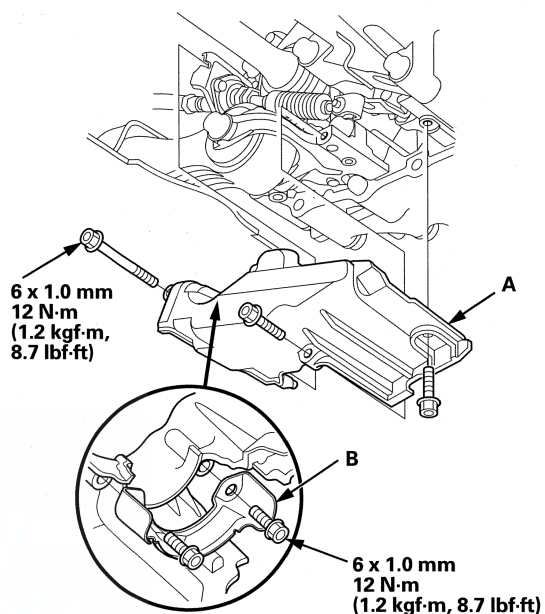


29. Place a jack under the transmission, raise it and attach the lower torque rod (A) in the mounting bracket and front subframe.

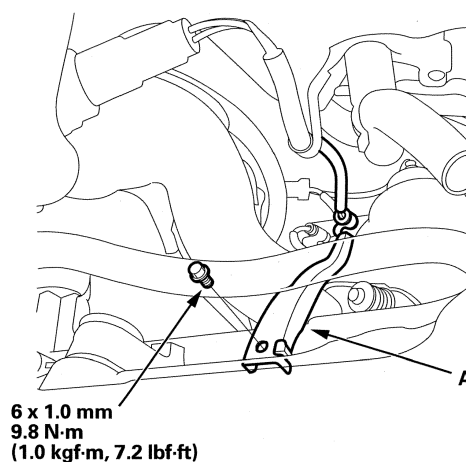


30. Install the mounting bolt (B), and set the bolt tongue (C) into the stop (D) through the guide (E), then loosely install the nut (F).
31. Loosely install the mounting bolt (G).
32. Remove the jack, and tighten the bolt and nut to the specified torque.

33. Install the shift cable cover (A). If the shift cable cover protector (B) was removed, install the shift cable cover protector on the shift cable cover, then install the shift cable cover.



34. Install the secondary HO2S wire clamp (A) on the steering gearbox.

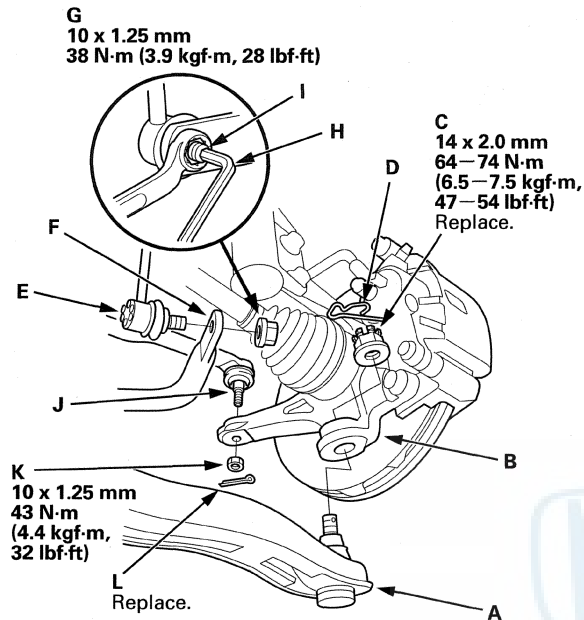


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Automatic Transmission

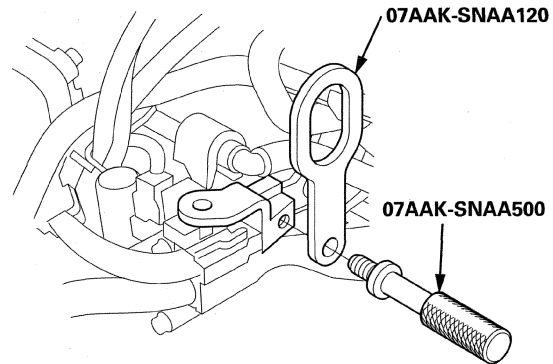
Transmission Installation (cont'd)

35. Connect the ball joints (A) to both knuckles (B), and install new castle nuts (C). Tighten the nuts, then secure the nuts with the spring clips (D).

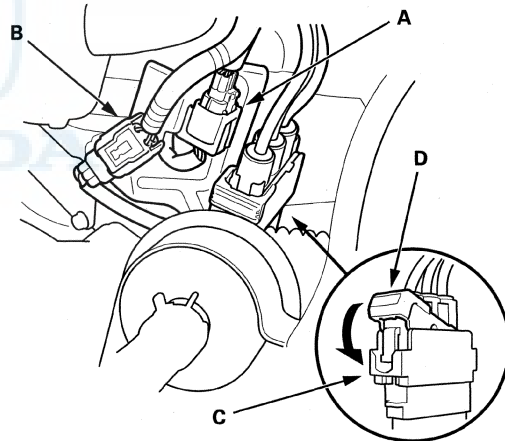


36. Connect the stabilizer links (E) to the stabilizer ends (F), and install the nuts (G). Insert a 5 mm Allen wrench (H) in the top of the ball joint pins (I), and tighten the nuts.
37. Install the tie-rod end ball joint (J) to the each knuckle with the nuts (K), and secure the nuts with new cotter pins (L).
38. Remove the engine support hanger, and install the harness clamp in its bracket located in front of the left damper top.

39. Remove the universal lifting eyelet (07AAK-SNAA120) and the 1.8 support bolt (07AAK-SNAA500).



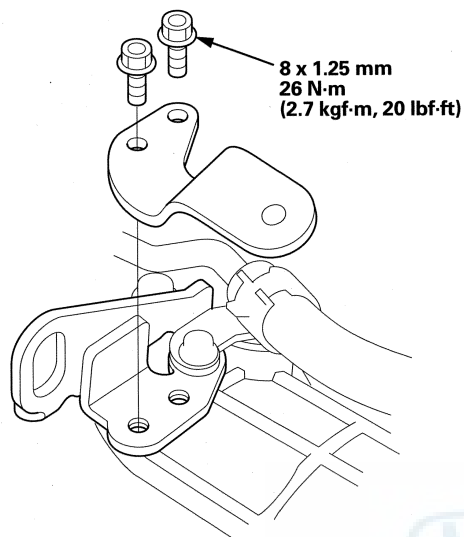
40. Connect the EPS motor angle sensor 8P connector (A), torque sensor 6P connector (B) to the steering gearbox.



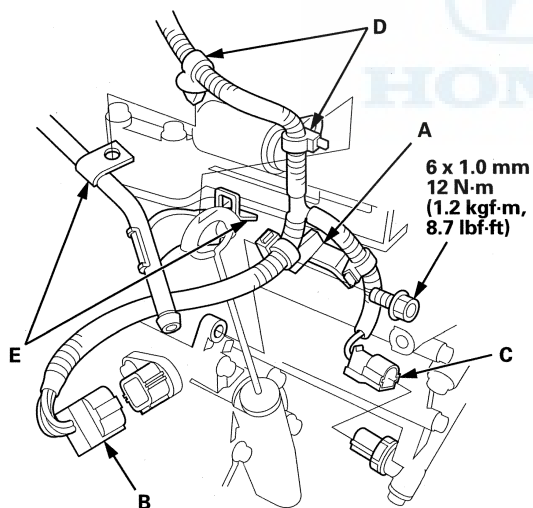
41. Connect the EPS 3P connector (C), and push down its lever (D) to connect securely.



42. Install the air cleaner housing mounting bracket on the transmission hanger.

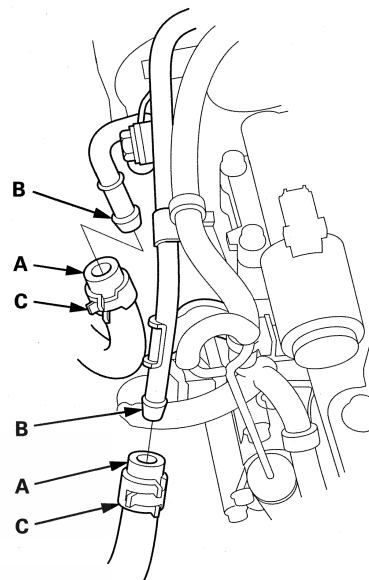


43. Secure the harness clamp bracket (A) with the bolt.

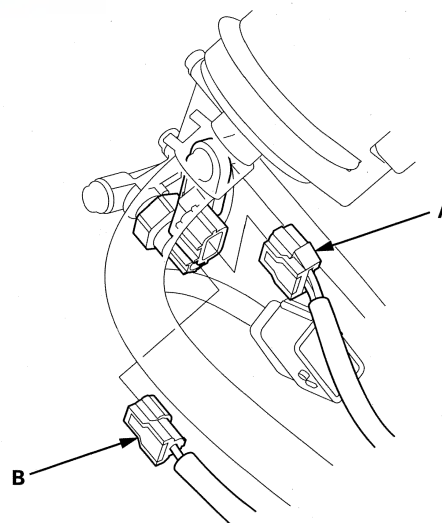


44. Connect the shift solenoid harness connector (B) and the transmission fluid pressure switch B (3rd clutch) connector (C), and install the harness clamps (D) in the clamp brackets (E).

45. Connect the ATF cooler hoses (A) to the ATF cooler lines (B), and secure the hoses with the clips (C) (see page 14-212).



46. Connect the input shaft (mainshaft) speed sensor connector (A) and the transmission fluid pressure switch A (2nd clutch) connector (B).

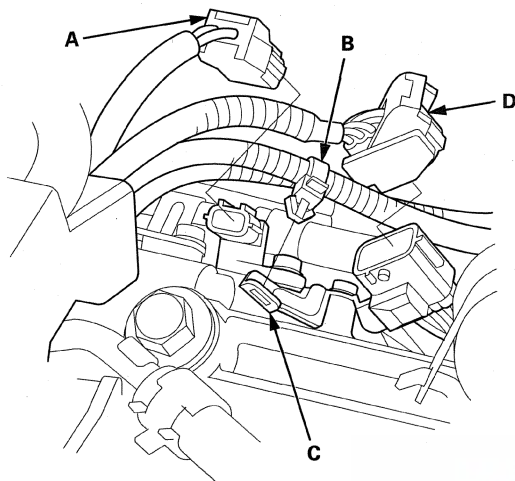


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Automatic Transmission

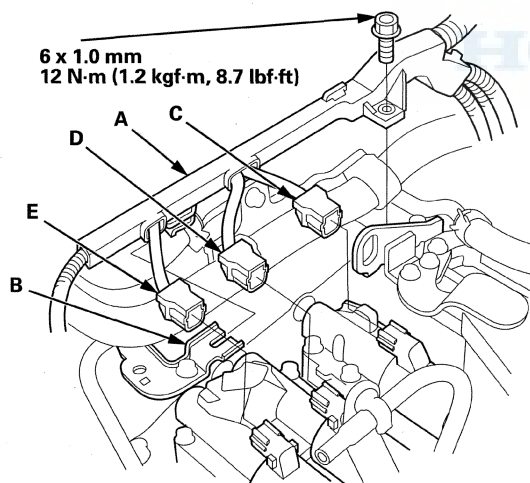
Transmission Installation (cont'd)

47. Connect the output shaft (countershaft) speed sensor connector (A), and install the harness clamp (B) on its bracket (C).



48. Connect the transmission range switch connector (D).

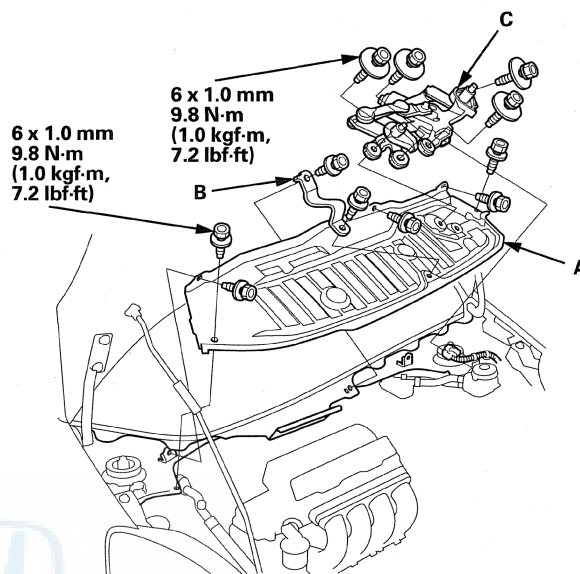
49. Install the harness cover (A) on its bracket (B), and secure the cover with the bolt.



50. Connect the A/T clutch pressure control solenoid valve A connector (C), the A/T clutch pressure control solenoid valve C connector (D), and the A/T clutch pressure control solenoid valve B connector (E).

51. Install the air cleaner assembly (see page 11-307).

52. Install the center-front cowl cover (A) and the cowl cover stiffener (B).



53. Install the windshield wiper motor (C).

54. Install the cowl cover (see page 20-168).

55. Install the wiper arms (see page 22-264).

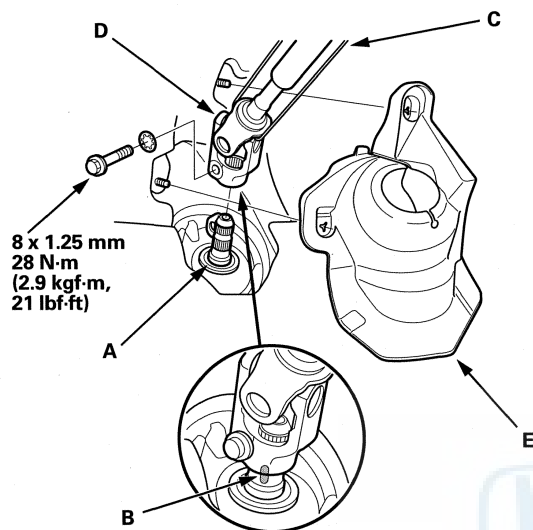
56. Refill the transmission with ATF (see step 6 on page 14-192).

57. Install the battery base.



ATF Cooler Cleaning

58. Connect the steering joint to the steering gearbox pinion shaft (A) by aligning the reference mark (B), and remove the wire (C) from the joint yoke (D) (see page 17-9).



59. Install the steering joint cover (E).
60. Install the steering wheel (see page 17-8).
61. Install the splash shield.
62. Install the wheels.
63. Set the parking brake. Start the engine, and shift the transmission through all positions three times. Check the shift lever operation, the A/T gear position indicator operation, and the shift cable adjustment.
64. Check and adjust the front wheel alignment (see page 18-6).
65. Check the ATF level (see page 14-190).
66. Do the road test (see page 14-167).

Special Tools Required

- ATF Cooler Cleaner GHTTTCF6H*
- Magnetic Nonbypass Spin-On Filter GTHGNBP2*

*: Available through the Honda Tool and Equipment Program 888-424-6857.

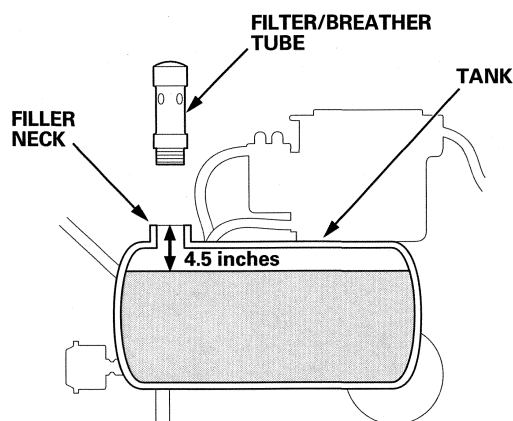
Before installing an overhauled or remanufactured automatic transmission, you must thoroughly clean the ATF cooler to prevent system contamination. Failure to do so could cause a repeat automatic transmission failure.

The cleaning procedure involves heated ATF DW-1 delivered under high pressure (100 psi). Check the security of all hoses and connections. Always wear safety glasses or a face shield, along with gloves and protective clothing. If you get ATF in your eyes or on your skin, rinse with water immediately.

⚠ WARNING

- Improper use of the ATF cooler cleaner can result in burns and other serious injuries.
- Always wear eye protection and protective clothing, and follow this procedure.

1. Check the fluid in the cooler cleaner tank. (The fluid level should be 4.5 inches from the top of the filler neck.) Adjust the level if needed; do not overfill. Use only Honda ATF DW-1; do not use any additives.



(cont'd)

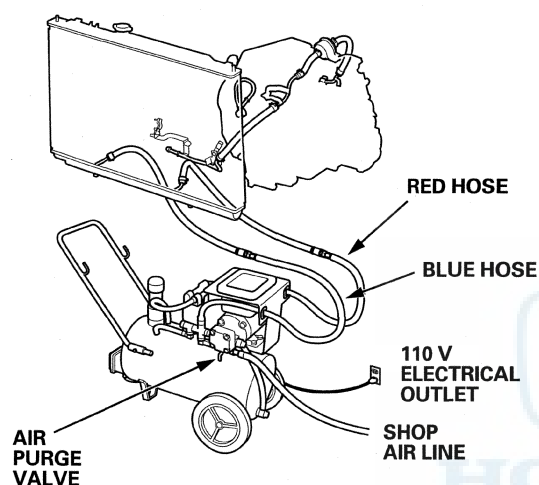
Automatic Transmission

ATF Cooler Cleaning (cont'd)

2. Plug the cooler cleaner into a 110 V grounded electrical outlet.

NOTICE

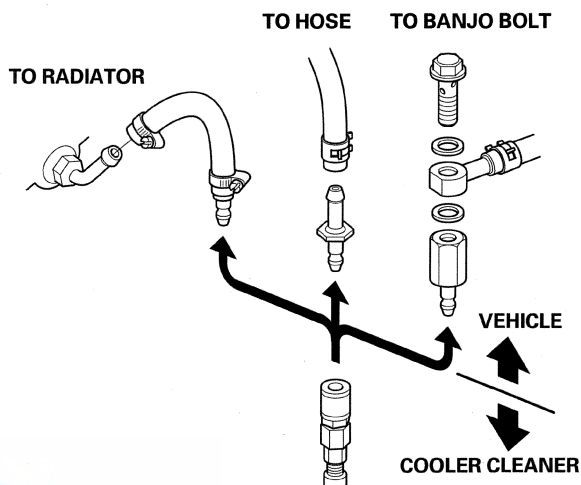
Make sure the outlet has no other appliances (light fixtures, drop lights, extension cords) plugged into it. Also, never plug the cooler cleaner into an extension cord or drop light; you could damage the unit.



3. Flip the HEAT toggle switch to ON; the green indicator above the toggle switch comes on. Wait 1 hour for the cooler cleaner to reach its operating temperature. (The cooler cleaner is ready to use when the temperature gauge reads 140 to 150 °F.)

NOTE: If the red indicator above the HEAT toggle switch comes on, the fluid level in the tank is too low for the tank heater to work (see step 1 of this procedure).

4. Select the appropriate pair of fittings, and attach them to the radiator, to the hoses, or to the banjo bolts for flow through the ATF cooler cleaner.



5. Connect the red hose to the cooler outlet line (the line that normally goes to the external filter on the transmission).
6. Connect the blue hose to the cooler inlet line.
7. Connect a shop air hose (regulated to 100 to 125 psi) to the air purge valve.

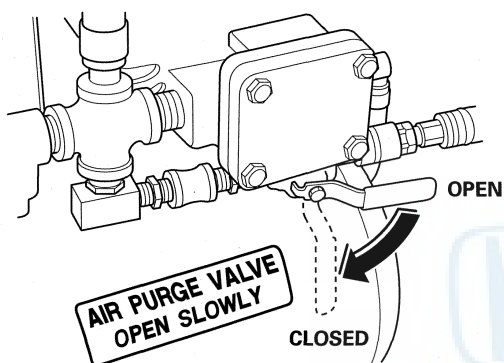
NOTICE

The quick-connect fitting has a one-way check valve to keep ATF from entering your shop's air system. Do not remove or replace the fitting. Attach the coupler provided with the cooler cleaner to your shop air line if your coupler is not compatible.



8. Flip the MOTOR toggle switch to ON; the green indicator above the toggle switch comes on. Let the pump run for 5 minutes. While the pump is running, open and close the air purge valve periodically to cause agitation and improve the cleaning process. Always open the valve slowly. At the end of the 5-minute cleaning period, leave the air purge valve open.

NOTE: While the pump is running with the air purge valve open, it is normal to see vapor coming from the filler/breather tube vents.



9. With the air purge valve open, flip the MOTOR toggle switch to OFF; the green indicator goes off. Leave the air purge valve open for at least 15 seconds to purge the lines and hoses of residual ATF, then close the valve.
10. Disconnect the red and blue hoses from the ATF cooler. Now connect the red hose to the cooler inlet line.
11. Now connect the blue hose to the cooler outlet line.
12. Flip the MOTOR toggle switch to ON, and let the pump run for 5 minutes. While the pump is running, open and close the air purge valve periodically. Always open the valve slowly. At the end of the 5-minute cleaning period, leave the air purge valve open.

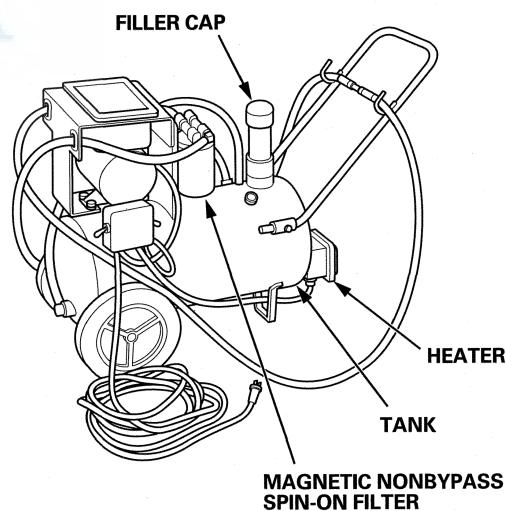
NOTE: While the pump is running with the air purge valve open, it is normal to see vapor coming from the filler/breather tube vents.

13. With the air purge valve open, flip the MOTOR toggle switch to OFF. Leave the air purge valve open for at least 15 seconds to purge the lines and hoses of residual ATF, then close the valve.
14. Disconnect the red and blue hoses from the ATF cooler lines.
15. Connect the red and blue hoses to each other.
16. Disconnect the shop air from the air purge valve. Disconnect and stow the coupler if used.
17. Disconnect and stow the fittings from the ATF cooler inlet and outlet lines.
18. Unplug the cooler cleaner from the 110 V outlet.

Tool Maintenance

Follow these instructions to keep the ATF cooler cleaner working properly:

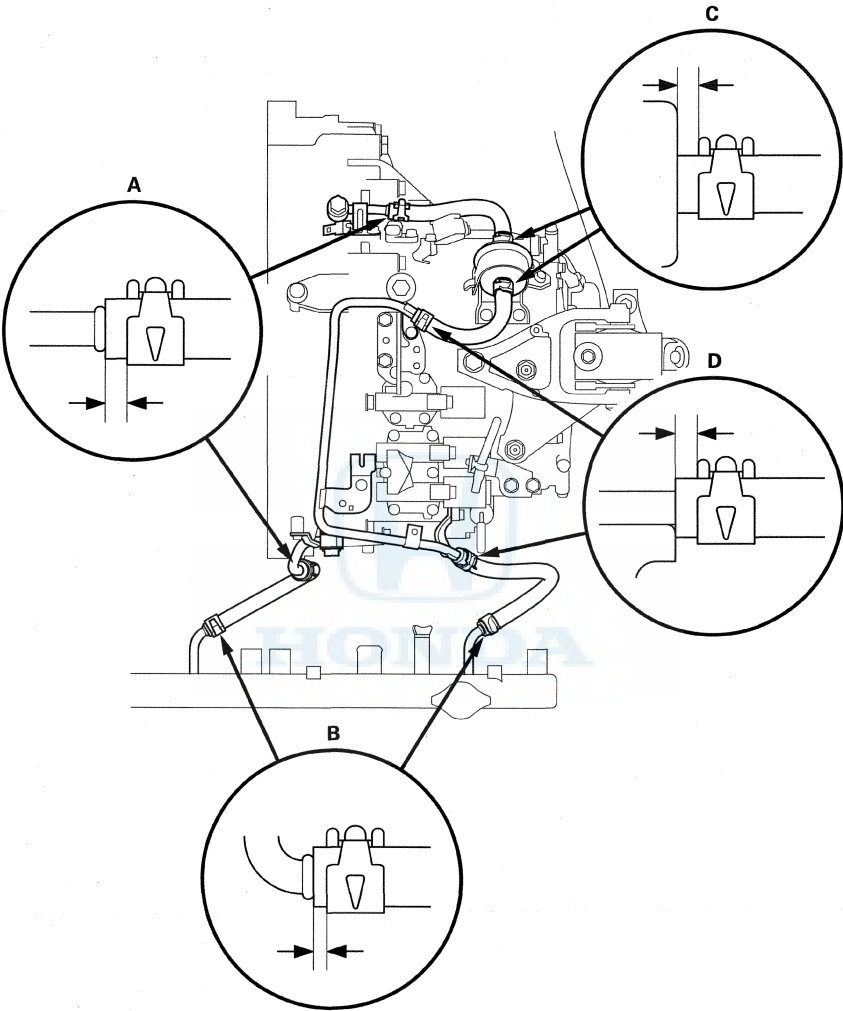
- Replace the two magnetic nonbypass spin-on filters after every 20 hours of use, based on the hour meter, or when you notice a restriction in the ATF flow.
- Check the level and condition of the fluid in the tank before each use.
- Replace the ATF in the tank when it looks dark or dirty.



Automatic Transmission

ATF Cooler Hose Replacement

1. Drain the automatic transmission fluid (ATF) (see page 14-191).
2. Install the ATF cooler hoses over the ATF cooler lines, and secure the hoses with the clips in the details (A), (B), (C), and (D), shown in the following figure. Keep the tabs of the clips clear of other parts.



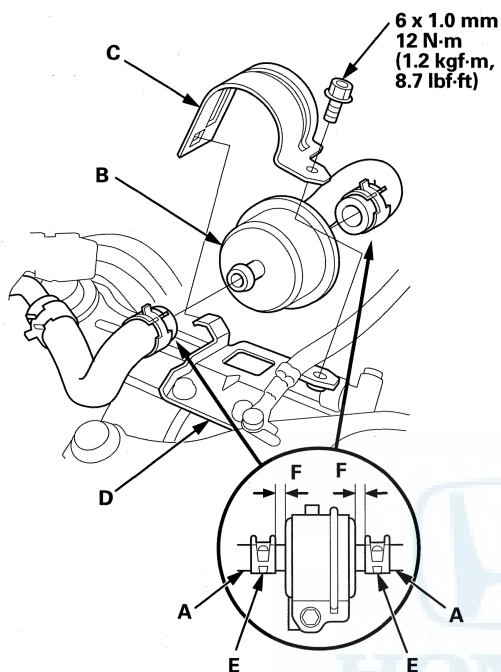
Details	Cooler hose end contacts to:	Distance from hose end to clip
A	Bulge	6–8 mm (0.24–0.31 in)
B	Bulge	2–4 mm (0.08–0.16 in)
C	ATF filter housing (both sides)	6–8 mm (0.24–0.31 in)
D	Bracket on the line	6–8 mm (0.24–0.31 in)

3. Refill the transmission with ATF (see step 6 on page 14-192).



ATF Filter Replacement

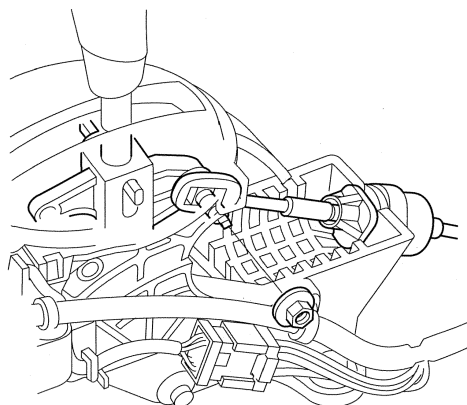
1. Remove the air cleaner assembly (see page 11-307).
2. Disconnect the ATF cooler hoses (A) from the ATF filter (B).



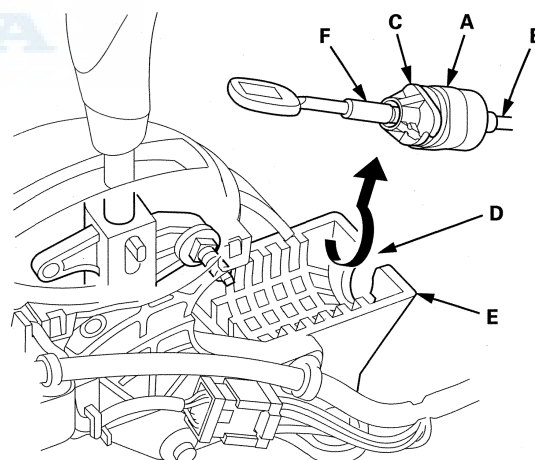
3. Remove the ATF filter holder (C).
4. Remove the ATF filter, and replace it.
5. Install the new ATF filter on the filter mounting bracket (D), and secure it with its holder and bolt.
6. Slide the ATF cooler hose on the ATF filter until the hose end contacts the filter housing, and secure the hose with the clip (E) at 6–8 mm (0.24–0.31 in) (F) from the filter housing. Install the cooler hose on the other side of the ATF filter in the same manner.
7. Install the air cleaner assembly (see page 11-307).

Shift Lever Removal

1. Remove the center console (see page 20-93).
2. Shift the transmission to N.
3. Remove the nut securing the shift cable end.



4. Rotate the socket holder (A) on the shift cable (B) a quarter turn; the corner (C) on the socket holder will be in the opening (D) of the shift lever bracket base (E). Then slide the holder to remove the shift cable from the bracket. Do not remove the shift cable by twisting the shift cable guide (F).

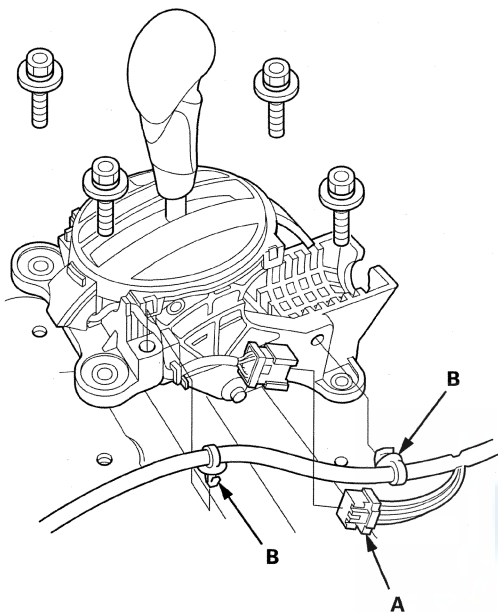


(cont'd)

Automatic Transmission

Shift Lever Removal (cont'd)

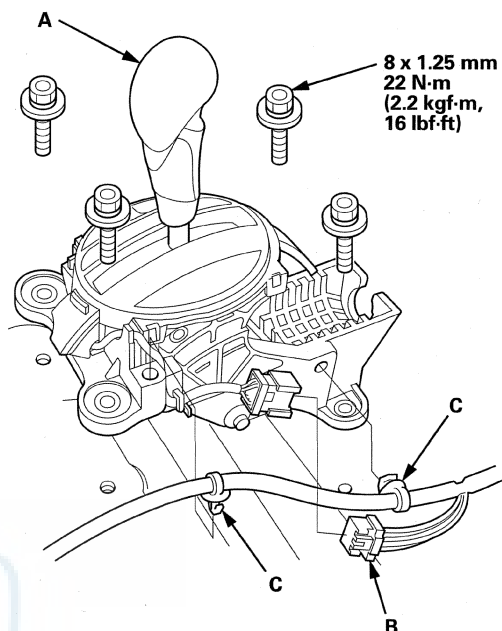
5. Disconnect the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector (A), and remove the harness clamps (B) from the shift lever bracket base.



6. Remove the mounting bolts, then remove the shift lever assembly.

Shift Lever Installation

1. Install the shift lever assembly (A).



2. Connect the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector (B), and install the harness clamps (C) on the shift lever bracket base.

3. Install the shift cable on the shift lever, and adjust the shift cable (see step 5 on page 14-219).

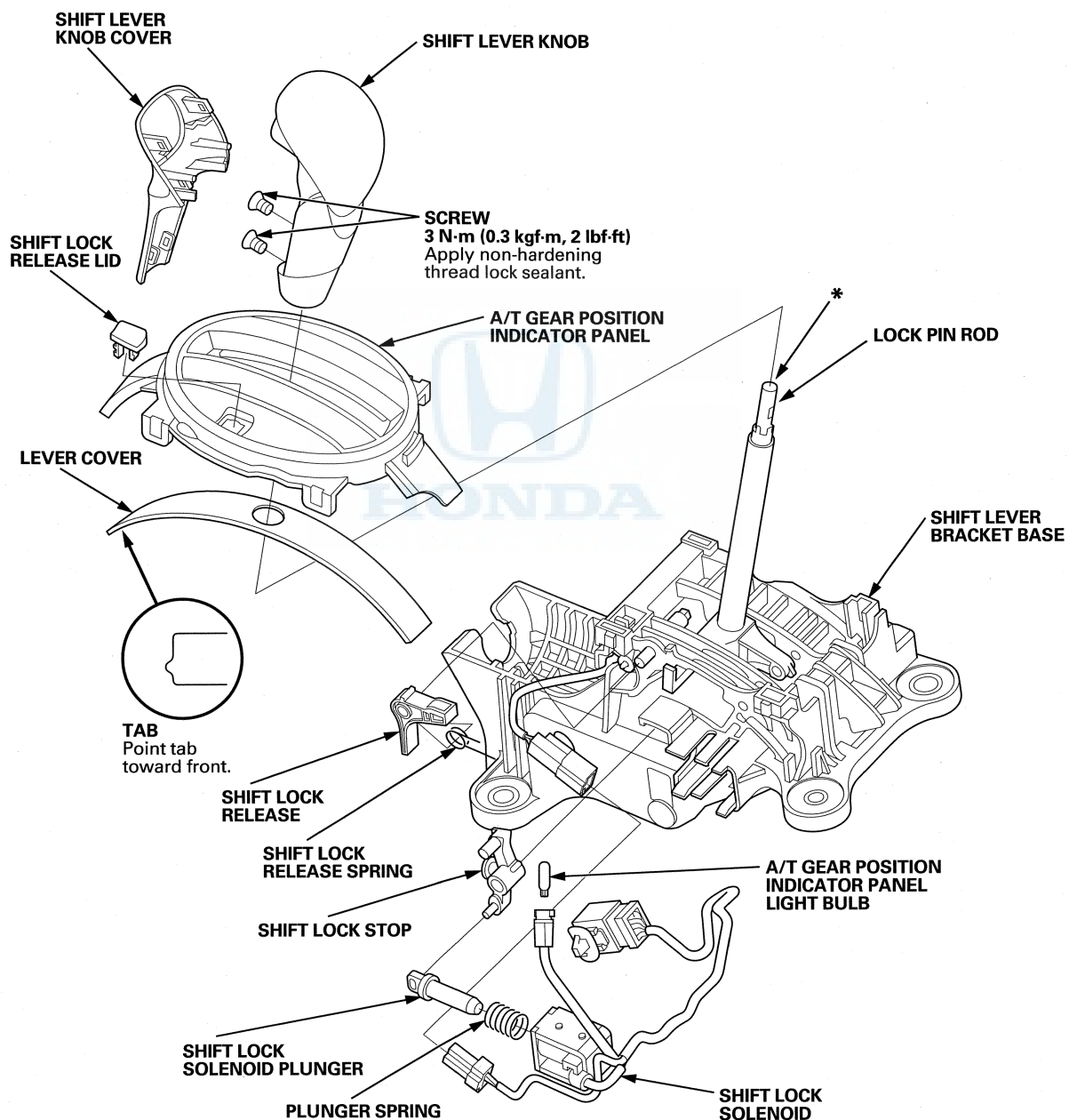


Shift Lever Disassembly/Reassembly

Apply silicone grease to movable joints of the shift lock mechanism, the shift lever, and the lock pin rod. Keep the connector terminals free of silicone grease.

NOTE:

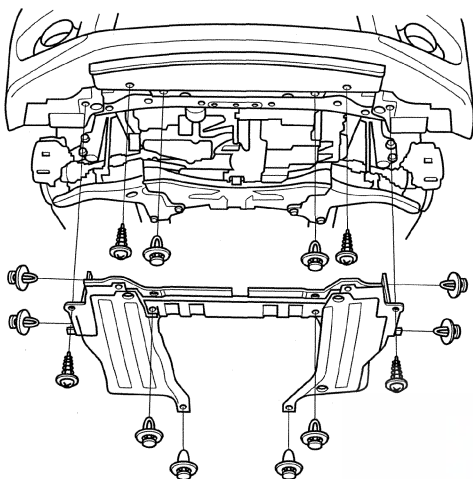
- Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands and gloves.
- Do not wipe off the grease that is applied to the portion of the shift lever marked with an asterisk (*) when you disassemble or assemble it because a special grease is used.



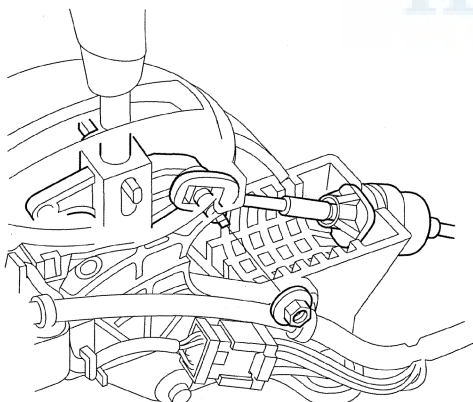
Automatic Transmission

Shift Cable Replacement

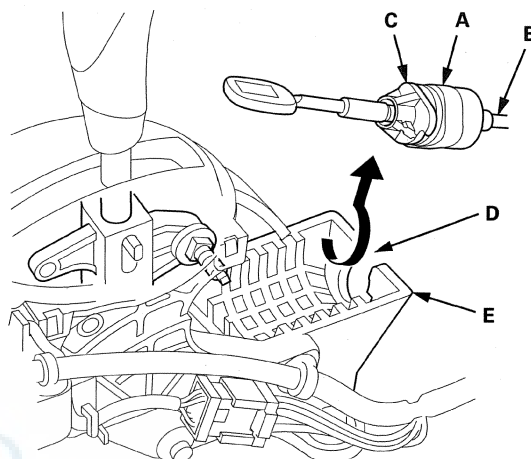
1. Raise the vehicle on a lift, or apply the parking brake, block rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
2. Remove the splash shield.



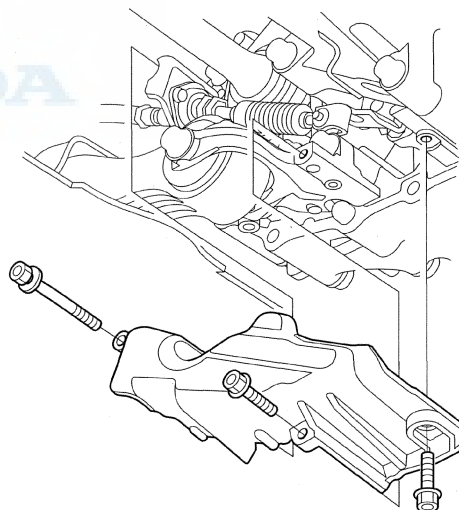
3. Remove the center console (see page 20-93).
4. Shift the transmission to N.
5. Remove the nut securing the shift cable end.



6. Rotate the socket holder (A) on the shift cable (B) a quarter turn; the corner (C) on the socket holder will be in the opening (D) of the shift lever bracket base (E). Then slide the holder to remove the shift cable from the bracket.



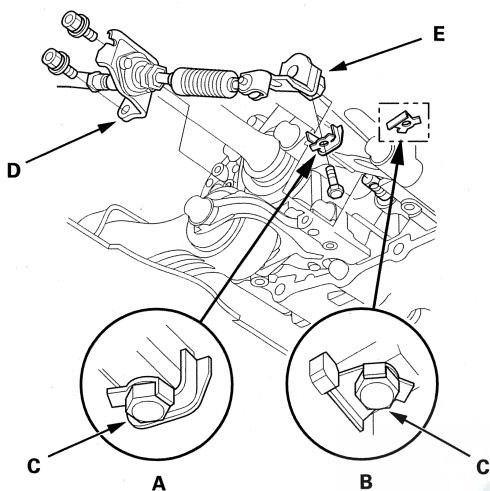
7. Remove the shift cable cover.





8. Pry up the lock tab of the lock washer (A or B), and remove the lock bolt (C) and the lock washer.

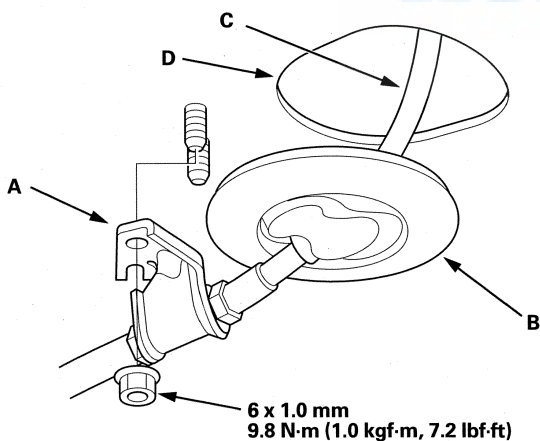
NOTE: Either lock washer of two types is applied.



9. Remove the bolts securing the shift cable holder (D), and separate the shift cable (E) from the selector control shaft end.

10. Remove the heat shield under the body.

11. Remove the nut securing the shift cable bracket (A).



12. Remove the shift cable grommet (B), and pull out the shift cable (C).

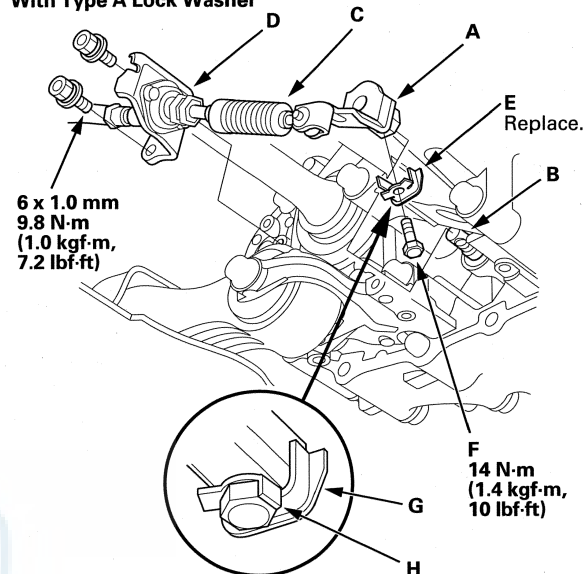
13. Insert the new shift cable through the grommet hole (D), and install the grommet in its hole. Do not bend the shift cable excessively.

14. Secure the shift cable bracket with the nut.

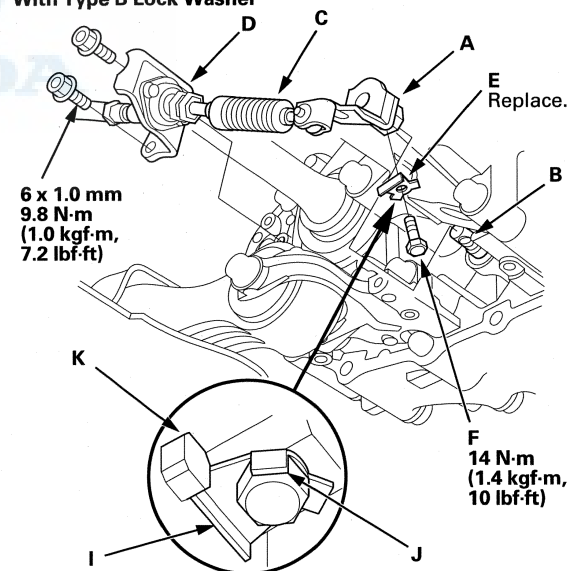
15. Install the heat shield.

16. Install the control lever (A) over the control shaft (B). Do not twist the boot (C).

With Type A Lock Washer



With Type B Lock Washer

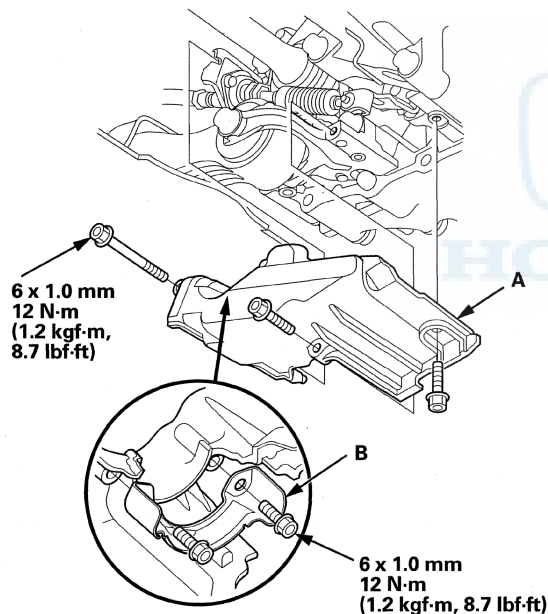


(cont'd)

Automatic Transmission

Shift Cable Replacement (cont'd)

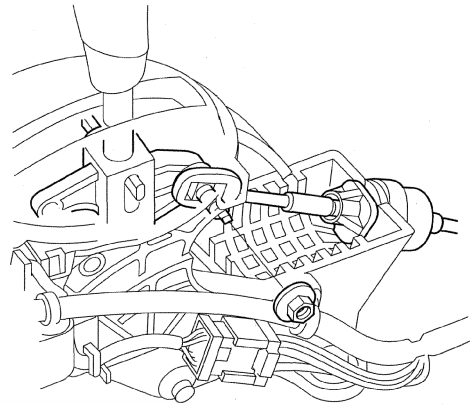
17. Secure the shift cable bracket (D) with the bolts.
18. Secure the control lever with a new lock washer (E) and the lock bolt (F):
 - With type A lock washer: Install the flange (G) of the lock washer facing the transmission housing as shown, then bend the lock tab (H) of the lock washer against the bolt head securely.
 - With type B lock washer: Install the flange (I) of the lock washer facing the control lever as shown, then bend the lock tab (J) of the lock washer against the bolt head securely. Do not ride the lock washer on the stop (K) on the control lever.
19. Install the shift cable cover (A). If the shift cable cover protector (B) was removed, install the shift cable cover protector on the shift cable cover, then install the shift cable cover.



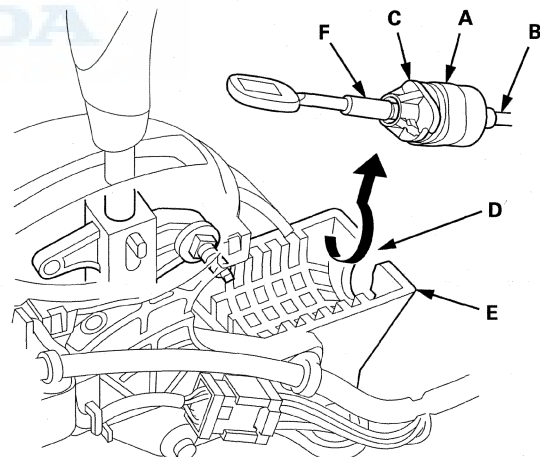
20. Install the shift cable on the shift lever, and adjust the shift cable (see step 5 on page 14-219).

Shift Cable Adjustment

1. Remove the center console (see page 20-93).
2. Shift the transmission to N.
3. Remove the nut securing the shift cable end.

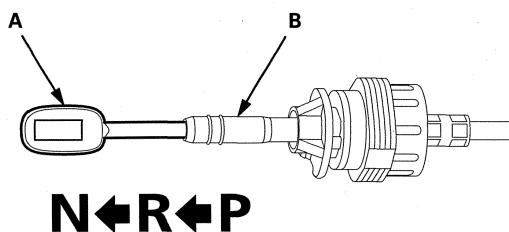


4. Rotate the socket holder (A) on the shift cable (B) a quarter turn; the corner (C) on the socket holder will be in the opening (D) of the shift lever bracket base (E). Then slide the holder to remove the shift cable from the bracket. Do not remove the shift cable by twisting the shift cable guide (F).

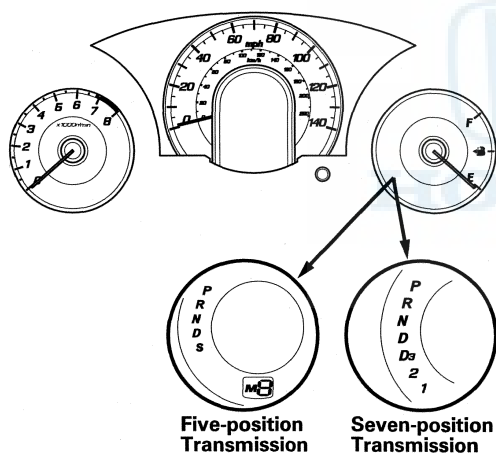




5. Push the shift cable (A) until it stops, then release it. Pull the shift cable back two steps so that the shift position is in N. Do not hold the shift cable guide (B) to adjust the shift cable.

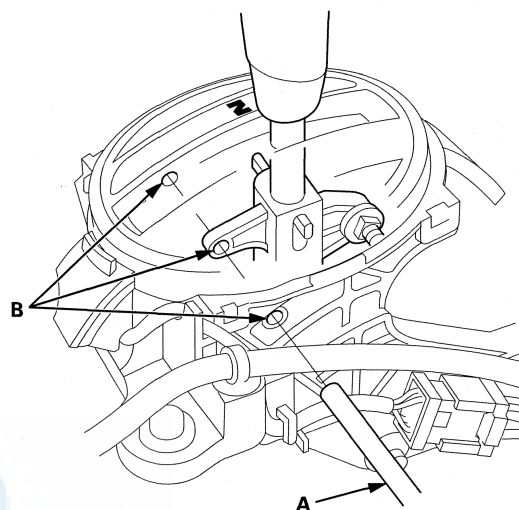


6. Turn the ignition switch to ON (II), and check that the N indicator comes on.



7. Turn the ignition switch to LOCK (0).

8. Insert a 6.0 mm (0.24 in) pin (A) through the positioning holes (B) on the shift lever bracket base and into the positioning hole on the shift lever. Use only the 6.0 mm (0.24 in) pin.



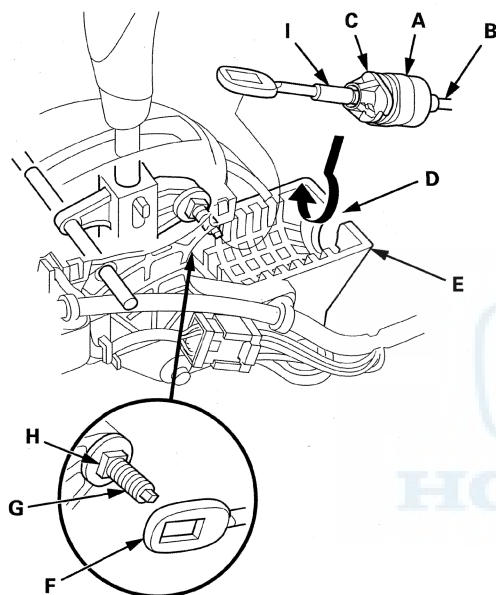
9. Check that the shift lever is secured in N.

(cont'd)

Automatic Transmission

Shift Cable Adjustment (cont'd)

10. Rotate the socket holder (A) on the shift cable (B) to place the corner (C) on the holder opposite the opening (D) in the shift lever bracket base (E). Align the holder with the opening in the bracket, then slide the holder into the bracket. Install the shift cable end (F) over the mounting stud (G) by aligning its square hole with the square fitting (H) at the bottom of the stud. Rotate the holder a quarter turn until the holder stops to secure the shift cable. Do not install the shift cable by twisting the shift cable guide (I).

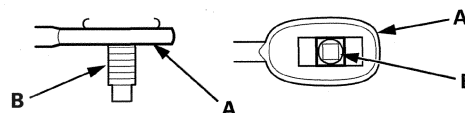


11. Make sure that the shift cable end (A) is properly installed on the mounting stud (B).

- If the shift cable end is out of position with the mounting stud, remove the shift cable from the shift cable bracket, then reinstall the cable end over the mounting stud before reinstalling the shift cable to the shift cable bracket. Do not install the shift cable end on the mounting stud with the shift cable install on the shift cable bracket.
- If the shift cable end does not ride at the bottom of the mounting stud, rotate the stud to align the square fitting with the hole.

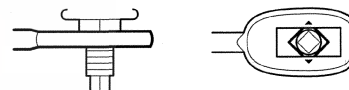
Properly installed:

Cable end rides on the bottom of the mounting stud.

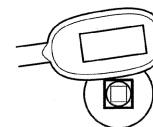


Improperly installed:

Cable end out of position with the mounting stud.

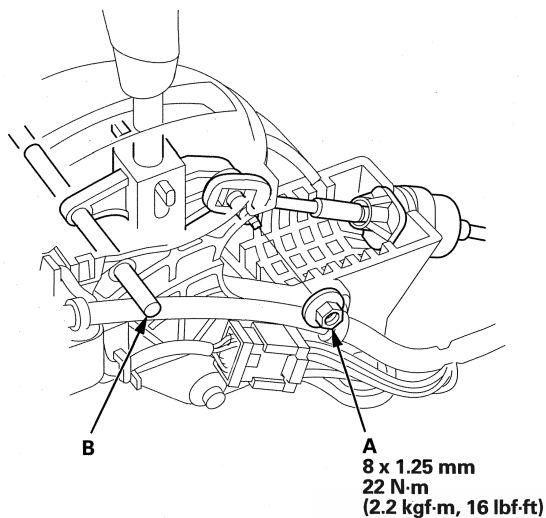


Cable end out of alignment with the mounting stud.





12. Secure the shift cable end with the nut (A).



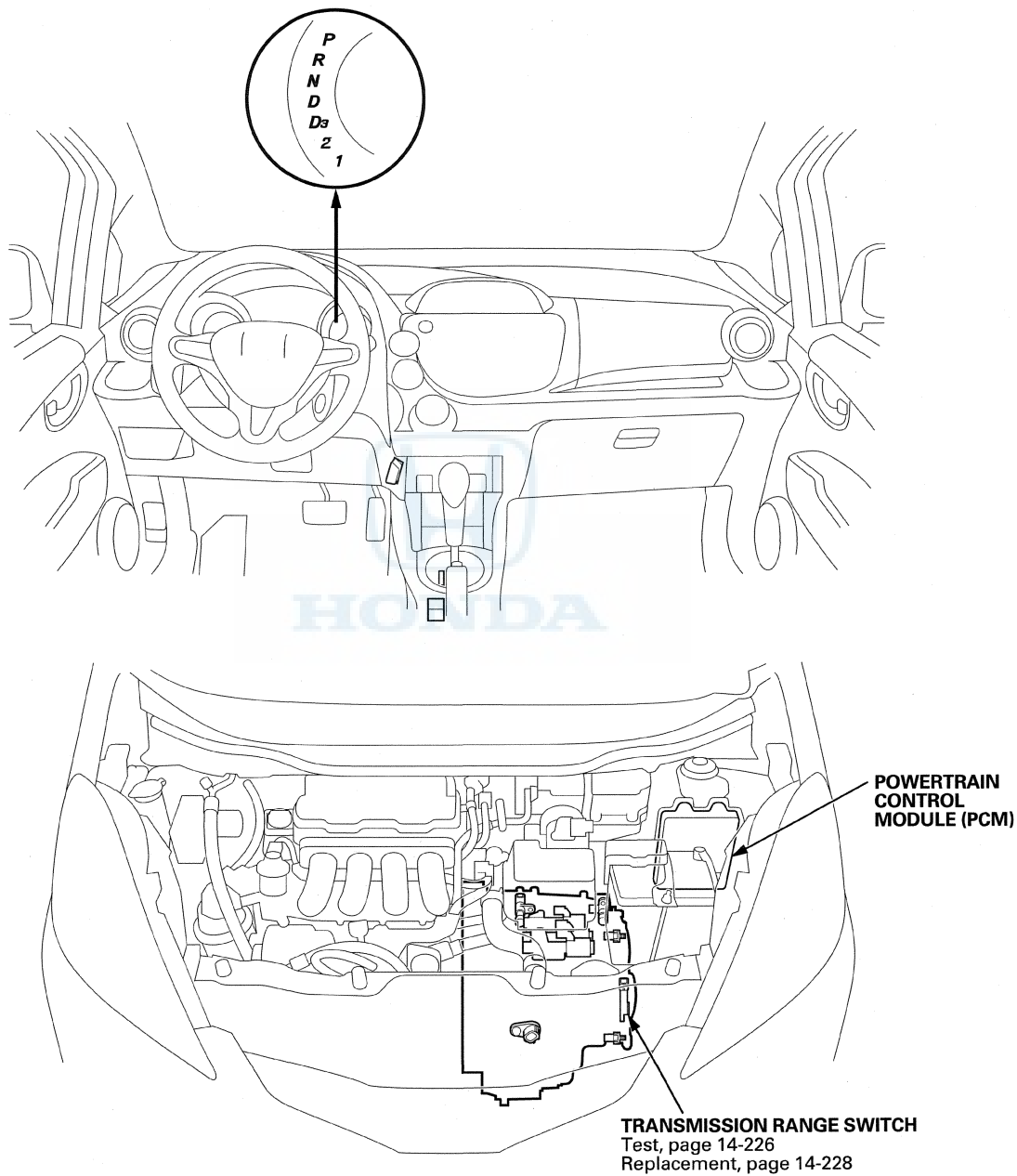
13. Remove the 6.0 mm (0.24 in) pin (B) that was installed to hold the shift lever.
14. Turn the ignition switch to ON (II). Move the shift lever to each position, and check that the A/T gear position indicator follows the transmission range switch.
15. Shift to P, and check that the shift lock works properly. Push the shift lock release, and check that the shift lever releases, and also check that the shift lever locks when it is shifted back into P.
16. Reinstall the center console (see page 20-93).

A/T Gear Position Indicator

Component Location Index

Seven-position Transmission

A/T GEAR POSITION INDICATOR
Gauge Control Module Self-diagnostic Function
Indicator Drive Circuit Check, page 22-274

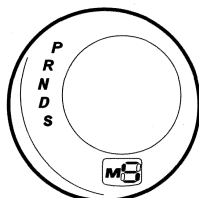




Five-position Transmission

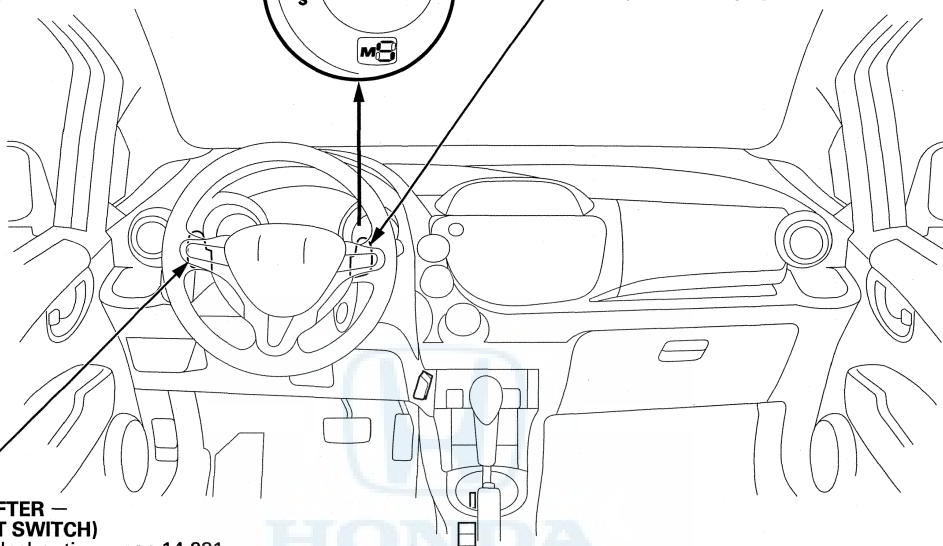
A/T GEAR POSITION INDICATOR

Gauge Control Module Self-diagnostic Function
Indicator Drive Circuit Check, page 22-274



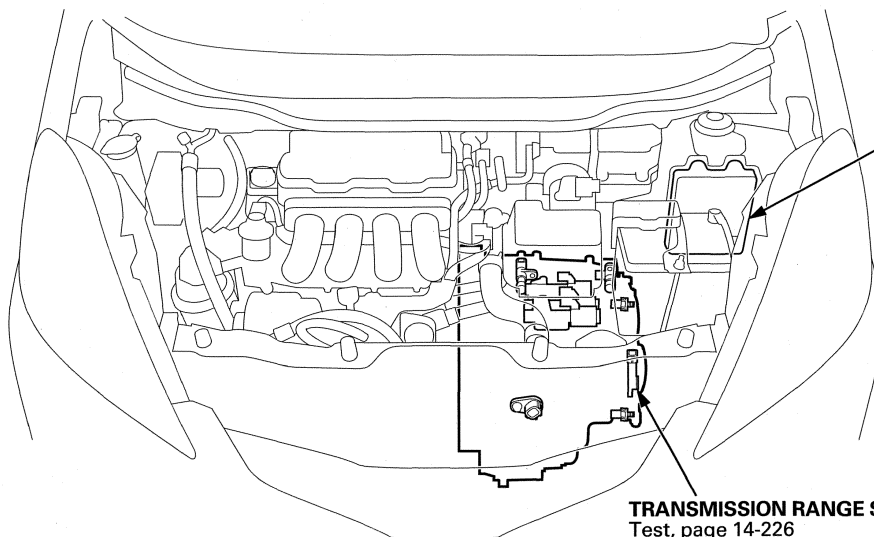
PADDLE SHIFTER + (UPSHIFT SWITCH)

Circuit Troubleshooting, page 14-230
Replacement, page 14-233



PADDLE SHIFTER - (DOWNSHIFT SWITCH)

Circuit Troubleshooting, page 14-231
Replacement, page 14-233



POWERTRAIN CONTROL MODULE (PCM)

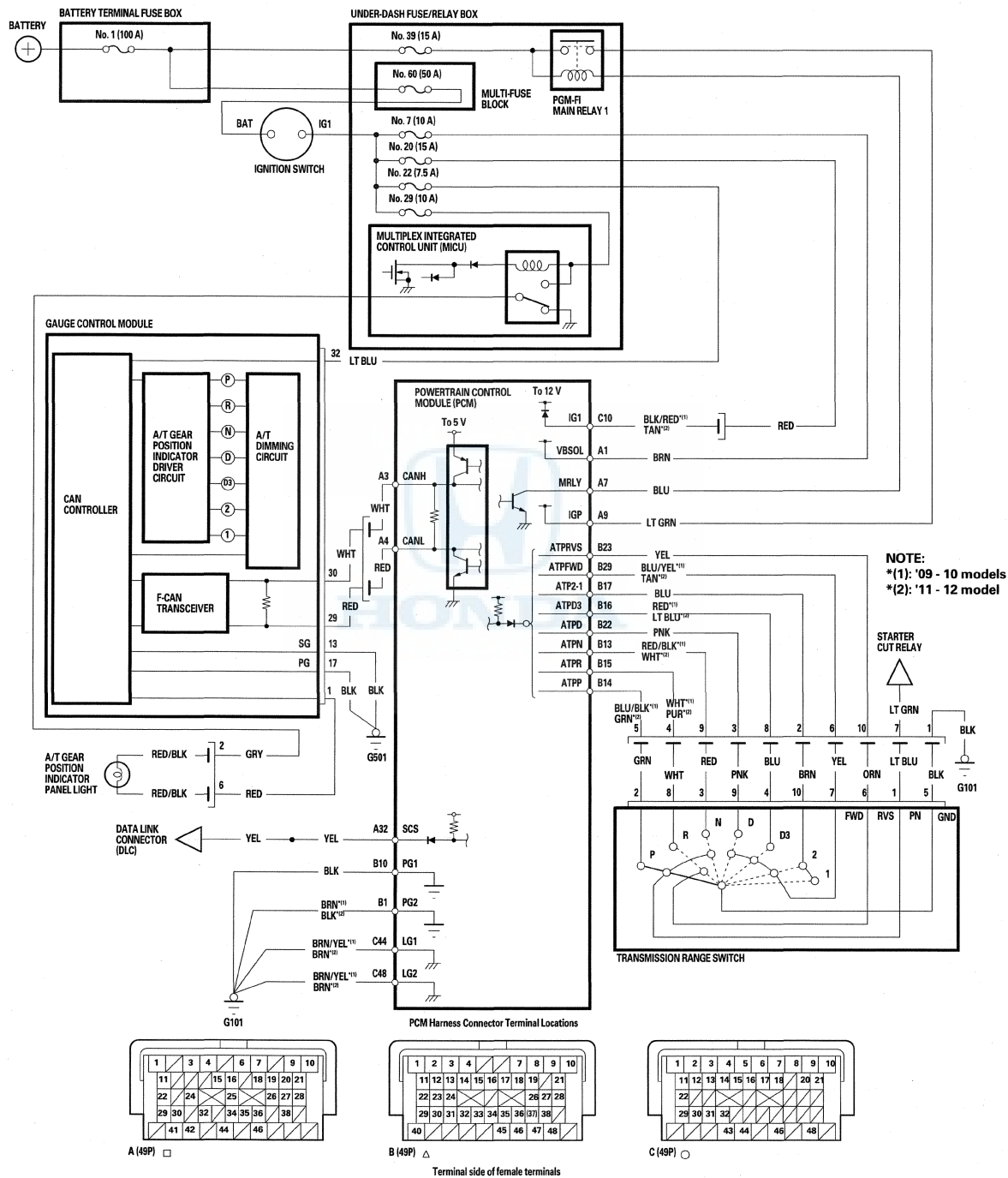
TRANSMISSION RANGE SWITCH

Test, page 14-226
Replacement, page 14-228

A/T Gear Position Indicator

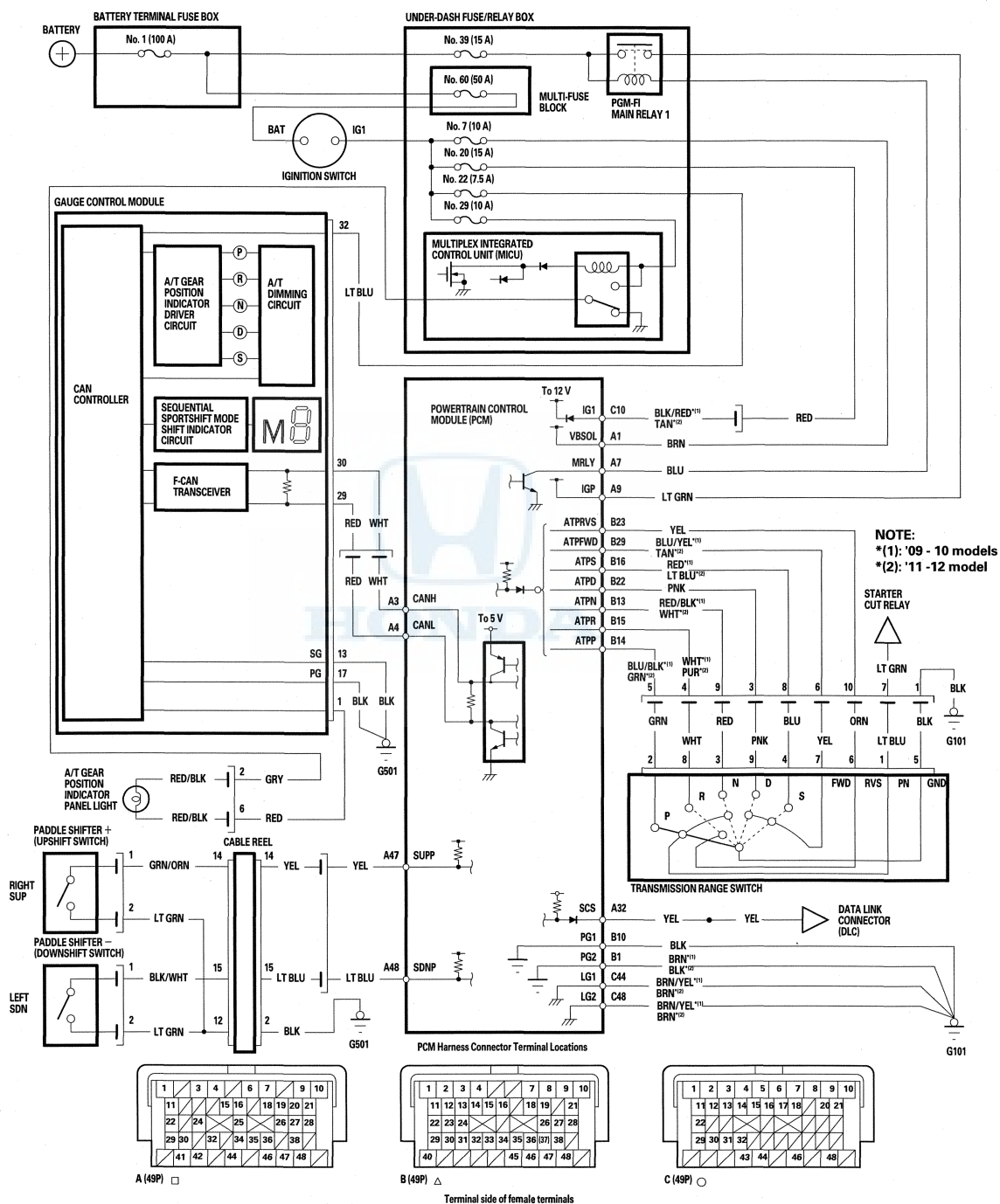
Circuit Diagram

Seven-position Transmission





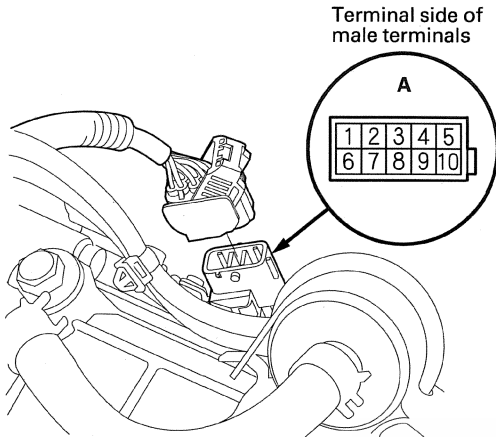
Five-position Transmission



A/T Gear Position Indicator

Transmission Range Switch Test

1. Remove the air cleaner assembly (see page 11-307).
2. Disconnect the transmission range switch harness connector (A).



3. Check for continuity between terminals at the harness connector. There should be continuity between the terminals in the following table for each switch position.

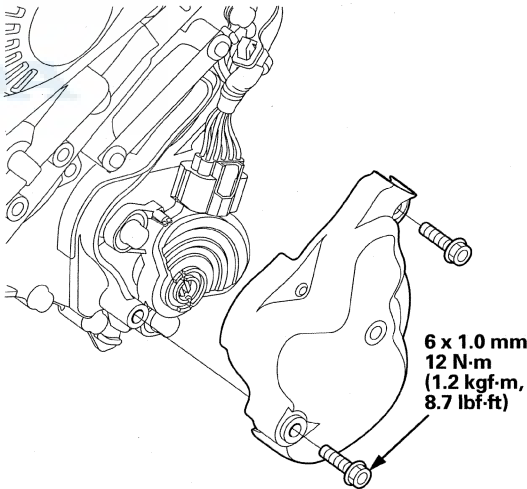
**Transmission Range Switch Harness Connector
Seven-position Transmission**

Position/Connector Terminal/Signal Connections										
	1	2	3	4	5	6	7	8	9	10
	GND	2	D	R	P	FWD	PN	D3	N	RVS
P	○				○		○			
R	○			○						○
N	○						○		○	
D	○		○			○				
D3	○					○		○		
2	○	○			○					
1	○	○								

**Transmission Range Switch Harness Connector
Five-position Transmission**

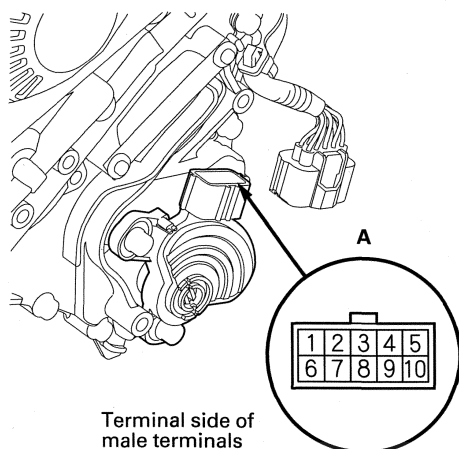
Position/Connector Terminal/Signal Connections										
	1	2	3	4	5	6	7	8	9	10
	GND	—	D	R	P	FWD	PN	S	N	RVS
P	○				○		○			
R	○			○						○
N	○						○		○	
D	○		○			○				
S	○					○		○		

4. Transmission range switch test has finished if the test results are OK.
If there is no continuity between any terminals, go to step 5.
5. Raise the vehicle on a lift, or apply the parking brake, block rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
6. Remove the transmission range switch cover.





7. Disconnect the transmission range switch connector (A).



8. Check for continuity between terminals at the switch connector. There should be continuity between the terminals in the following table for each switch position.

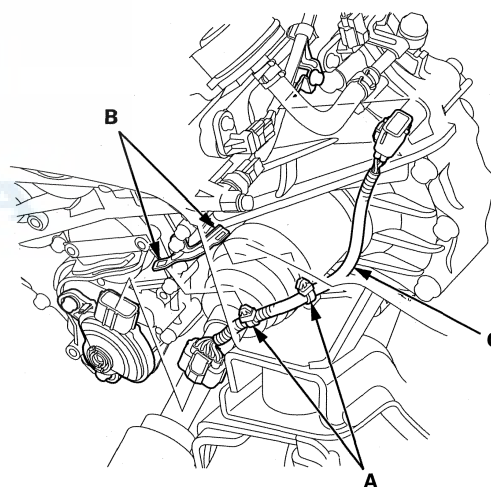
**Transmission Range Switch Connector
Seven-position Transmission**

	Position/Connector Terminal/Signal Connections									
	1	2	3	4	5	6	7	8	9	10
	PN	P	N	D3	GND	RVS	FWD	R	D	2
P	○	○			○					
R					○	○		○		
N	○		○		○					
D					○		○		○	
D3				○	○		○			
2					○		○			○
1					○					○

**Transmission Range Switch Connector Five-position
Transmission**

	Position/Connector Terminal/Signal Connections									
	1	2	3	4	5	6	7	8	9	10
	PN	P	N	S	GND	RVS	FWD	R	D	—
P	○	○			○					
R					○	○		○		
N	○		○		○					
D					○		○		○	
S				○	○		○			

9. If the transmission range switch continuity check is OK, replace the faulty transmission range switch harness; remove the harness clamps (A) from the clamp bracket (B), remove the transmission range switch harness (C).



(cont'd)

A/T Gear Position Indicator

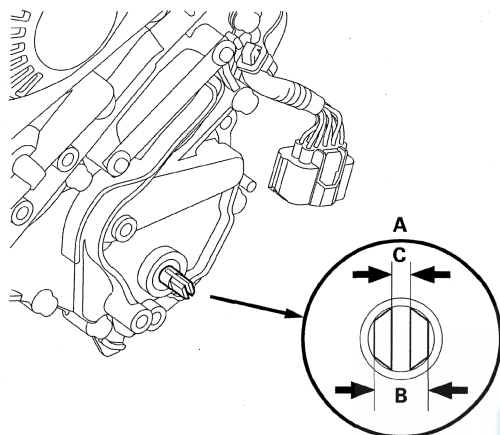
Transmission Range Switch Test (cont'd)

10. If there is no continuity between any terminals, remove the transmission range switch, and check the end of the selector control shaft (A).

Selector Control Shaft:

Width (B): 6.1–6.2 mm (0.240–0.244 in)

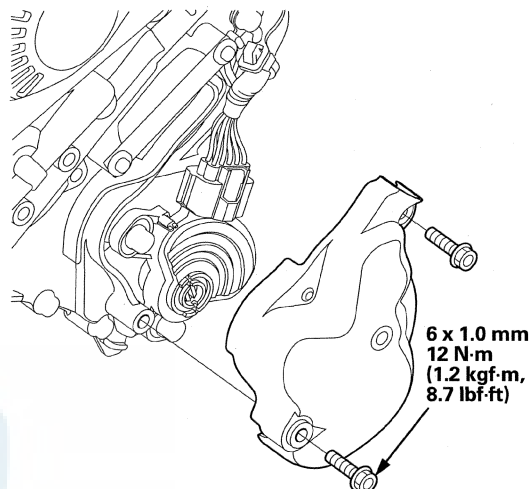
End Gap (C): 1.8–2.0 mm (0.07–0.08 in)



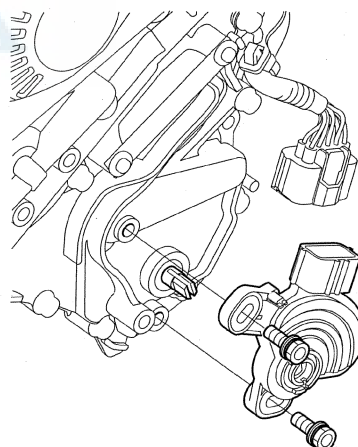
11. If the measurement of the selector control shaft end is within the standard, replace the transmission range switch. If the measurement is out of the standard, repair the selector control shaft end, and recheck the transmission range switch continuity.

Transmission Range Switch Replacement

1. Raise the vehicle on a lift, or apply the parking brake, block the rear wheels, and raise the front of the vehicle. Make sure it is securely supported.
2. Shift to N.
3. Remove the transmission range switch cover.



4. Remove the transmission range switch.



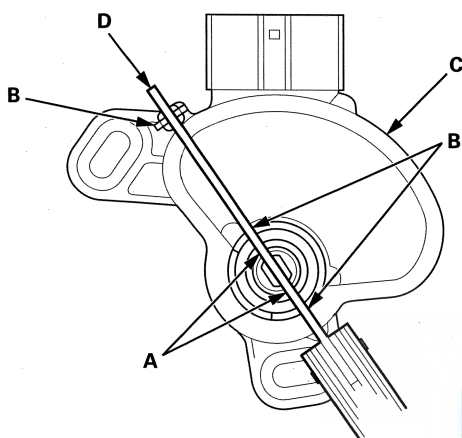
5. Make sure the shift position is in N. If necessary, put the shift lever into N.

NOTE: Do not use the selector control shaft to adjust the shift position. If the control shaft tips are squeezed together it will cause a faulty signal or position due to play between the selector control shaft and switch.

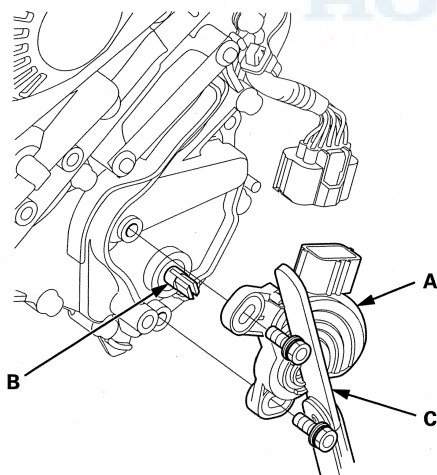


6. Align the cutouts (A) on the rotary-frame with the neutral positioning cutouts (B) on the transmission range switch (C), then put a 2.0 mm (0.08 in) feeler gauge blade (D) in the cutouts to hold the switch in the N position.

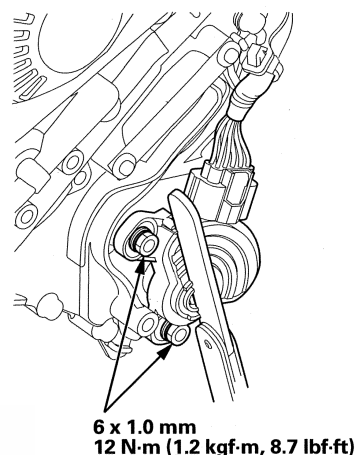
NOTE: Be sure to use a 2.0 mm (0.08 in) blade or equivalent to hold the switch in the N position.



7. Install the transmission range switch (A) gently on the selector control shaft (B) while holding it in the N position with the 2.0 mm (0.08 in) blade (C).



8. Tighten the bolts on the transmission range switch while you continue to hold the N position. Do not move the transmission range switch when tightening the bolts. Remove the feeler gauge.



9. Check the connectors for rust, dirt, or oil, clean or repair if necessary, then connect the connector securely.
10. Turn the ignition switch to ON (II). Move the shift lever through all positions, and check the transmission range switch synchronization with the A/T gear position indicator.
11. Check that the engine starts in P and N, and does not start in any other shift lever position.
12. Check that the back-up lights come on when the shift lever is in R.
13. Allow the front wheels to rotate freely, then start the engine, and check the shift lever operation.
14. Install the transmission range switch cover.

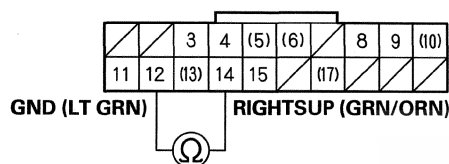
A/T Gear Position Indicator

Paddle Shifter + (Upshift Switch) Circuit Troubleshooting

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

1. Remove the steering wheel (see page 17-6).
2. Check for continuity between steering switch harness 20P connector terminals No. 12 and No. 14 while pressing the paddle shifter + (upshift switch) and when the paddle shifter + is released.

STEERING SWITCH HARNESS 20P CONNECTOR



Wire side of female terminals

Is there continuity while pressing the paddle shifter + and no continuity when the paddle shifter + is released?

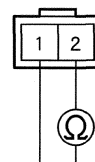
YES—Go to step 5.

NO—Go to step 3.

3. Disconnect the paddle shifter + (upshift switch) connector.

4. Check for continuity between paddle shifter + (upshift switch) connector terminals No. 1 and No. 2 while pressing the paddle shifter + and when the paddle shifter + is released.

PADDLE SHIFTER + (UPSHIFT SWITCH) CONNECTOR



Terminal side of male terminals

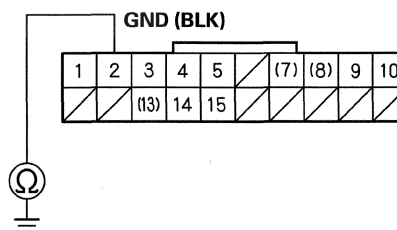
Is there continuity while pressing the paddle shifter + and no continuity when the paddle shifter + is released?

YES—Replace the steering switch harness. ■

NO—Replace the paddle shifter + (see page 14-233). ■

5. Remove the cable reel (see page 24-186).
6. Check for continuity between cable reel 20P connector terminal No. 2 and body ground.

CABLE REEL 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 7.

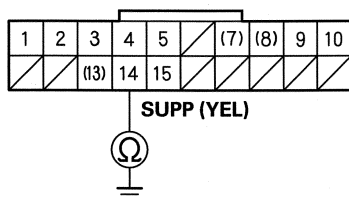
NO—Repair open in the wire between cable reel 20P connector terminal No. 2 and body ground (G501), or repair poor body ground (G501). ■

7. Jump the SCS line with the HDS.
8. Disconnect PCM connector A (49P).



9. Check for continuity between cable reel 20P connector terminal No. 14 and body ground.

CABLE REEL 20P CONNECTOR



Wire side of female terminals

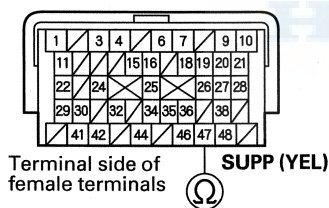
Is there continuity?

YES—Repair short in the wire between cable reel 20P connector terminal No. 14 and PCM connector terminal A47. ■

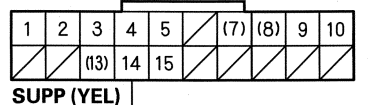
NO—Go to step 10.

10. Check for continuity between PCM connector terminal A47 and cable reel 20P connector terminal No. 14.

PCM CONNECTOR A (49P)



CABLE REEL 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the cable reel (see page 24-186). ■

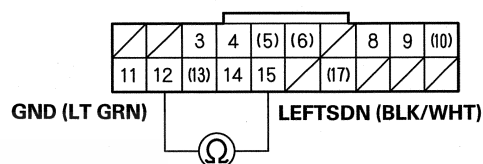
NO—Repair open in the wire between PCM connector terminal A47 and the cable reel 20P connector. ■

Paddle Shifter - (Downshift Switch) Circuit Troubleshooting

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

1. Remove the steering wheel (see page 17-6).
2. Check for continuity between steering switch harness 20P connector terminals No. 12 and No. 15 while pressing the paddle shifter — (downshift switch) and when the paddle shifter — is released.

STEERING SWITCH HARNESS 20P CONNECTOR



Wire side of female terminals

Is there continuity while pressing the paddle shifter — and no continuity when the paddle shifter — is released?

YES—Go to step 5.

NO—Go to step 3.

3. Disconnect the paddle shifter — (downshift switch) connector.

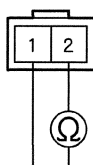
(cont'd)

A/T Gear Position Indicator

Paddle Shifter - (Downshift Switch) Circuit Troubleshooting (cont'd)

4. Check for continuity between paddle shifter — (downshift switch) connector terminals No. 1 and No. 2 while pressing the paddle shifter — and when the paddle shifter — is released.

**PADDLE SHIFTER —
(DOWNSHIFT SWITCH) CONNECTOR**



Terminal side of male terminals

Is there continuity while pressing the paddle shifter — and no continuity when the paddle shifter — is released?

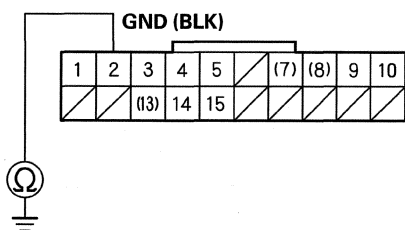
YES—Replace the steering switch harness.■

NO—Replace the paddle shifter — (see page 14-233).■

5. Remove the cable reel (see page 24-186).

6. Check for continuity between cable reel 20P connector terminal No. 2 and body ground.

CABLE REEL 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 7.

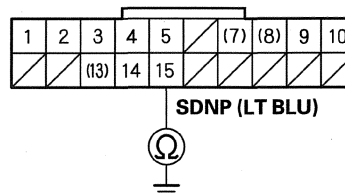
NO—Repair open in the wire between cable reel 20P connector terminal No. 2 and body ground (G501), or repair poor body ground (G501).■

7. Jump the SCS line with the HDS.

8. Disconnect PCM connector A (49P).

9. Check for continuity between cable reel 20P connector terminal No. 15 and body ground.

CABLE REEL 20P CONNECTOR



Wire side of female terminals

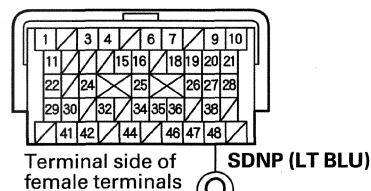
Is there continuity?

YES—Repair short in the wire between cable reel 20P connector terminal No. 15 and PCM connector terminal A48.■

NO—Go to step 10.

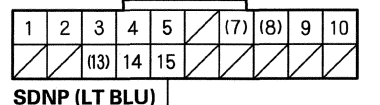
10. Check for continuity between PCM connector terminal A48 and cable reel 20P connector terminal No. 15.

PCM CONNECTOR A (49P)



Terminal side of female terminals

CABLE REEL 20P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the cable reel (see page 24-186).■

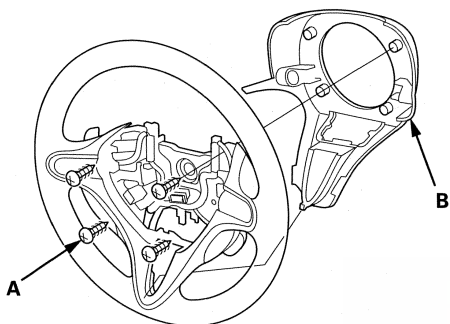
NO—Repair open in the wire between PCM connector terminal A48 and the cable reel 20P connector.■



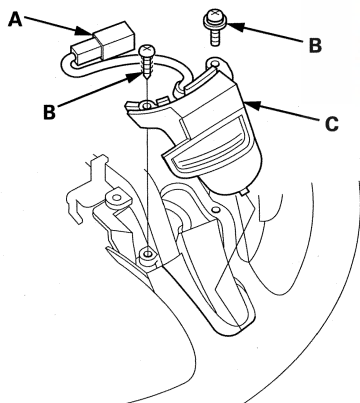
Paddle Shifter + (Upshift Switch) Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

1. Remove the steering wheel (see page 17-6).
2. Remove the four screws (A) securing the steering wheel rear cover (B), then remove the steering wheel rear cover.



3. Remove the paddle shifter + (upshift switch) connector (A) from its holder, and disconnect the connector.

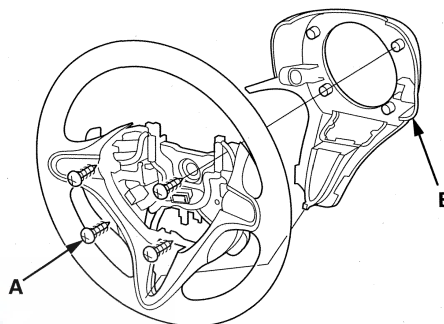


4. Remove the screws (B) securing the paddle shifter + (C), and remove the paddle shifter +.
5. Install a new paddle shifter + on the steering wheel, and secure it with the screws.
6. Connect the paddle shifter + connector securely, and install the connector in the connector holder.
7. Install the steering wheel rear cover.
8. Install the steering wheel (see page 17-8).

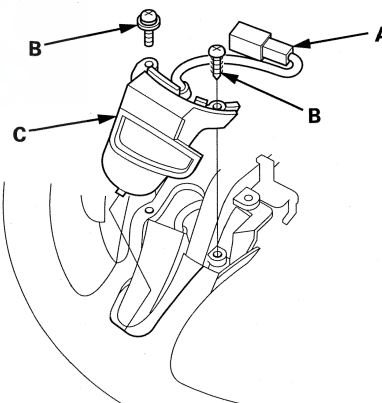
Paddle Shifter – (Downshift Switch) Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

1. Remove the steering wheel (see page 17-6).
2. Remove the four screws (A) securing the steering wheel rear cover (B), then remove the steering wheel rear cover.



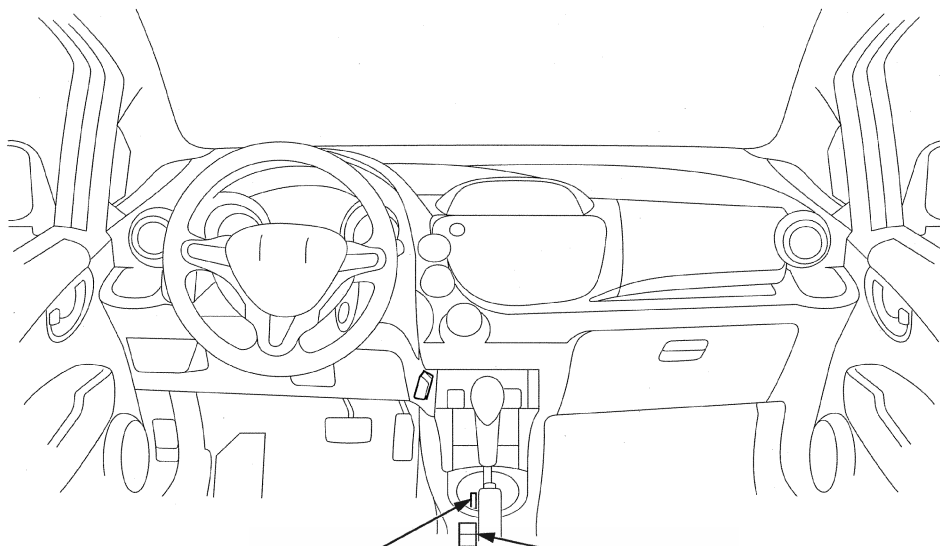
3. Remove the paddle shifter – (downshift switch) connector (A) from its holder, and disconnect the connector.



4. Remove the screws (B) securing the paddle shifter – (C), and remove the paddle shifter –.
5. Install a new paddle shifter – on the steering wheel, and secure it with the screws.
6. Connect the paddle shifter – connector securely, and install the connector in the connector holder.
7. Install the steering wheel rear cover.
8. Install the steering wheel (see page 17-8).

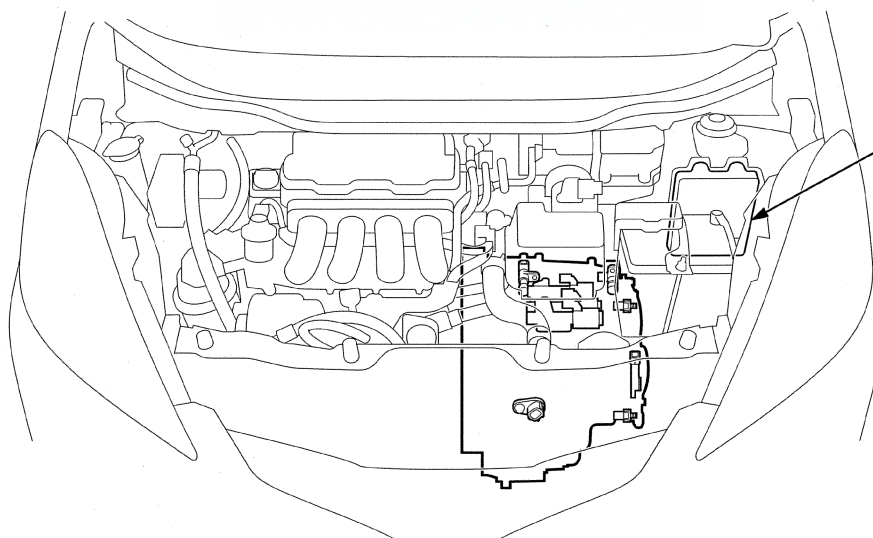
A/T Interlock System

Component Location Index



PARK PIN SWITCH
Replacement, page 14-243

SHIFT LOCK SOLENOID
Shift Lock System Circuit
Troubleshooting, page 14-237
Test, page 14-240
Replacement, page 14-241

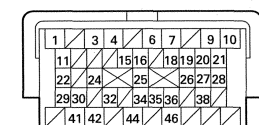
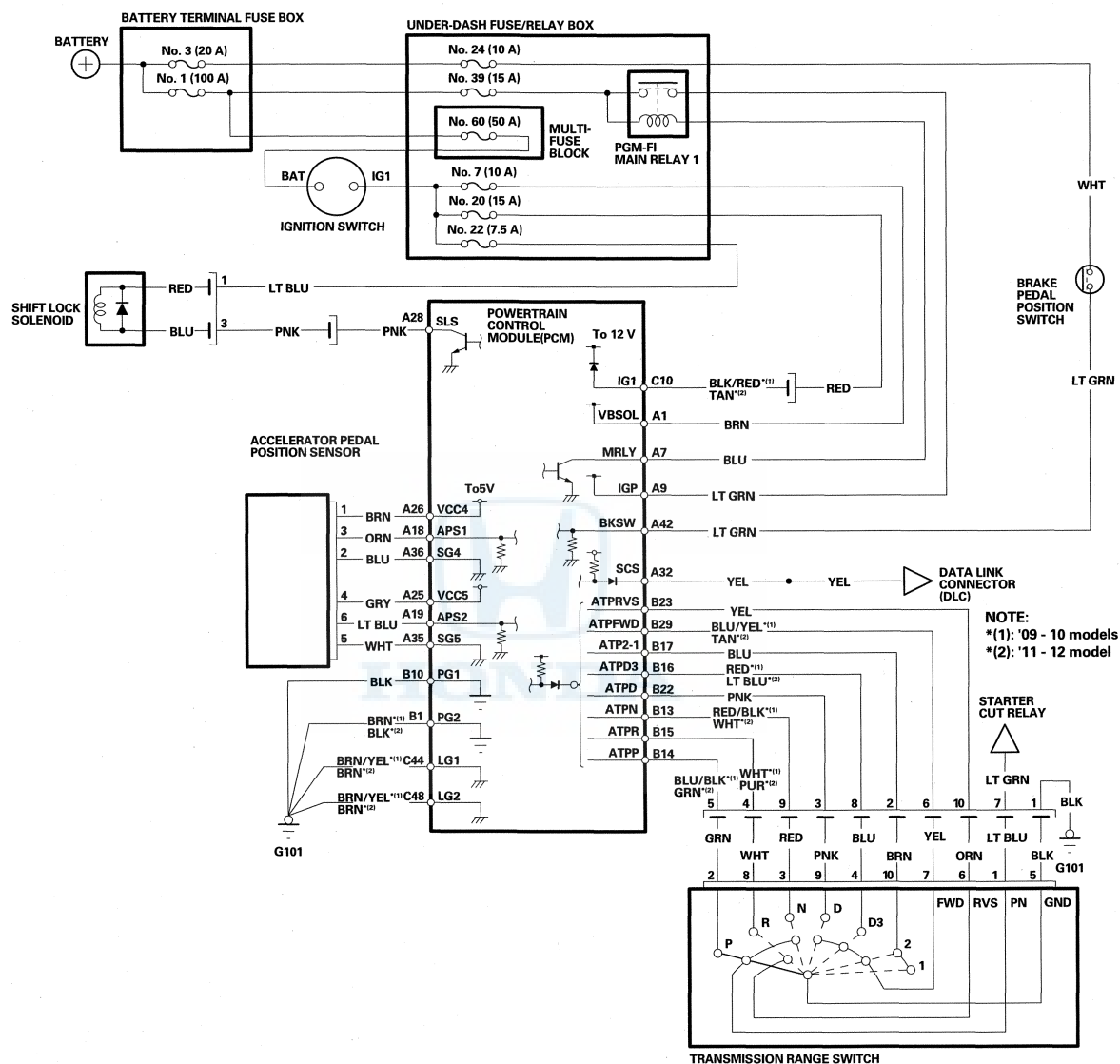


**POWERTRAIN
CONTROL
MODULE (PCM)**

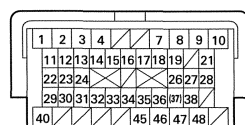


Circuit Diagram

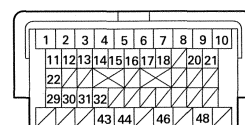
Seven-position Transmission



A (49 P) □



B (49 P) △



C (49 P) ○

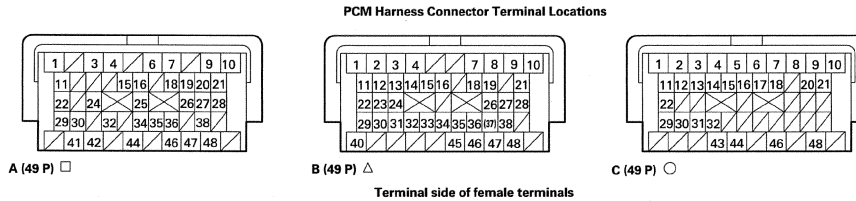
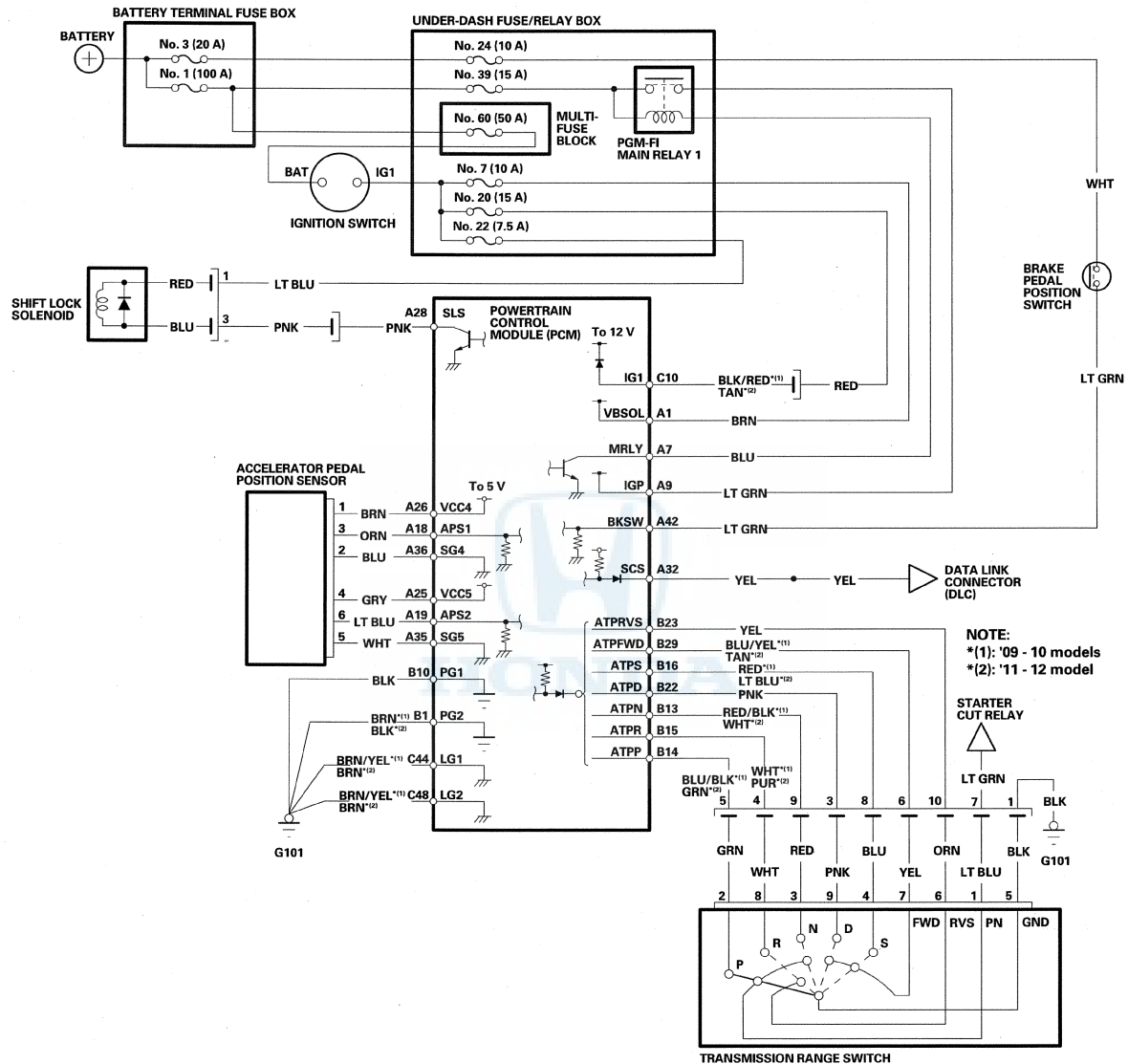
Terminal side of female terminals

(cont'd)

A/T Interlock System

Circuit Diagram (cont'd)

Five-position Transmission





Shift Lock System Circuit Troubleshooting

1. Connect the HDS to the DLC.
2. Select Shift Lock Solenoid Test in the Miscellaneous Test Menu, and check that the shift lock solenoid operates with the HDS.

NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-193).

Does the shift lock solenoid work properly?

YES—Go to step 3.

NO—Go to step 6.

3. Check the Brake Switch signal with the HDS in the A/T data list while pressing the brake pedal, and when the brake pedal is released.

Does the brake pedal position switch work properly?

YES—Go to step 4.

NO—Troubleshoot the brake pedal position switch signal circuit (see page 11-266). ■

4. Check the A/T P Switch signal with the HDS in the A/T data list. The shift lever must be in P.

Is the A/T P Switch ON?

YES—Go to step 5.

NO—Go to step 17.

5. Check the accelerator pedal position (APP) sensor A with the HDS in the A/T data list. Do not press the accelerator.

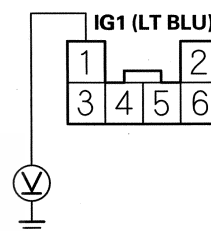
Is the APP sensor A opening 5 % or more, or the APP sensor A voltage 1.16 V or higher?

YES—Check the APP sensor (see page 11-250). ■

NO—Update the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7), and recheck. If the symptom goes away with a known-good PCM, replace the original PCM (see page 11-215). ■

6. Turn the ignition switch to LOCK (0).
7. Remove the center console (see page 20-93).
8. Disconnect the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector.
9. Turn the ignition switch to ON (II).
10. Measure the voltage between shift lock solenoid/park pin switch/A/T gear position indicator panel light connector terminal No. 1 and body ground.

**SHIFT LOCK SOLENOID/
PARK PIN SWITCH/
A/T GEAR POSITION INDICATOR
PANEL LIGHT CONNECTOR**



Wire side of female terminals

Is there battery voltage?

YES—Go to step 11.

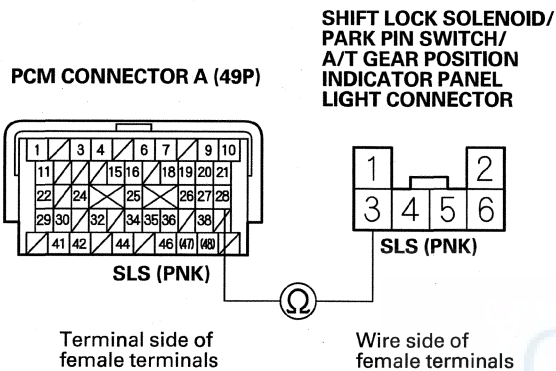
NO—Check for a blown No. 22 (7.5 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair open in the wire between the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector and the under-dash fuse/relay box. ■

(cont'd)

A/T Interlock System

Shift Lock System Circuit Troubleshooting (cont'd)

11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect PCM connector A (49P).
14. Check for continuity between PCM connector terminal A28 and shift lock solenoid/park pin switch/A/T gear position indicator panel light connector terminal No. 3.



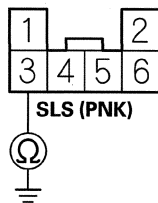
Is there continuity?

YES—Go to step 15.

NO—Repair open in the wire between PCM connector terminal A28 and shift lock solenoid/park pin switch/A/T gear position indicator panel light connector. ■

15. Check for continuity between shift lock solenoid/park pin switch/A/T gear position indicator panel light connector terminal No. 3 and body ground.

SHIFT LOCK SOLENOID/
PARK PIN SWITCH/
A/T GEAR POSITION
INDICATOR
PANEL LIGHT CONNECTOR



Wire side of female terminals

Is there continuity?

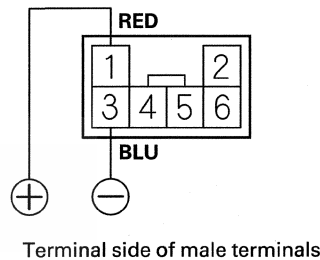
YES—Repair short in the wire between PCM connector terminal A28 and shift lock solenoid/park pin switch/A/T gear position indicator panel light connector. ■

NO—Go to step 16.

16. Connect a jumper wire from the negative battery terminal to shift lock solenoid/park pin switch/A/T gear position indicator panel light connector terminal No. 3, and connect another jumper wire from the positive battery terminal to connector terminal No. 1, then check that the shift lock solenoid operates.

NOTE: Do not connect the positive battery terminal to the connector terminal No. 3 or you will damage the diode inside the shift lock solenoid.

SHIFT LOCK SOLENOID/
PARK PIN SWITCH/
A/T GEAR POSITION
INDICATOR
PANEL LIGHT CONNECTOR



Does the shift lock solenoid operate properly?

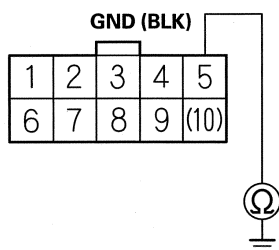
YES—Update the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7), and recheck. If the symptom goes away with a known-good PCM, replace the original PCM (see page 11-215). ■

NO—Replace the shift lock solenoid (see page 14-241). ■



17. Turn the ignition switch to LOCK (0).
18. Disconnect the transmission range switch connector.
19. Check for continuity between transmission range switch connector terminal No. 5 and body ground.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

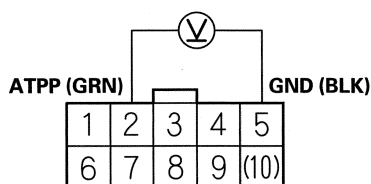
Is there continuity?

YES—Go to step 20.

NO—Repair open in the wire between transmission range switch connector terminal No. 5 and body ground (G101), or repair poor body ground (G101). ■

20. Turn the ignition switch to ON (II).
21. Measure the voltage between transmission range switch connector terminals No. 2 and No. 5.

TRANSMISSION RANGE SWITCH CONNECTOR



Wire side of female terminals

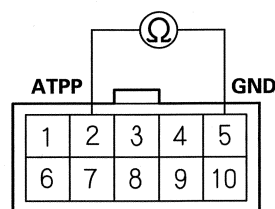
Is there battery voltage?

YES—Go to step 22.

NO—Go to step 23.

22. Check for continuity between transmission range switch connector terminals No. 2 and No. 5.

TRANSMISSION RANGE SWITCH CONNECTOR



Terminal side of male terminals

Is there continuity while the shift lever is in P, and no continuity when the shift lever is shifted to any position other than P?

YES—Update the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7), and recheck. If the symptom goes away with a known-good PCM, replace the original PCM (see page 11-215). ■

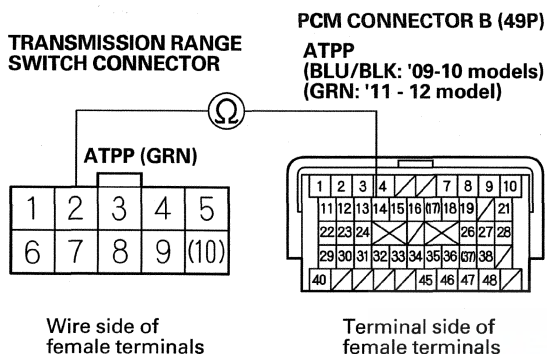
NO—Replace the transmission range switch (see page 14-228). ■

(cont'd)

A/T Interlock System

Shift Lock System Circuit Troubleshooting (cont'd)

23. Turn the ignition switch to LOCK (0).
24. Jump the SCS line with the HDS.
25. Disconnect PCM connector B (49P).
26. Check for continuity between PCM connector terminal B14 and transmission range switch connector terminals No. 2.



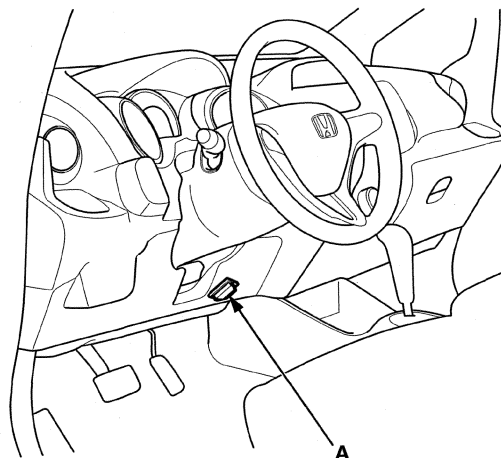
Is there continuity?

YES—Update the PCM if it does not have the latest software (see page 11-213), or substitute a known-good PCM (see page 11-7), and recheck. If the symptom goes away with a known-good PCM, replace the original PCM (see page 11-215). ■

NO—Repair open in the wire between PCM connector terminal B14 and the transmission range switch. ■

Shift Lock Solenoid Test

1. Connect the HDS to the DLC (A).



2. Select Shift Lock Solenoid Test in the Miscellaneous Test Menu, and check that the shift lock solenoid operates with the HDS.

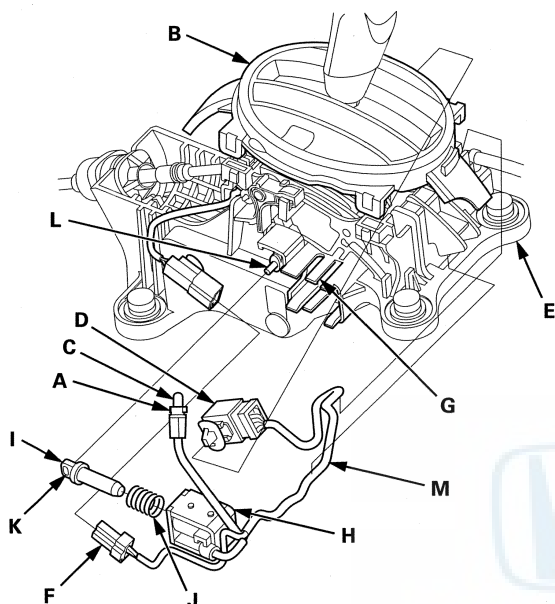
NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-193).

3. Make sure that the shift lever can be moved out of P when the HDS indicates Shift Lock Solenoid: ON. Move the shift lever back in P, and make sure it locks when the HDS indicates Shift Lock Solenoid: OFF.
4. Make sure that the shift lock releases when the shift lock release is pushed, and make sure it locks when the shift lock release is released.
5. If the shift lock solenoid does not work properly, troubleshoot shift lock system (see page 14-237).



Shift Lock Solenoid Replacement

1. Remove the center console (see page 20-93).
2. Remove the A/T gear position indicator panel light socket (A) from the indicator panel (B), then remove the bulb (C) from the socket.



3. Remove the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector (D) from the shift lever bracket base (E), then disconnect the connector.
4. Disconnect the park pin switch 2P connector (F).
5. Release the lock tab (G) retaining the shift lock solenoid using a thin blade screwdriver, and remove the shift lock solenoid (H).
6. Replace the shift lock solenoid, the solenoid plunger (I), and the plunger spring (J) assembly.
7. Apply silicone grease to the tip of the shift lock stop and solenoid plunger. Keep the connector terminals free of silicone grease.

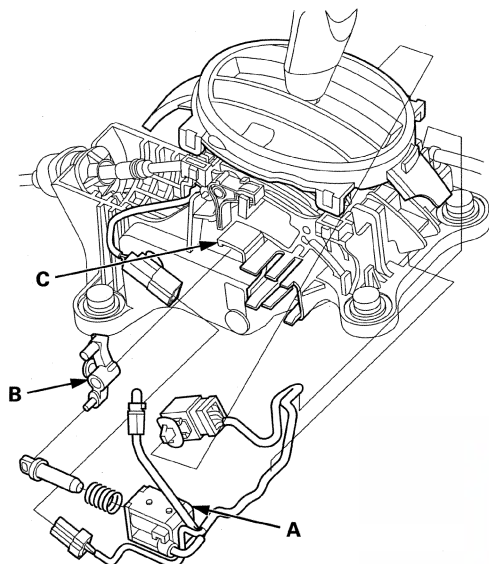
NOTE: Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands and gloves.

8. Install the shift lock solenoid by aligning the joint (K) of the shift lock solenoid plunger with the tip of the shift lock stop (L), then push the shift lock solenoid into the shift lever bracket base securely.
9. Install the A/T gear position indicator panel light bulb in the panel light socket, then install the socket in the A/T gear position indicator panel.
10. Route the harness (M) through the harness clamp, and connect the park pin switch 2P connector.
11. Install the shift lock solenoid/park pin switch/A/T gear position indicator panel light connector on the bracket base, and connect the connector.
12. Test the shift lock solenoid (see page 14-240).
13. Install the center console (see page 20-93).

A/T Interlock System

Shift Lock Stop/Shift Lock Stop Cushion Replacement

1. Remove the center console (see page 20-93).
2. Remove the shift lock solenoid assembly (A) (see page 14-241).



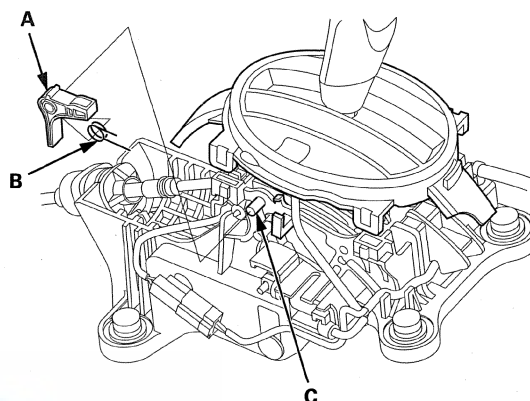
3. Remove the shift lock stop/stop cushion (B), and replace them as an assembly.
4. Apply silicone grease to the pin (C) on the shift lever bracket base, and install the shift lock stop over the pin. Keep the connector terminals free of silicone grease.

NOTE: Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands and gloves.

5. Install the shift lock solenoid assembly (see page 14-241).
6. Install the center console (see page 20-93).

Shift Lock Release and Release Spring Replacement

1. Remove the center console (see page 20-93).
2. Release the lock tab retaining the A/T gear position indicator panel, and move the indicator panel up.
3. Remove the shift lock release (A) and release spring (B).



4. Apply silicone grease to the pin (C) on the shift lever bracket base, and install the shift lock release and release spring over the pin. Keep the connector terminals free of silicone grease.

NOTE: Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands and gloves.

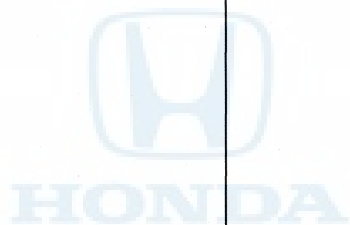
5. Install the indicator panel on the shift lever bracket base.
6. Install the center console (see page 20-93).



Park Pin Switch Replacement

NOTE: The park pin switch is installed in the shift lever bracket base, and not available separately from the shift lever bracket base; replace the park pin switch and the shift lever bracket base as an assembly.

1. Remove the shift lever (see page 14-213).
2. Disassemble the shift lever (see page 14-215).
3. Replace the park pin switch and the shift lever bracket base assembly.
4. Assemble the shift lever.
5. Install the shift lever (see page 14-214).



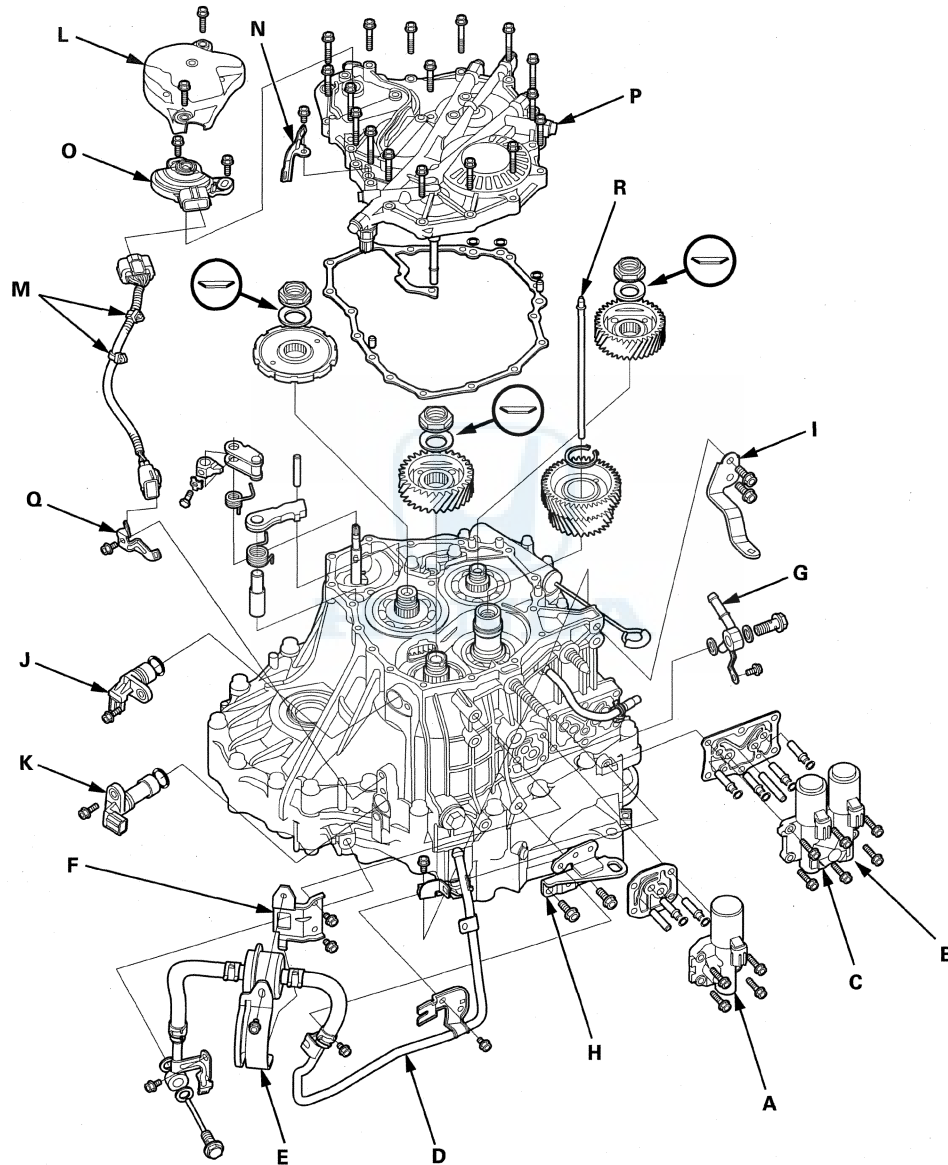
Transmission End Cover

End Cover Removal

Special Tools Required

Mainshaft Holder 07GAB-PF50101

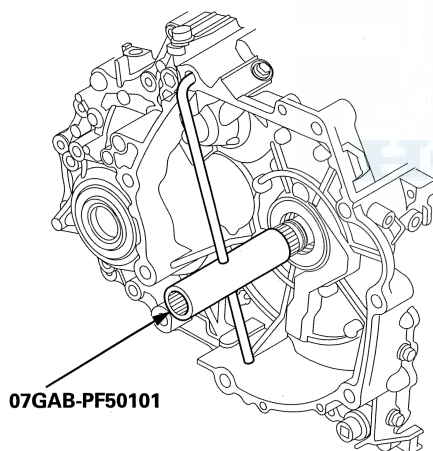
1. Remove the bolts securing the ATF inlet line (D) and ATF filter holder (E), the line bolt and sealing washers, and remove the ATF inlet line, ATF hose, and ATF filter. Remove the ATF filter bracket (F).



2. Remove the ATF outlet line bolt and sealing washers, the line mounting bolt, and the ATF outlet line (G).
3. Remove the transmission hanger (H) and the breather hose clamp bracket (I).
4. Remove the A/T clutch pressure control solenoid valve A, the ATF joint pipes, the O-rings, the ATF pipe, and the gasket.



5. Remove the A/T clutch pressure control solenoid valve B and C, the O-rings, the ATF pipe, the ATF joint pipes, and the gasket.
6. Remove the input shaft (mainshaft) speed sensor (J) and the output shaft (countershaft) speed sensor (K).
7. Remove the transmission range switch cover (L).
8. Remove the transmission range switch harness clamps (M) from the clamp bracket (N), then remove the transmission range switch (O).
9. Remove the clamp bracket from the end cover (P).
10. Remove the connector bracket (Q) from the transmission housing.
11. Remove the end cover, the dowel pins, the O-rings, and the end cover gasket.
12. Remove the ATF lubrication pipe (R) from the idler gear shaft.
13. Slip the mainshaft holder onto the mainshaft.

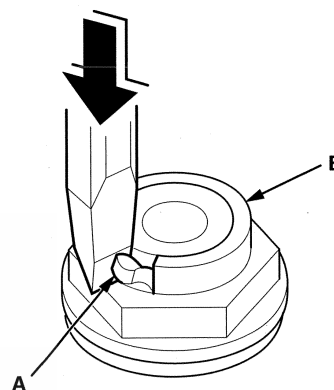


14. Engage the park pawl with the park gear.

15. Using a chisel, cut the lock tab (A) off the each shaft locknut (B). Then remove the locknuts and conical spring washers from each shaft.

NOTE:

- Countershaft and secondary shaft locknuts have left-hand threads.
- Keep all of the chiseled particles out of the transmission.
- Clean the old locknuts; they are used to install the press fit idler gears and park gear.



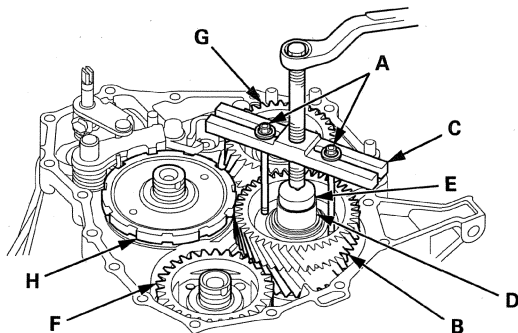
16. Remove the snap ring securing the idler gear to the idler gear shaft.

(cont'd)

Transmission End Cover

End Cover Removal (cont'd)

17. Install 6 x 1.0 mm bolts (A) on the idler gear shaft idler gear (B). Set a puller (C) on the idler gear shaft (D) with a spacer (E) between the puller and idler gear shaft, then remove idler gear shaft idler gear.

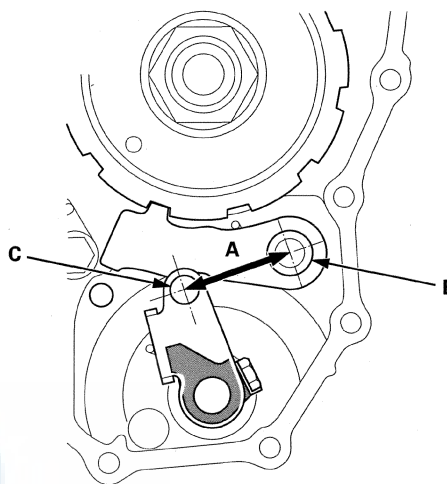


18. Set the puller, the 6 x 1.0 mm bolts, and the spacer on the secondary shaft idler gear (F), and remove the secondary shaft idler gear from the secondary shaft in the same manner as the removal of the idler gear shaft idler gear.
19. Set the puller, the 6 x 1.0 mm bolts, and the spacer on the mainshaft idler gear (G), and remove the mainshaft idler gear from the mainshaft in the same manner as the removal of the idler gear shaft idler gear.
20. Set the puller, the 6 x 1.0 mm bolts, and the spacer on the park gear (H), and remove the park gear from the countershaft in the same manner as the removal of the idler gear shaft idler gear.
21. Remove the park pawl, the park pawl spring, the park pawl shaft, and the stop shaft.
22. Remove the park lever from the selector control shaft.

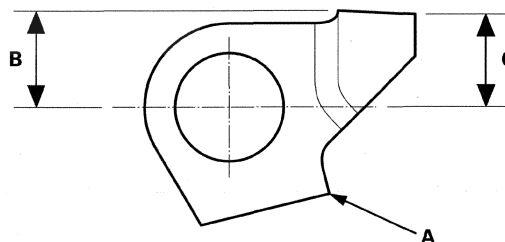
Park Lever Stop Inspection and Adjustment

1. Set the park lever in the P position.
2. Measure the center-to-center distance (A) between the park pawl shaft (B) and the park lever roller pin (C).

Standard: 37.8—38.8 mm (1.49—1.53 in)



3. If the measurement is out of standard, select and install the appropriate park lever stop (A) from the table.



PARK LEVER STOP

Mark	B	C
1	11.00 mm (0.433 in)	11.00 mm (0.433 in)
2	10.80 mm (0.425 in)	10.65 mm (0.419 in)
3	10.60 mm (0.417 in)	10.30 mm (0.406 in)

4. After replacing the park lever stop, make sure the distance is within tolerance.

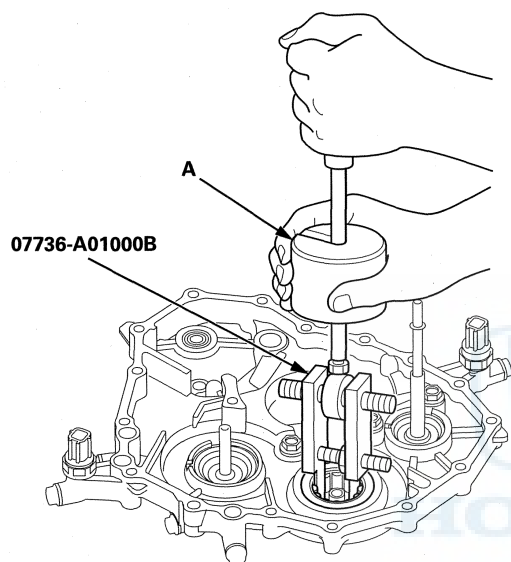


Idler Gear Shaft Bearing Replacement

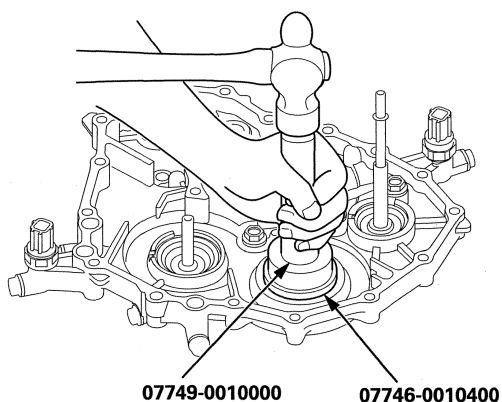
Special Tools Required

- Adjustable Bearing Puller, 25—40 mm 07736-A01000B
- Driver Handle, 15 x 135L 07749-0010000
- Bearing Driver Attachment, 52 x 55 mm 07746-0010400

1. Remove the idler gear shaft bearing from the end cover using the adjustable bearing puller (20—40 mm) and a commercially available 3/8"-16 slide hammer (A).



2. Install the new bearing in the end cover using the driver handle and the bearing driver attachment (52 x 55 mm).

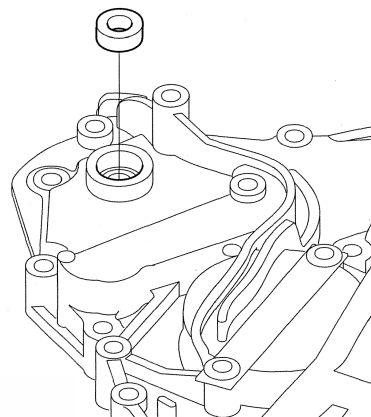


Selector Control Shaft Oil Seal Replacement

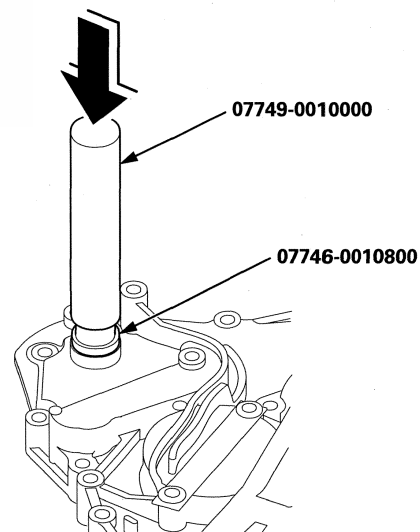
Special Tools Required

- Driver Handle, 15 x 135L 07749-0010000
- Bearing Driver Attachment, 22 x 24 mm 07746-0010800

1. Remove the oil seal from the end cover.



2. Install the new oil seal flush with the end cover using the driver handle and the bearing driver attachment (22 x 24 mm).



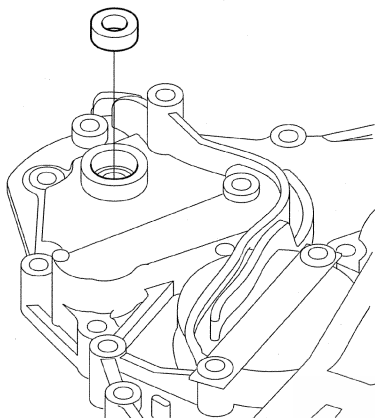
Transmission End Cover

Selector Control Shaft Bearing Replacement

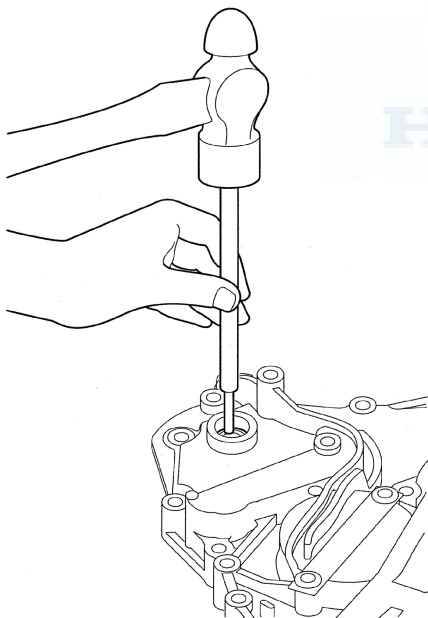
Special Tools Required

- Driver Handle, 15 x 135L 07749-0010000
- Bearing Driver Attachment, 22 x 24 mm 07746-0010800

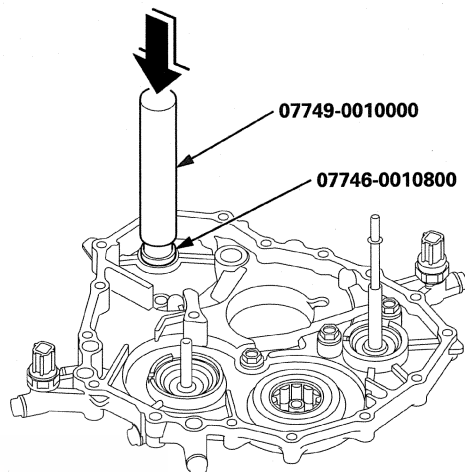
1. Remove the oil seal from the end cover.



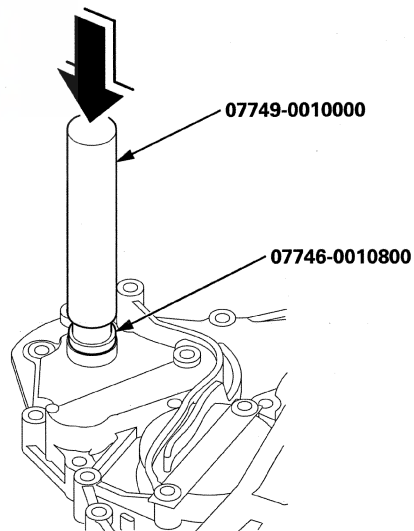
2. Remove the control shaft bearing from the end cover.



3. Install the new bearing flush with the end cover using the driver handle and the bearing driver attachment (22 x 24 mm).



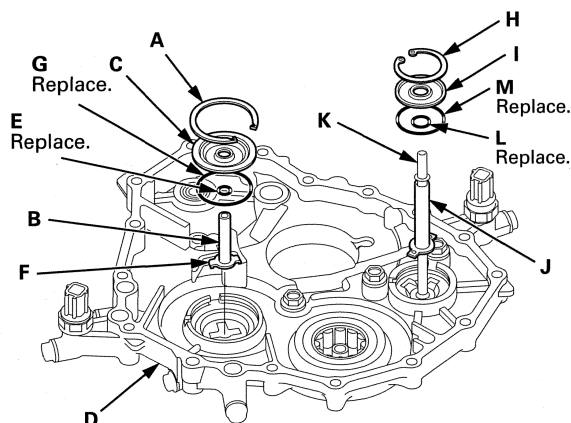
4. Install the new oil seal flush with the end cover using the driver handle and the bearing driver attachment (22 x 24 mm).





ATF Feed Pipe Replacement

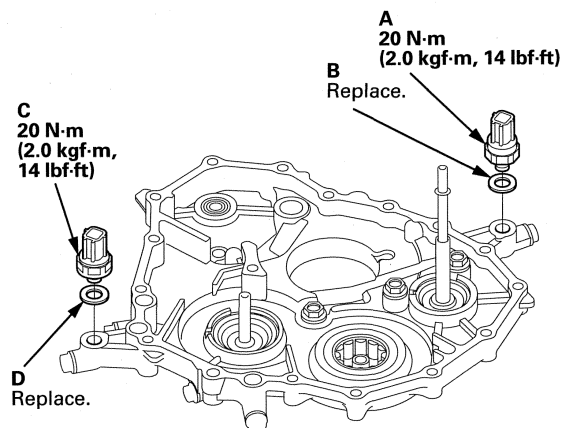
1. Remove the snap ring (A), the 3rd clutch feed pipe (B), and the feed pipe flange (C) from the end cover (D).



2. Install a new O-ring (E) over the 3rd clutch feed pipe.
3. Install the 3rd clutch feed pipe in the end cover by aligning the feed pipe tabs (F) with the indentations in the end cover.
4. Install a new O-ring (G) in the end cover, then install the feed pipe flange over the 3rd clutch feed pipe.
5. Secure the 3rd clutch feed pipe and the feed pipe flange with the snap ring.
6. Remove the snap ring (H) and the feed pipe flange (I).
7. Check the 4th clutch feed pipe (J) and the 2nd clutch feed pipe (K) for scoring and damage. Replace the end cover, if the feed pipe is scored or damaged.
8. Install a new O-ring (L) over the 4th clutch feed pipe.
9. Install a new O-ring (M) in the end cover, then install the feed pipe flange over the 4th clutch feed pipe.
10. Secure the 4th clutch feed pipe and the feed pipe flange with the snap ring.

Transmission Fluid Pressure Switch Replacement

1. Remove the transmission fluid pressure switch A (2nd clutch) (A).



2. Make sure there is no water, oil, dust, or foreign particles inside the connector.
3. Install the new transmission fluid pressure switch A (2nd clutch) and a new sealing washer (B), and tighten the metal part of the switch.
4. Remove the transmission fluid pressure switch B (3rd clutch) (C).
5. Make sure there is no water, oil, dust, or foreign particles inside the connector.
6. Install the new transmission fluid pressure switch B (3rd clutch) and a new sealing washer (D), and tighten the metal part of the switch.

Transmission End Cover

Air Check Valve Inspection and Replacement

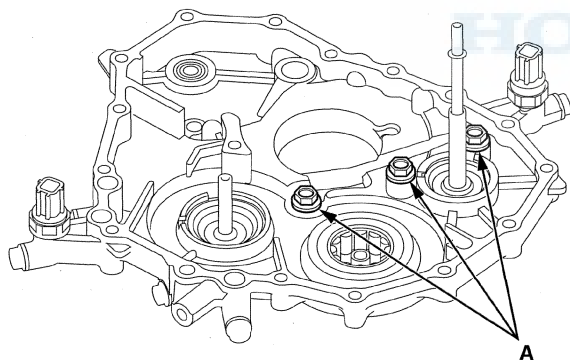
NOTE:

- There are two types of the transmission end cover; the type A and the type B; and both types are available.
- The differences between the types A and B of the end covers are:
 - The installation position of the air check valves.
 - The air check valves that come with and without the sealing washers.
 - The tightening torque of the air check valves.

1. Check the air check valve filter for clogging. If the filter is clogged, remove the air check valves (A), and clean the filter thoroughly by pouring new ATF. Do not blow out the filter with compressed air. If the filter or check valve (ball) is clogged or damaged, replace the air check valve.

NOTE:

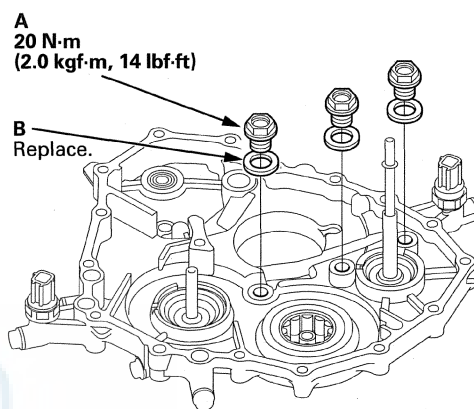
- Replace the sealing washer with a new one whenever the air check valve (came with the sealing washer) is removed or replaced.
- It is no need to install the sealing washer with the air check valve that came without the washer.



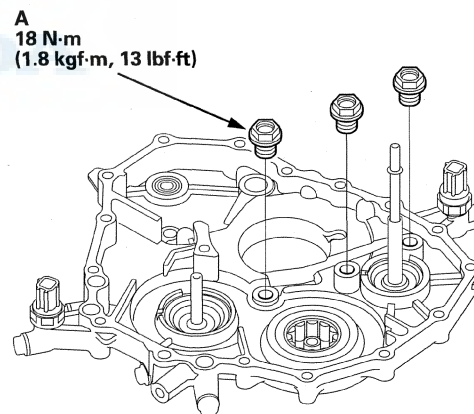
2. Install the air check valve (A):

- On type A end cover: Install the air check valve and a new sealing washer (B).
- On type B end cover: Install the air check valve. Do not install the sealing washer.

On Type A End Cover



On Type B End Cover



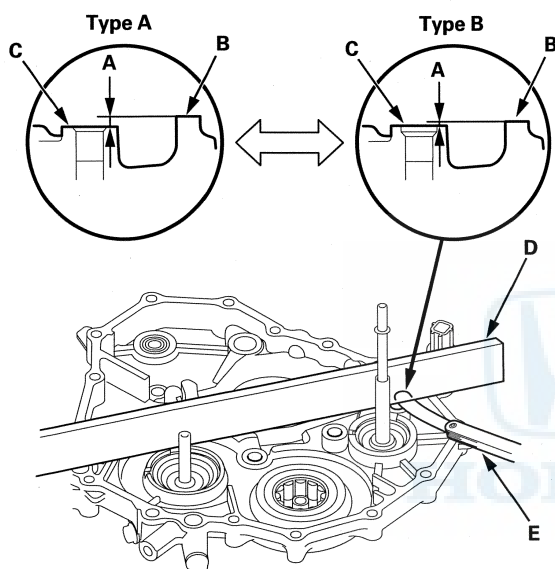


3. If the classification of the end cover between types A and B is uncertain, measure the clearance (A) between surface (B) of the end cover and installed position (C) of the 2nd check valve with a straight edge (D) and a feeler gauge (E), and determine the end cover of A or B with the measurement.

Measurement

Type A End Cover: 2.00 mm (0.078 in)

Type B End Cover: 0.15 mm (0.005 in)



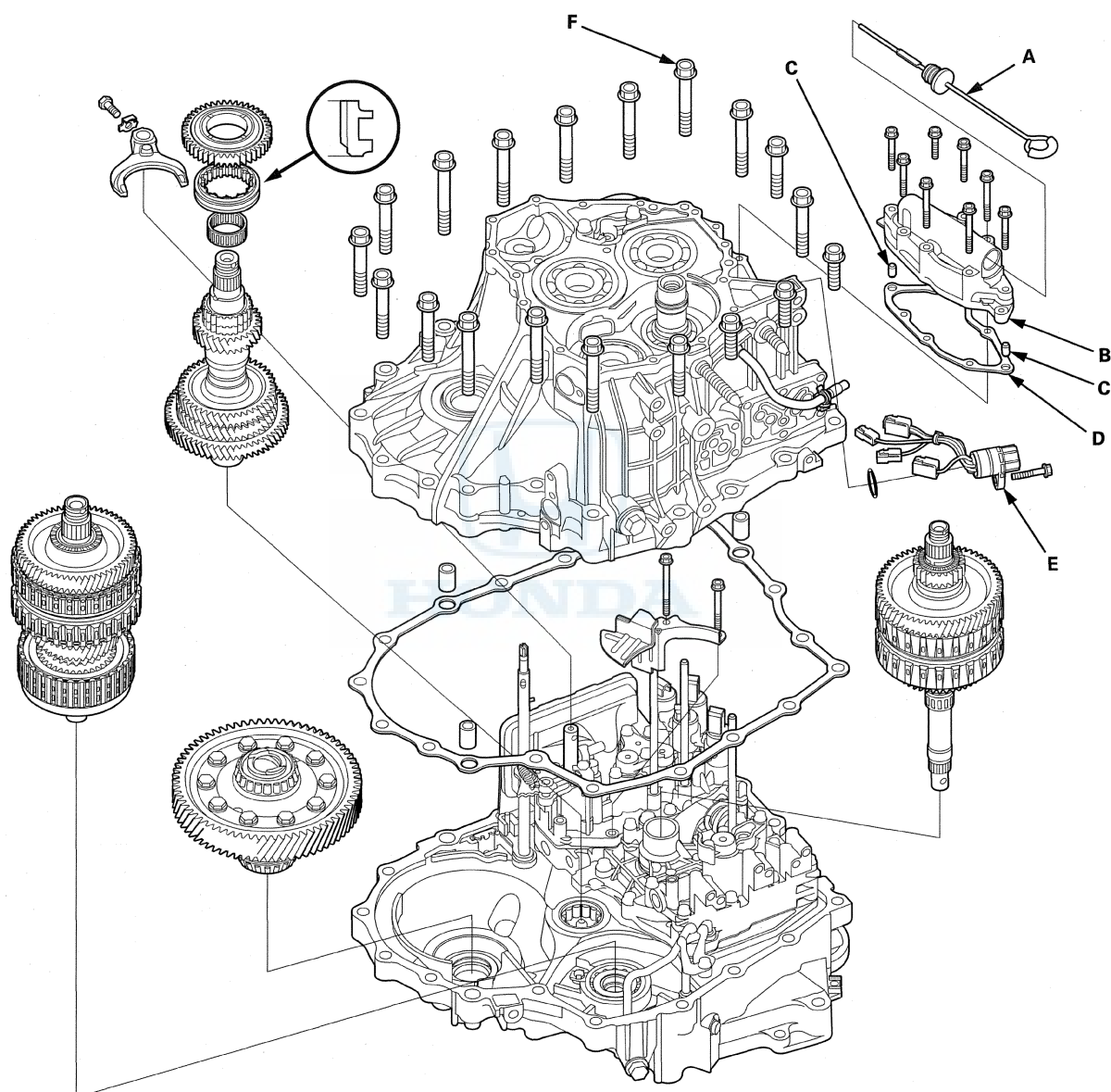
Transmission Housing

Housing and Shaft Assembly Removal

Special Tools Required

Housing Puller 07HAC-PK40102

1. Remove the dipstick (A).

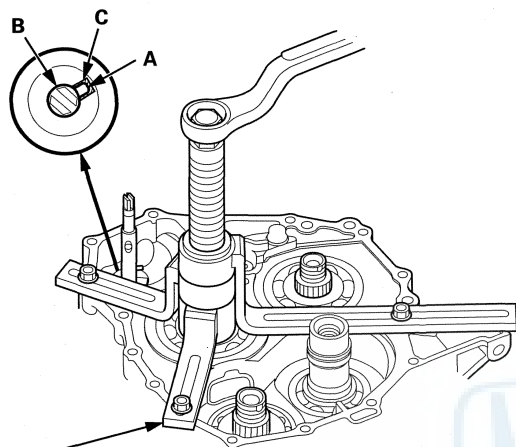


2. Remove the shift solenoid valve cover (B), the dowel pins (C), and the gasket (D).
3. Disconnect the connectors from the shift solenoid valves, and remove the solenoid harness connector (E).
4. Remove the transmission housing mounting bolts (F) (19).



5. Align the spring pin (A) on the selector control shaft (B) with the transmission housing groove (C) by turning the selector control shaft end on the torque converter housing side.

NOTE: Do not squeeze the end of the selector control shaft tips together when turning the control shaft.



07HAC-PK40102

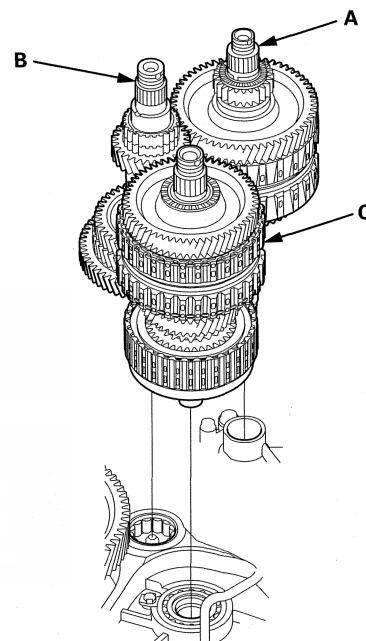
6. Install the housing puller over the mainshaft, then remove the transmission housing, the dowel pins, and the gasket.

NOTE: If the top arm of your housing puller is too short, replace it with the 205 mm housing puller arm, 07SAC-P0Z0101.

7. Remove the countershaft reverse gear and needle bearing.
8. Remove the lock bolt securing the shift fork, then remove the shift fork with the reverse selector together.

9. Remove the mainshaft subassembly (A), the countershaft subassembly (B), and the secondary shaft subassembly (C) together.

If the reverse selector hub is removed by hand, remove the 4th-5th gear and needle bearings, and remove the mainshaft subassembly, then the countershaft subassembly and secondary shaft subassembly together.



10. Remove the baffle plate.
11. Remove the differential assembly.

Transmission Housing

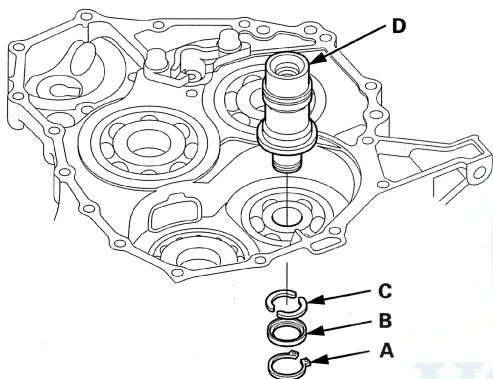
Bearing Removal

Special Tools Required

- Bearing Driver Attachment, 72 x 75 mm 07746-0010600
- Bearing Driver Attachment, 78 x 80 mm 07NAD-PX40100
- Bearing Driver Attachment, 62 x 68 mm 07746-0010500
- Driver Handle, 15 x 135L 07749-0010000

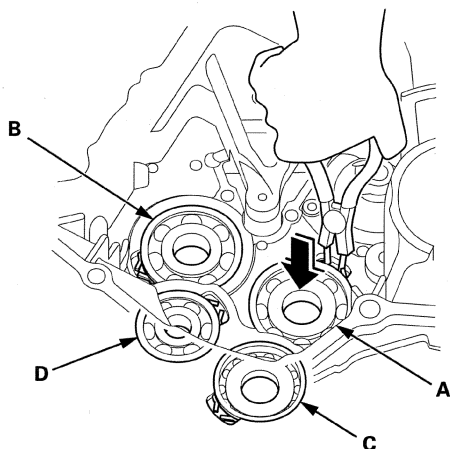
1. Remove the snap ring (A), the cotter retainer (B), and the cotters (C) from the idler gear shaft (D), then remove the idler gear shaft. Do not distort the snap ring.

NOTE: If you are not removing the idler gear shaft bearing, idler gear shaft removal is not needed.



2. To remove the mainshaft bearing (A), the countershaft bearing (B), the secondary shaft bearing (C), and the idler gear shaft bearing (D) from the transmission housing, expand each snap ring with the snap ring pliers, then push the bearing out.

NOTE: Do not remove the snap ring unless it's necessary to clean the grooves in the housing.

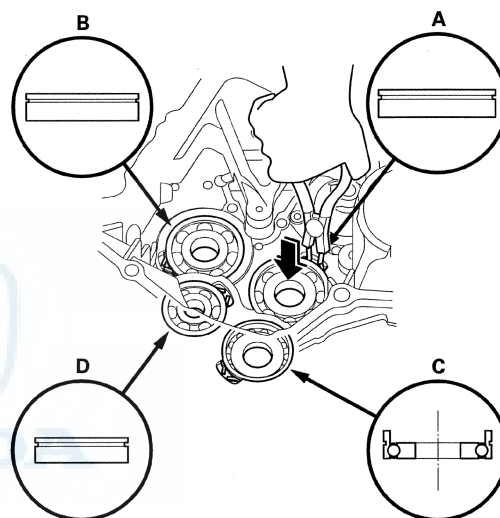


Bearing Installation

Special Tools Required

- Bearing Driver Attachment, 72 x 75 mm 07746-0010600
- Bearing Driver Attachment, 78 x 80 mm 07NAD-PX40100
- Bearing Driver Attachment, 62 x 68 mm 07746-0010500
- Driver Handle, 15 x 135L 07749-0010000

1. Install the mainshaft bearing (A), the countershaft bearing (B), the secondary shaft bearing (C), and the idler gear shaft bearing (D) in the transmission housing in the direction shown.



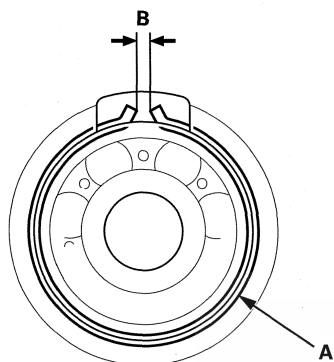
2. Expand each snap ring with the snap ring pliers, and install the bearing part-way into the housing.
3. Release the pliers, then push the bearing down into the housing until the snap ring snaps in place around it.



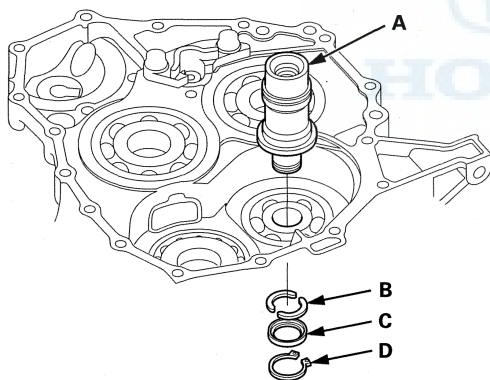
Idler Gear Shaft Removal and Installation

4. After installing the bearings verify that the snap rings (A) are seated in the bearing and housing grooves, and that the ring end gaps (B) are:

- 0 - 7 mm (0 - 0.28 in) for all of the snap rings except the secondary shaft bearing on '12 model.
- 0 - 9 mm (0 - 0.35 in) for the secondary shaft bearing on '12 model.

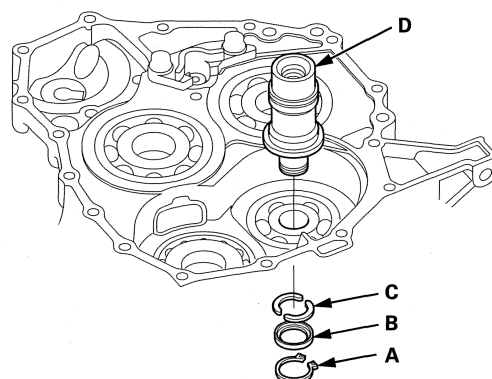


5. Install the idler gear shaft (A) in the idler gear shaft bearing.



6. Install the cotters (B) and cotter retainer (C), and secure the idler gear shaft with the snap ring (D).

1. Remove the snap ring (A), the cotter retainer (B), and the cotters (C) from the idler gear shaft (D), then remove the idler gear shaft. Do not distort the snap ring.



2. Check the snap ring and the cotter retainer for wear and damage. Replace the snap ring and/or the cotter retainer if the snap ring or the cotter retainer is worn, distorted, or damaged.

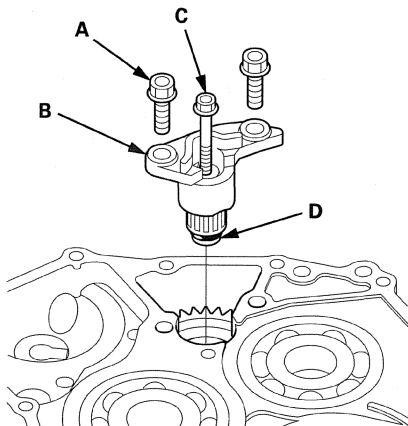
3. Install the idler gear shaft in the idler gear shaft bearing.

4. Install the cotters and cotter retainer, and secure the idler gear shaft with the snap ring.

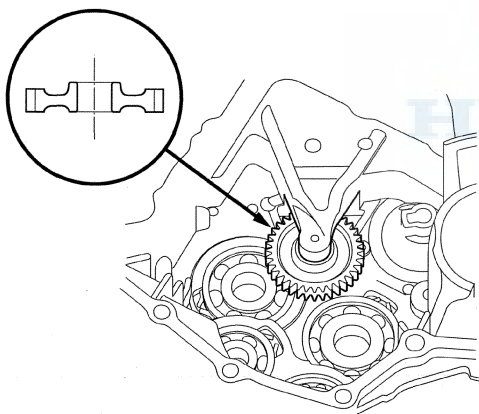
Transmission Housing

Reverse Idler Gear Removal

1. Remove the bolts (A) securing the reverse idler gear shaft holder (B).

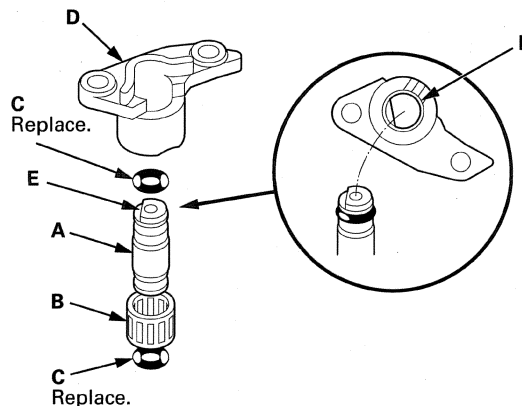


2. Install a 5 x 0.8 mm bolt (C) in the reverse gear shaft, and pull it to remove the reverse idler gear shaft (D) and the gear shaft holder together.
3. Remove the reverse idler gear.

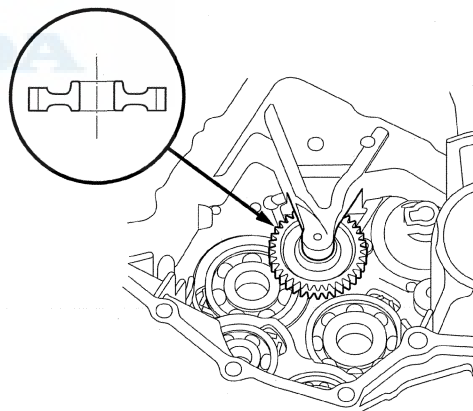


Reverse Idler Gear Installation

1. Lightly coat the reverse idler gear shaft (A), the needle bearing (B), and new O-rings (C) with lithium grease.

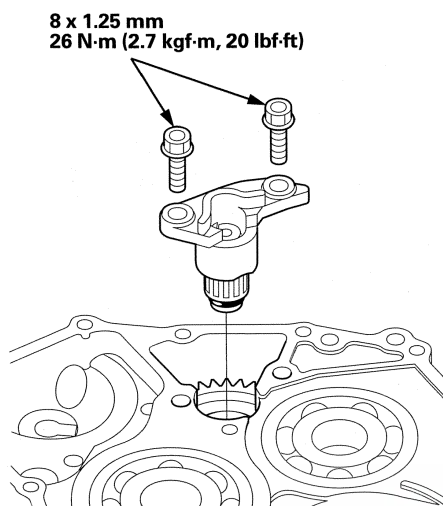


2. Assemble the new O-rings and the needle bearing on the reverse idler gear shaft, then install the reverse idler gear shaft in the reverse idler gear shaft holder (D). Align the D-shaped cut out (E) of the shaft with the D-shaped area (F) of the holder.
3. Install the reverse idler gear in the transmission housing in the direction shown.

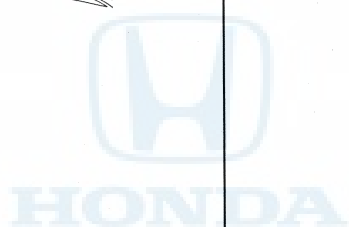




4. Install the reverse idler gear shaft/holder assembly in the reverse idler gear.



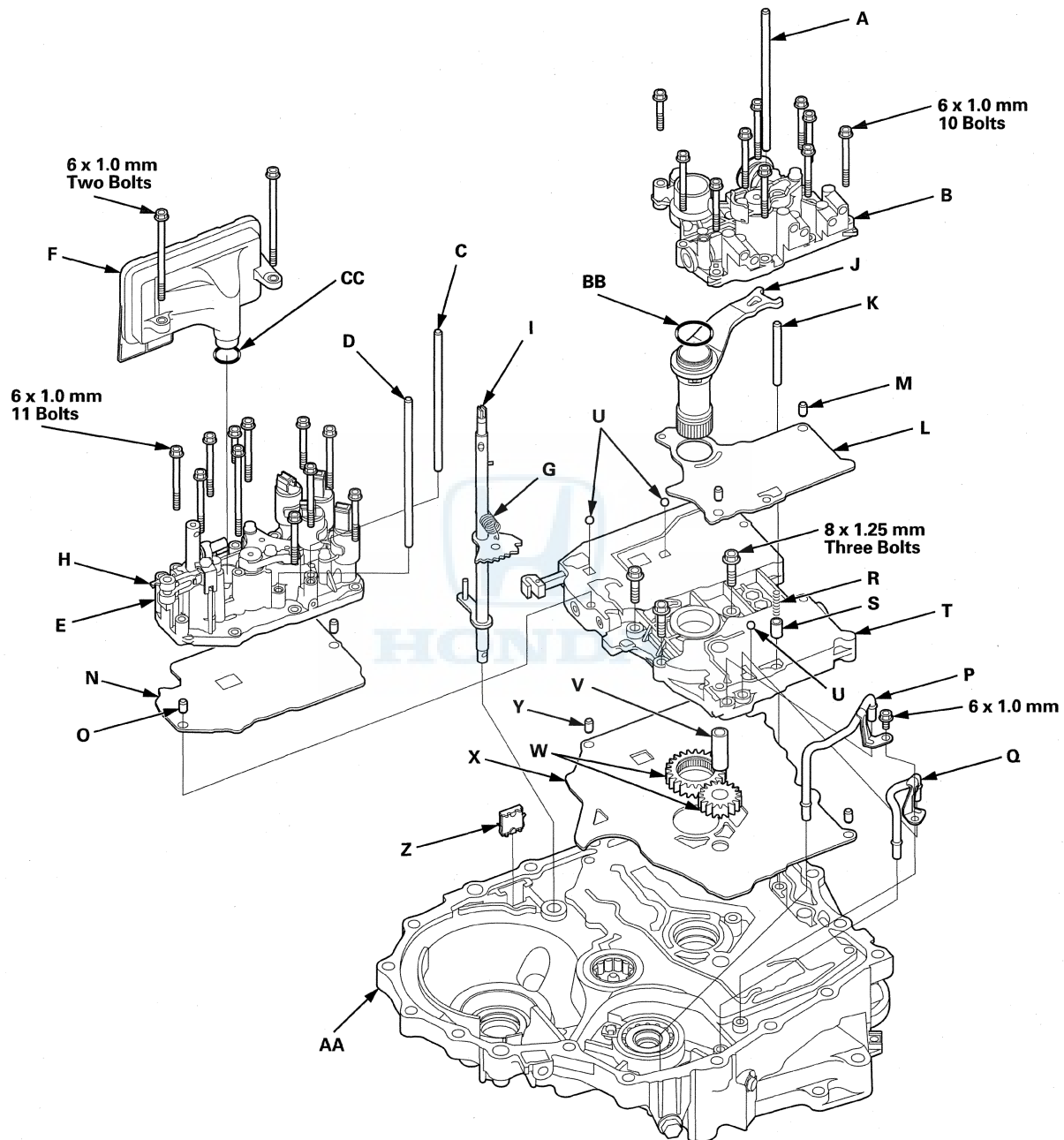
5. Secure the holder with the bolts.



Valve Body

Valve Body and ATF Strainer Removal

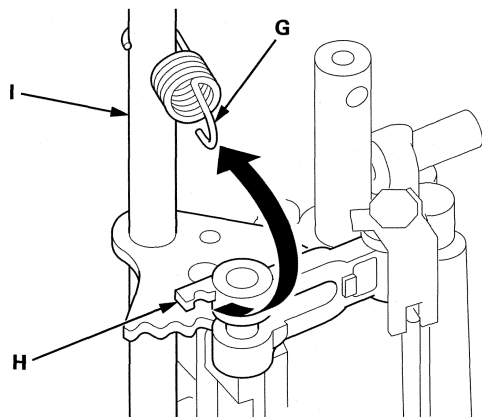
1. Remove the ATF feed pipe (A) from the regulator valve body (B).



2. Remove the ATF feed pipes (C) (D) from the servo body (E).
3. Remove the ATF strainer (F) (two bolts).

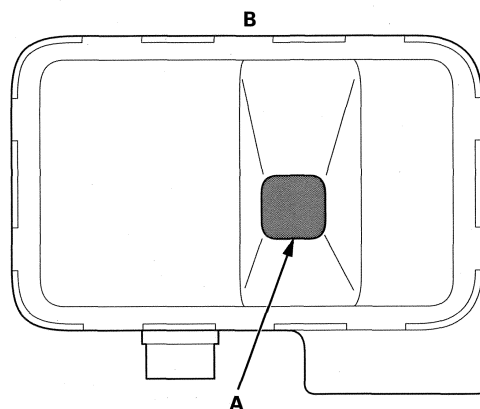


4. Unhook the detent spring (G) from the detent arm (H), and remove the control shaft (I).



5. Remove the regulator valve body (10 bolts).
6. Remove the stator shaft (J) and stator shaft stop (K), then remove the regulator separator plate (L) and two dowel pins (M).
7. Remove the servo body (11 bolts), then remove the separator plate (N) and two dowel pins (O).
8. Remove the ATF joint pipes (P) (Q).
9. Remove the cooler check valve spring (R) and cooler check valve (S), then remove the main valve body (T) (three bolts). Do not let the check balls (U) fall out.
10. Remove the ATF pump driven gear shaft (V), then remove the ATF pump gears (W).
11. Remove the main separator plate (X) and two dowel pins (Y).
12. Remove the ATF magnet (Z), clean and reinstall it in the torque converter housing (AA).
13. Remove the O-ring (BB) from the stator shaft, and remove the O-ring (CC) from the ATF strainer. Install new ones when installing the valve bodies.

14. Clean the inlet opening (A) of the ATF strainer (B) thoroughly with compressed air, then check that it is in good condition and that the inlet opening is not clogged.



15. Test the ATF strainer by pouring clean ATF through the inlet opening, and replace it if it is clogged or damaged.

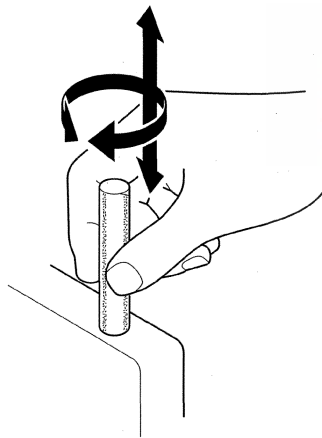
Valve Body

Valve Body Repair

NOTE: Valve body repair is only necessary if one or more of the valves in a valve body do not slide smoothly in their bores. Use this procedure to free the valves.

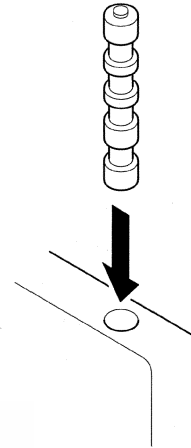
1. Soak a sheet of #600 abrasive paper in ATF for about 30 minutes.
2. Carefully tap the valve body so the sticking valve drops out of its bore. It may be necessary to use a small screwdriver to pry the valve free. Be careful not to scratch the bore with the screwdriver.
3. Inspect the valve for any scuff marks. Use the ATF-soaked #600 paper to polish off any burrs that are on the valve, then wash the valve in solvent and dry it with compressed air.
4. Roll up half of the ATF-soaked #600 paper and insert it in the valve bore of the sticking valve. Twist the paper slightly, so that it unrolls and fits the bore tightly, then polish the bore by twisting the paper as you push it in and out.

NOTE: The valve body is aluminum and doesn't require much polishing to remove any burrs.



5. Remove the #600 paper. Thoroughly wash the entire valve body in solvent, then dry it with compressed air.

6. Coat the valve with ATF, then drop it into its bore. It should drop to the bottom of the bore under its own weight. If not, repeat steps 4 and 5, then retest. If the valve still sticks, replace the valve body.

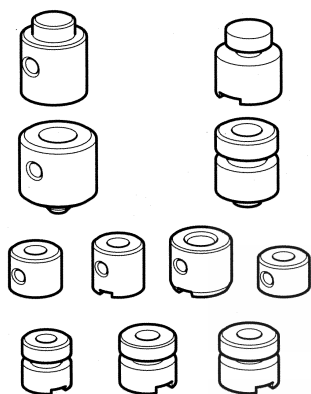


7. Remove the valve, and thoroughly clean it and the valve body with solvent. Dry all parts with compressed air, then reassemble using ATF as a lubricant.

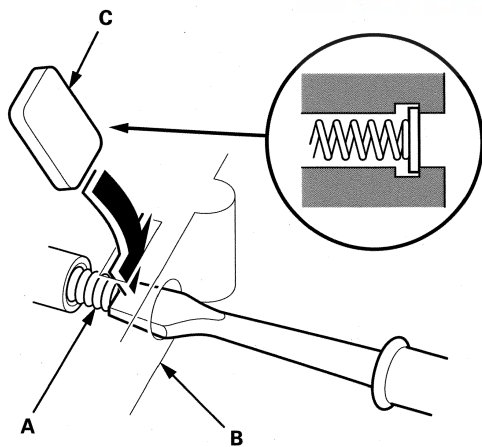


Valve Body Valve Installation

1. Coat all parts with ATF before assembly.
2. Install the valves and springs in the sequence shown for the main valve body (see page 14-262), the regulator valve body (see page 14-264), and the servo body (see page 14-265). Refer to the following valve cap illustrations, and install each valve cap so the end shown facing up will be facing the outside of the valve body, then secure the valve cap with the valve cap clip.



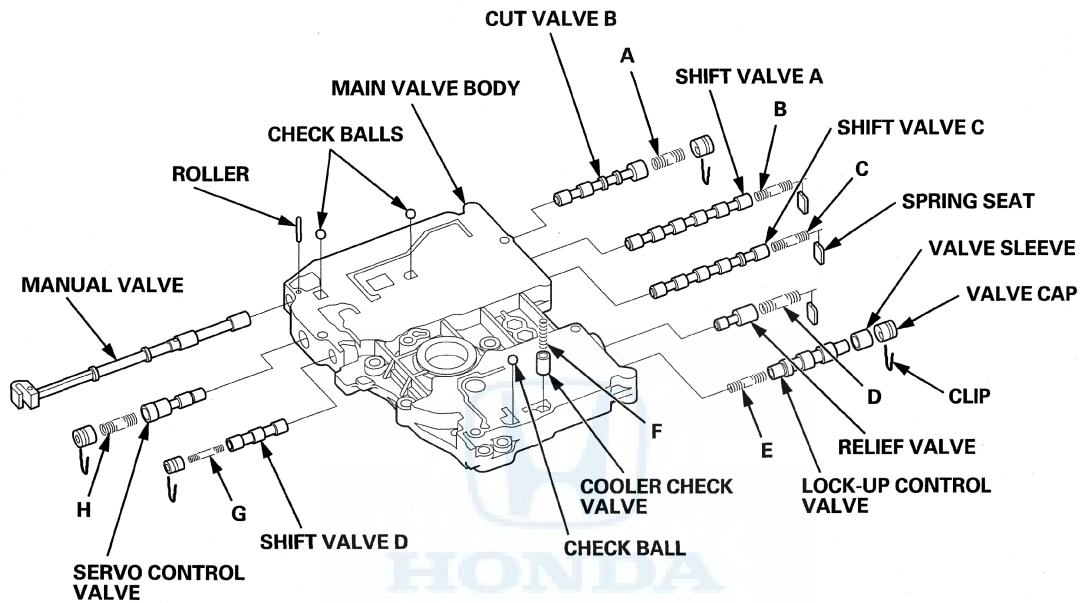
3. Install the valve and the valve spring (A) in the valve body (B). Push the valve spring in with a screwdriver, then install the spring seat (C).



Valve Body

Main Valve Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent, and dry them with compressed air. Blow out all passages.
2. Do not use a magnet to remove the check balls, it may magnetize the check balls.
3. Inspect the main valve body for scoring and damage.
4. Check all valves for free movement. If any fail to slide freely, refer to valve body repair (see page 14-260).
5. Coat all parts with ATF during assembly.



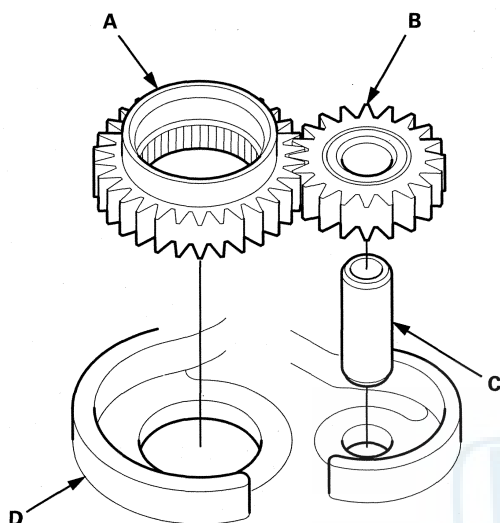
VALVE SPRING SPECIFICATIONS

Valve Springs		Standard (New)-Unit: mm (in)			
		Wire Diameter	O.D.	Free Length	No. of Coils
A	Cut valve B spring	0.8 (0.031)	9.9 (0.390)	27.3 (1.075)	8.0
B	Shift valve A spring	0.8 (0.031)	7.1 (0.280)	23.7 (0.933)	9.7
C	Shift valve C spring	0.8 (0.031)	7.1 (0.280)	23.7 (0.933)	9.7
D	Relief valve spring	1.0 (0.039)	9.6 (0.378)	34.1 (1.343)	10.2
E	Lock-up control valve spring	0.6 (0.024)	7.1 (0.280)	29.6 (1.165)	11.2
F	Cooler check valve spring	0.85 (0.033)	6.6 (0.260)	27.0 (1.063)	11.3
G	Shift valve D spring	0.8 (0.031)	5.6 (0.220)	28.1 (1.106)	15.9
H	Servo control valve spring	0.8 (0.031)	9.9 (0.390)	27.3 (1.075)	8.0



ATF Pump Inspection

1. Install the ATF pump drive gear (A), the driven gear (B), and the ATF pump driven gear shaft (C) in the main valve body (D). Lubricate all parts with ATF, and install the ATF pump driven gear with its grooved and chamfered side facing up.



2. Measure the side clearance of the ATF pump drive gear (A) and the driven gear (B).

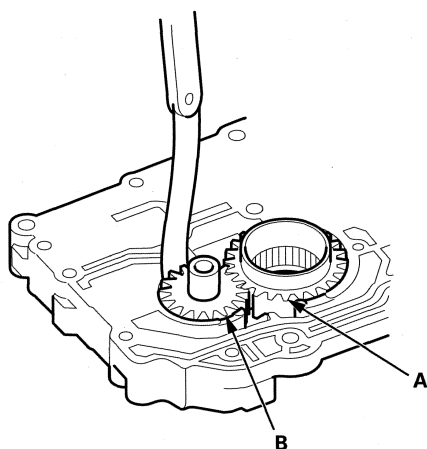
ATF Pump Gears Side (Radial) Clearance Standard (New)

ATF Pump Drive Gear:

0.210–0.265 mm (0.009–0.010 in)

ATF Pump Driven Gear:

0.070–0.125 mm (0.003–0.004 in)



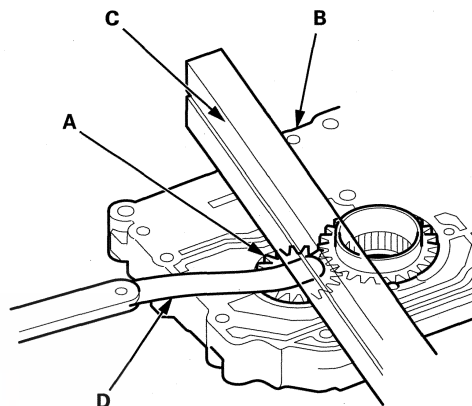
3. Remove the ATF pump driven gear shaft. Measure the thrust clearance between the ATF pump driven gear (A) and the valve body (B) with a straight edge (C) and a feeler gauge (D).

ATF Pump Drive/Driven Gear Thrust (Axial)

Clearance

Standard (New): 0.03–0.06 mm (0.002–0.002 in)

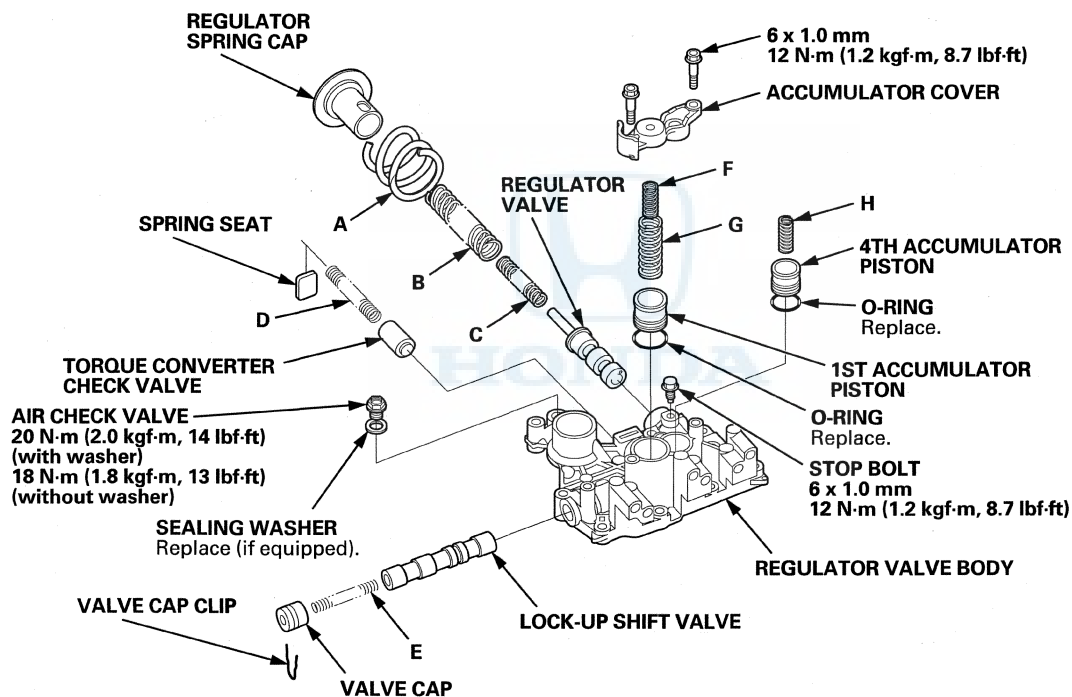
Service Limit: 0.07 mm (0.02 in)



Valve Body

Regulator Valve Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent, and dry them with compressed air. Blow out all passages except the air check valve filter.
2. Inspect the regulator valve body for scoring and damage.
3. Hold the regulator spring cap in place while removing the stop bolt. The regulator spring cap is spring loaded. Once the stop bolt is removed, release the spring cap slowly so it does not pop out.
4. Check all valves for free movement. If any fail to slide freely, refer to valve body repair (see page 14-260).
5. Check the air check valve filter for clogging. If the filter is clogged, remove the air check valve, and clean the filter thoroughly by pouring clean ATF. Do not blow out the filter with compressed air. Replace the air check valve, if the filter or the check valve (ball) is clogged or damaged.
6. Coat all parts with ATF during assembly.
7. Align the hole in the regulator spring cap with the stop bolt hole, then press the spring cap into the valve body, and install the stop bolt.



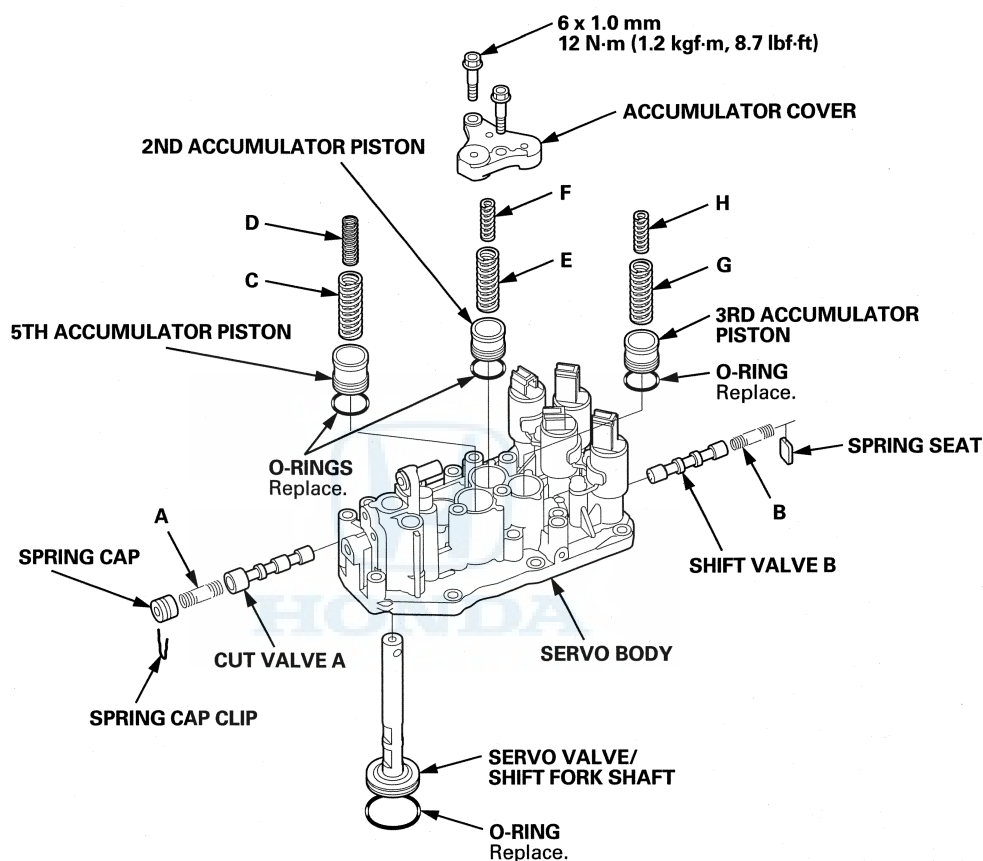
VALVE SPRING SPECIFICATIONS

Valve Springs		Standard (New)-Unit: mm (in)			
		Wire Diameter	O.D.	Free Length	No. of Coils
A	Stator reaction spring	4.5 (0.177)	35.4 (1.394)	30.3 (1.193)	1.92
B	Regulator valve spring A	1.9 (0.075)	14.7 (0.579)	80.6 (3.173)	16.1
C	Regulator valve spring B	1.6 (0.063)	9.2 (0.362)	44.0 (1.732)	12.5
D	Torque converter check valve spring	1.2 (0.047)	8.6 (0.339)	33.8 (1.331)	12.2
E	Lock-up shift valve spring	1.0 (0.039)	6.6 (0.260)	35.5 (1.398)	18.2
F	1st accumulator spring B	2.4 (0.094)	12.2 (0.480)	35.0 (1.378)	7.7
G	1st accumulator spring A	2.4 (0.094)	18.6 (0.732)	50.1 (1.972)	6.7
H	4th accumulator spring	2.5 (0.098)	14.6 (0.575)	29.9 (1.177)	4.9



Servo Body Disassembly, Inspection, and Reassembly

1. Clean all parts thoroughly in solvent, and dry them with compressed air. Blow out all passages.
2. Inspect the servo body for scoring and damage.
3. Check all valves for free movement. If any fail to slide freely, refer to valve body repair (see page 14-260).
4. Coat all parts with ATF during assembly.



VALVE SPRINGS SPECIFICATIONS

Valve Springs		Standard (New)-Unit: mm (in)			
		Wire Diameter	O.D.	Free Length	No. of Coils
A	Cut valve A spring	0.9 (0.035)	9.9 (0.390)	22.3 (0.878)	6.9
B	Shift valve B spring	0.8 (0.031)	7.1 (0.280)	23.7 (0.933)	9.7
C	5th accumulator spring A	2.5 (0.098)	16.6 (0.654)	46.9 (1.846)	7.8
D	5th accumulator spring B	1.9 (0.075)	10.0 (0.394)	38.5 (1.516)	10.6
E	2nd accumulator spring A	1.8 (0.071)	14.6 (0.575)	43.8 (1.724)	7.9
F	2nd accumulator spring B	1.85 (0.073)	9.4 (0.370)	32.5 (1.280)	8.7
G	3rd accumulator spring A	1.8 (0.071)	14.6 (0.575)	43.8 (1.724)	7.9
H	3rd accumulator spring B	1.85 (0.073)	9.4 (0.370)	32.5 (1.280)	8.7

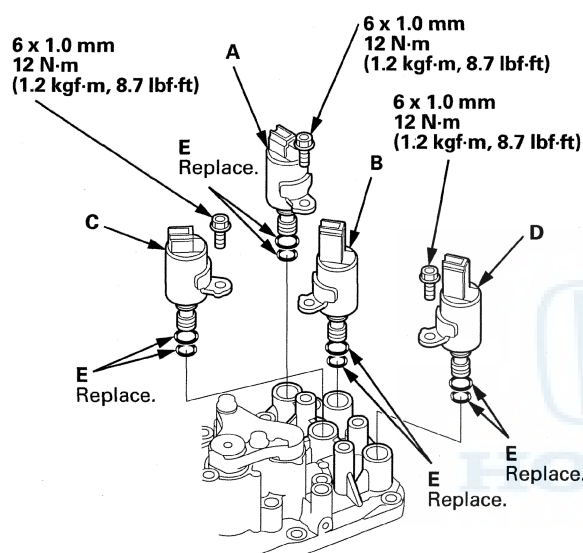
Valve Body

Shift Solenoid Valve Removal and Installation

NOTE: Do not hold the solenoid valve connector to remove and install the solenoid valve. Be sure to hold the solenoid valve body.

1. Remove the mounting bolts, then remove the solenoid valves by holding the solenoid valve body.
2. Install new O-rings (E) on each solenoid valve.

NOTE: A new solenoid valve comes with new O-rings. If you install a new solenoid valve, use the O-rings provided with it.



3. Install shift solenoid valve D (black connector) by holding the shift solenoid valve body; be sure the mounting bracket contacts to the servo body.
4. Install shift solenoid valve C (brown connector) by holding the shift solenoid valve body; be sure the mounting bracket contacts to the servo body.
5. Install shift solenoid valve B (black connector) by holding the shift solenoid valve body; be sure the mounting bracket contacts to the servo body.
6. Install shift solenoid valve A (brown connector) by holding the shift solenoid valve body; be sure the mounting bracket contacts to the bracket of shift solenoid valve B.

NOTE: Do not install shift solenoid valve A before installing shift solenoid valve B. If shift solenoid valve A is installed before installing shift solenoid valve B, it may damage the hydraulic control system.

Torque Converter Housing

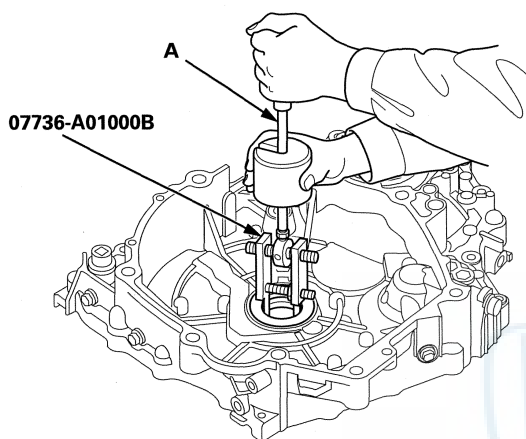


Mainshaft Bearing and Oil Seal Replacement

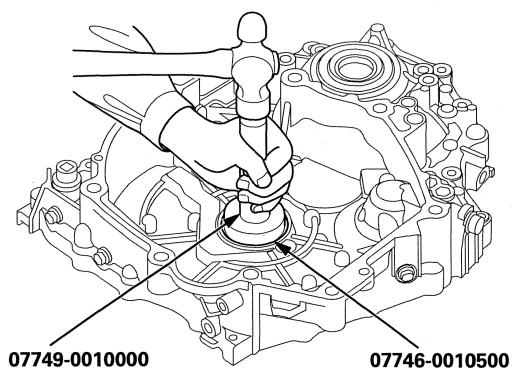
Special Tools Required

- Adjustable Bearing Puller, 25—40 mm 07736-A01000B
- Driver Handle, 15 x 135L 07749-0010000
- Bearing Driver Attachment, 62 x 68 mm 07746-0010500
- Bearing Driver Attachment, 72 x 75 mm 07746-0010600

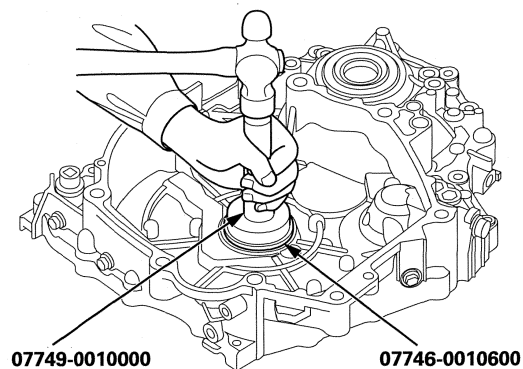
1. Remove the mainshaft bearing and oil seal using the adjustable bearing puller (20—40 mm) and a commercially available 3/8"-16 slide hammer (A).



2. Install the new mainshaft bearing until it bottoms in the torque converter housing using the driver handle and the bearing driver attachment (62 x 68 mm).



3. Install the new oil seal flush with the housing using the driver handle and the bearing driver attachment (72 x 75 mm).



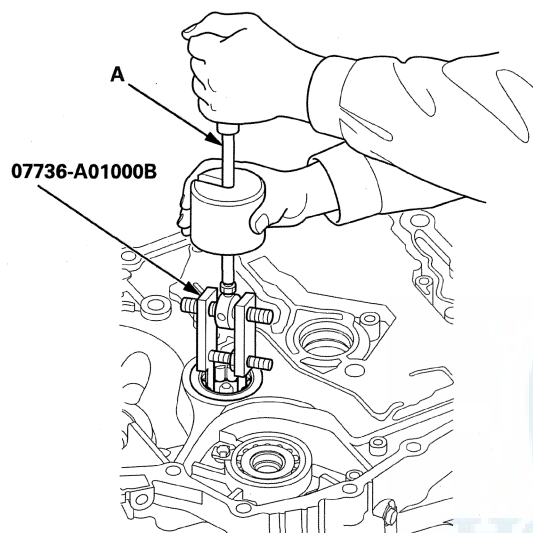
Torque Converter Housing

Countershaft Bearing Replacement

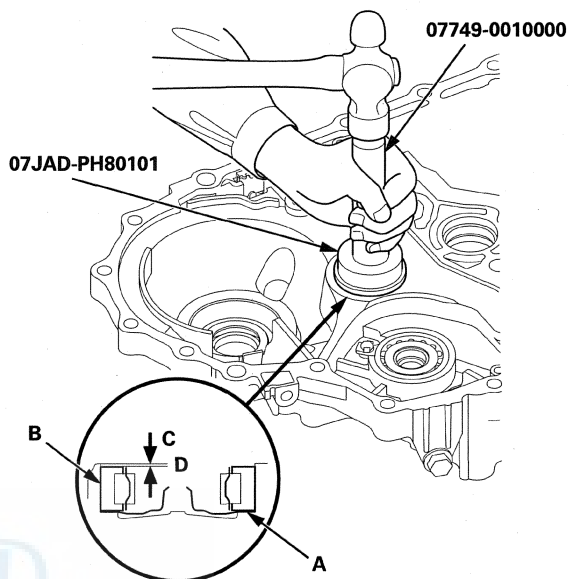
Special Tools Required

- Adjustable Bearing Puller, 25—40 mm 07736-A01000B
- Driver Handle, 15 x 135L 07749-0010000
- Oil Seal Driver Attachment, 58 mm 07JAD-PH80101

1. Remove the countershaft bearing using the adjustable bearing puller (20—40 mm) and a commercially available 3/8"-16 slide hammer (A).



2. Install the ATF guide plate (A).



3. Install the new countershaft bearing (B) in the housing using the driver handle and the oil seal driver attachment (58 mm); install the bearing outer race surface in height (C) of 0—0.03 mm (0—0.001 in) above the housing surface (D). Do not install the bearing exceeding 0.03 mm (0.001 in) high from housing surface.

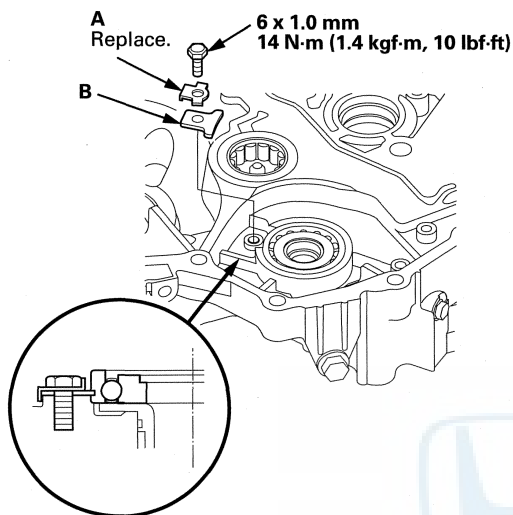


Secondary Shaft Bearing Replacement

Special Tools Required

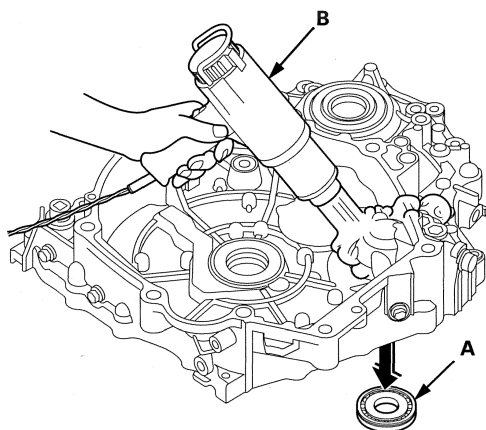
- Driver Handle, 15 x 135L 07749-0010000
- Bearing Driver Attachment, 62 x 68 mm 07746-0010500

1. Pry the lock tab, remove the bolt, then remove the lock washer (A) and the bearing set plate (B).

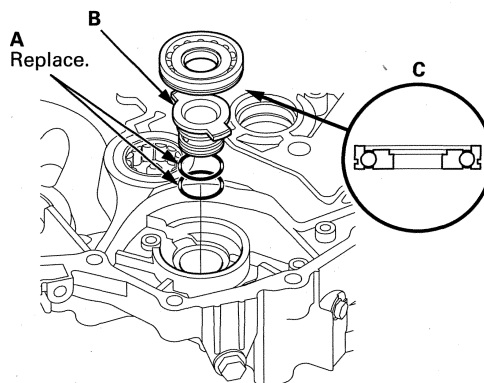


2. Remove the secondary shaft bearing (A) by heating the housing to about 212 °F (100 °C) with a heat gun (B). Do not heat the housing in excess 212 °F (100 °C).

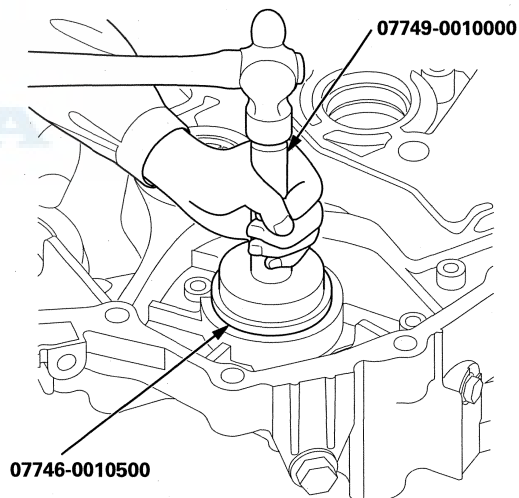
NOTE: Let the housing cool to normal temperature before installing the bearing.



3. Install the new O-rings (A) on the ATF guide collar (B), then install the ATF guide collar in the housing.



4. Install the new secondary shaft bearing (C) in the direction shown.
5. Drive the secondary shaft bearing using the driver handle and the bearing driver attachment (62 x 68 mm), and install it securely in the housing.

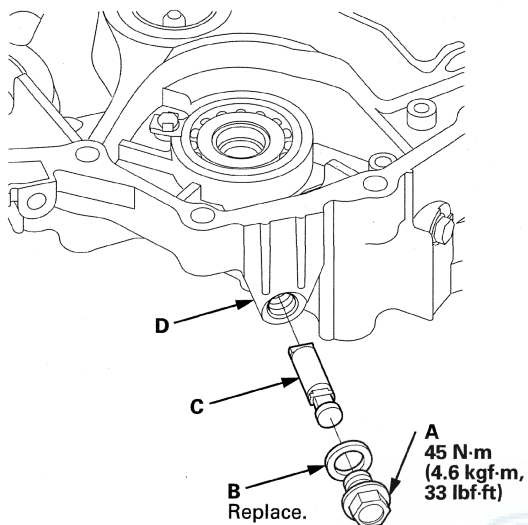


6. Check that the bearing groove aligns with the housing surface, then install the bearing set plate aligned with the bearing groove.
7. Install the new lock washer and the bolt, then bend the lock tab of the lock washer against the bolt head.

Torque Converter Housing

Lubrication Check Valve Replacement

1. Remove the sealing bolt (A) and the sealing washer (B).



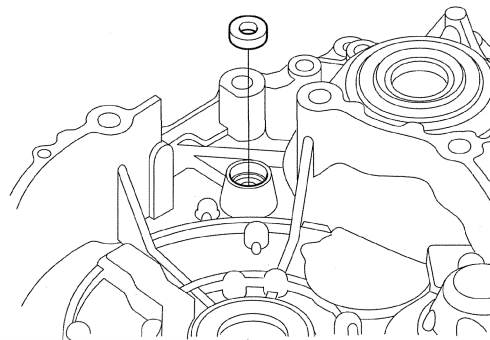
2. Remove the lubrication check valve (C) from the torque converter housing (D).
3. Install the lubrication check valve, a new sealing washer, and the sealing bolt.

Selector Control Shaft Oil Seal Replacement

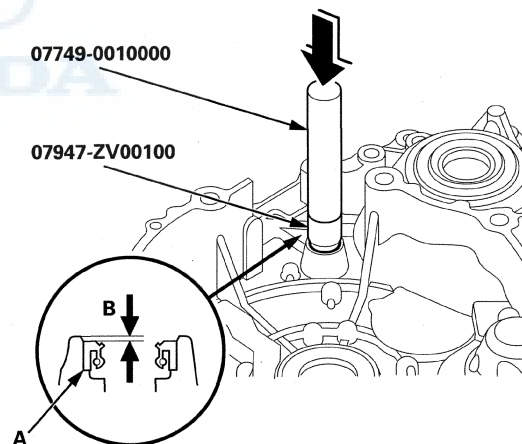
Special Tools Required

- Driver Handle, 15 x 135L 07749-0010000
- Oil Seal Driver Attachment 07947-ZV00100

1. Remove the oil seal from the torque converter housing.



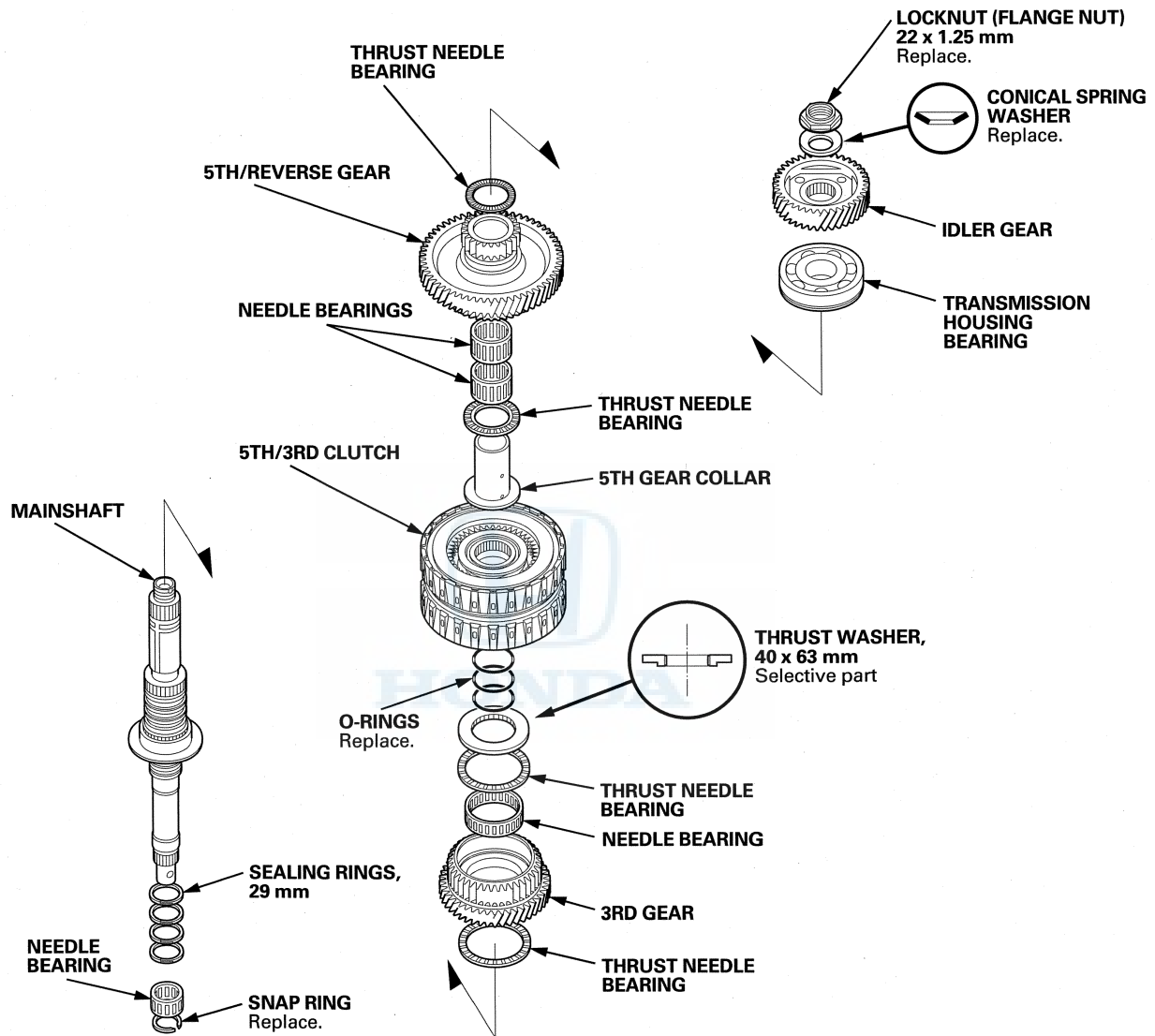
2. Install the new oil seal (A) in the torque converter housing to a depth (B) of 0.5–1.5 mm (0.02–0.06 in) below the housing surface using the driver handle and the oil seal driver attachment.





Mainshaft Disassembly, Inspection, and Reassembly

1. Inspect the thrust needle bearings and the needle bearings for galling and rough movement.

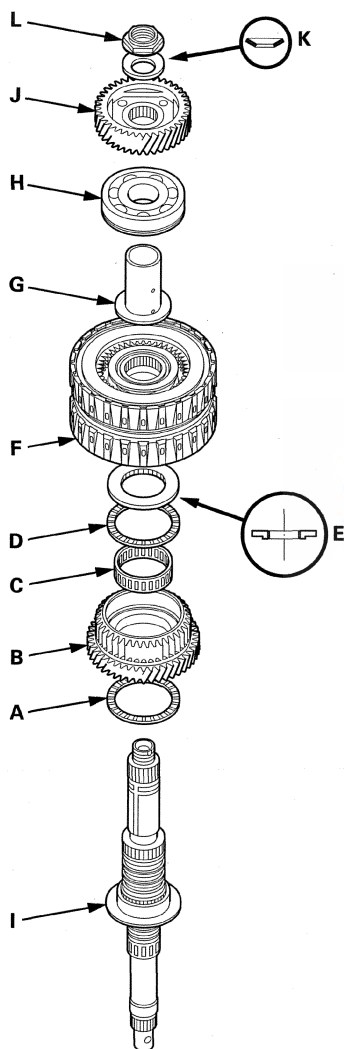


2. Inspect the splines for excessive wear and damage.
3. Check the shaft bearing surfaces for scoring and excessive wear.
4. Before installing the O-rings, wrap the shaft splines with tape to prevent O-ring damage.
5. Lubricate all parts with ATF during assembly.
6. Install the conical spring washer and the 40 x 63 mm thrust washer in the direction shown.
7. Replace the locknut and the conical spring washer with new ones when assembling the transmission.
8. Check the axial clearance of 3rd gear (see page 14-272).

Shafts and Clutches

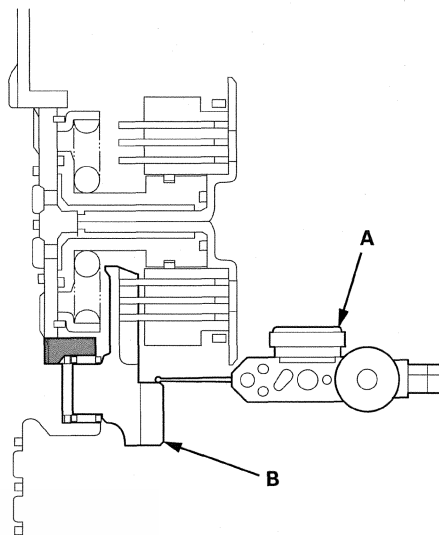
Mainshaft 3rd Gear Axial Clearance Inspection

1. Remove the mainshaft transmission housing bearing (see page 14-254).
2. Install the thrust needle bearing (A), 3rd gear (B), the needle bearing (C), the thrust needle bearing (D), the 40 x 63 mm thrust washer (E), 3rd/5th clutch (F), the 5th gear collar (G), and the transmission housing bearing (H) on the mainshaft (I). Do not install the O-rings during inspection.

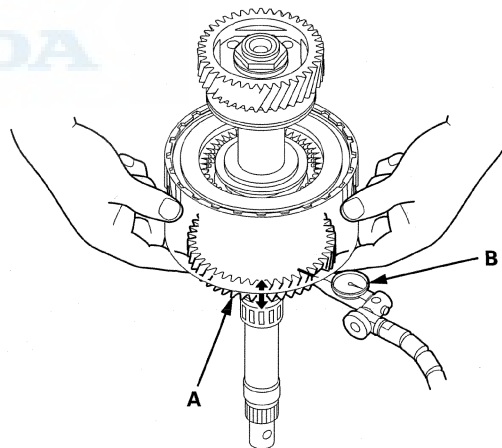


3. Install the idler gear (J) on the mainshaft using a press, then install the conical spring washer (K) and the locknut (L).
4. Tighten the locknut to 29 N·m (3.0 kgf·m, 22 lbf·ft).

5. Set the dial indicator (A) on 3rd gear (B).



6. Lift 3rd gear (A) up while holding the mainshaft, and use the dial indicator (B) to read the 3rd gear axial clearance.

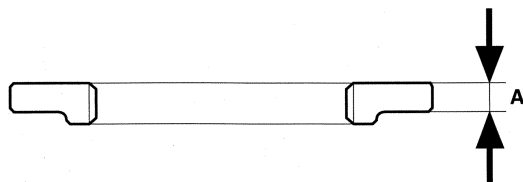


7. Measure the 3rd gear axial clearance in at least three places while moving 3rd gear. Use the average as the actual clearance.

Standard: 0.04–0.10 mm (0.002–0.004 in)



8. If the clearance is out of standard, remove the 40 x 63 mm thrust washer and measure its thickness (A).



9. Select and install a new thrust washer, then recheck.

THRUST WASHER, 40 x 63 mm

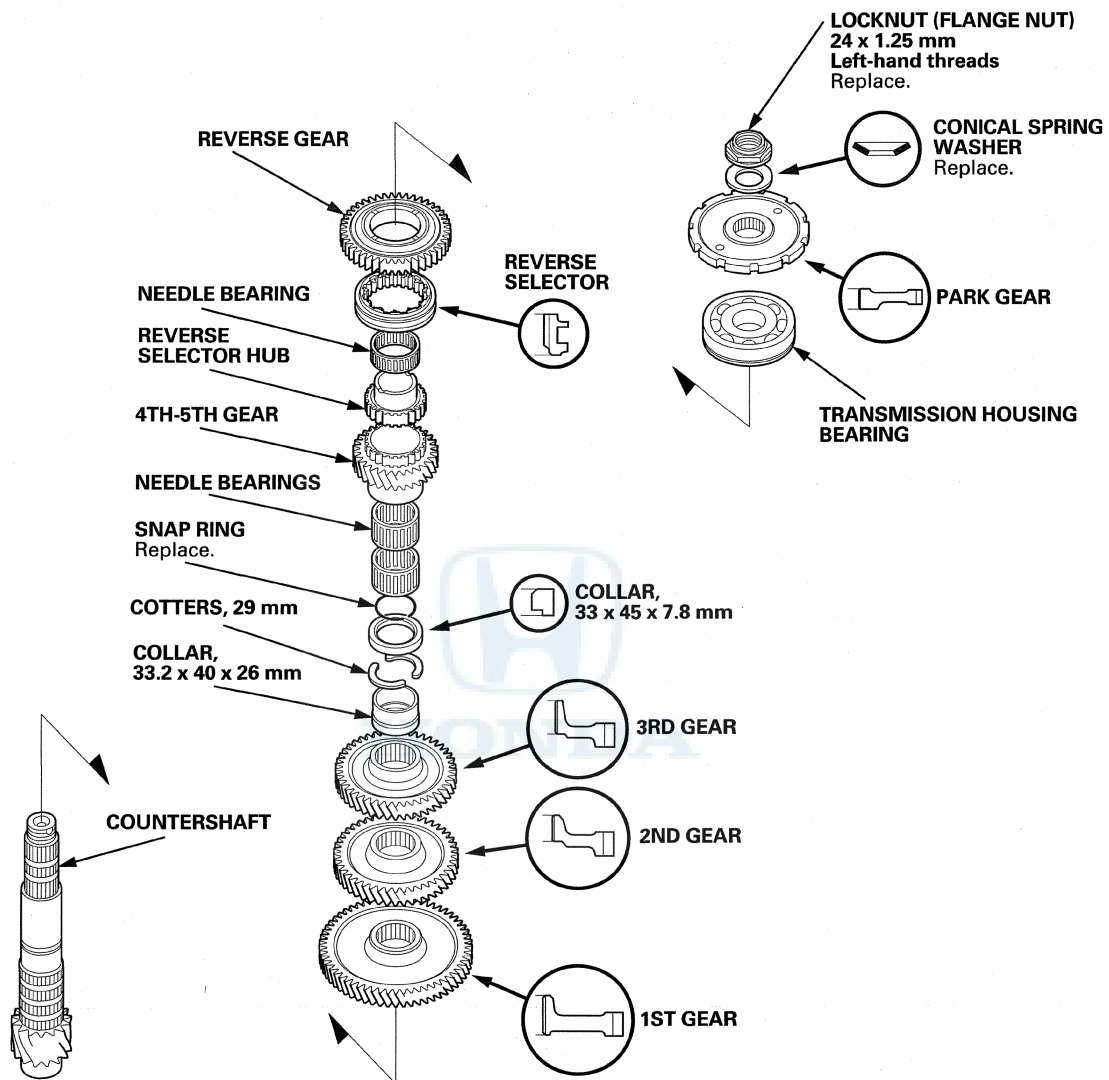
No.	Thickness
1	3.750 mm (0.1476 in)
2	3.775 mm (0.1486 in)
3	3.800 mm (0.1496 in)
4	3.825 mm (0.1506 in)
5	3.850 mm (0.1516 in)
6	3.875 mm (0.1526 in)
7	3.900 mm (0.1535 in)
8	3.925 mm (0.1545 in)
9	3.950 mm (0.1555 in)
10	3.975 mm (0.1565 in)
11	4.000 mm (0.1575 in)

10. After replacing the thrust washer, make sure the clearance is within standard.
11. Disassemble the installed parts from the mainshaft.
12. Reinstall the bearing in the transmission housing (see page 14-254).

Shafts and Clutches

Countershaft Disassembly, Inspection, and Reassembly

1. Inspect the needle bearings for galling and rough movement.



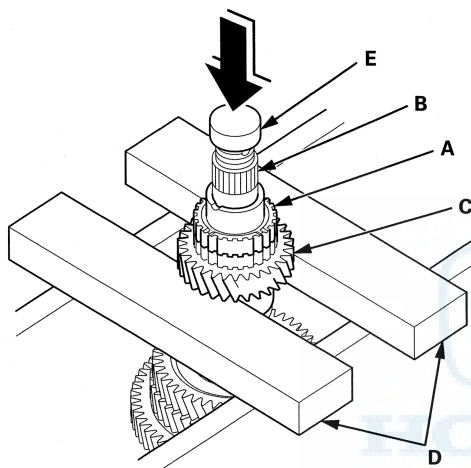
2. Inspect the splines for excessive wear and damage.
3. Check the shaft bearing surface for scoring and excessive wear.
4. Lubricate all parts with ATF during assembly.
5. Install the conical spring washer, the park gear, the reverse selector, the 33 x 45 x 7.8 mm collar, and the gears in the direction shown.
6. Replace the locknut and the conical spring washer with new ones when assembling the transmission. The countershaft locknut has left-hand threads.
7. Some reverse selector hubs are press-fitted to the countershaft; remove the hubs with a press (see page 14-275), and install them with the special tool and a press (see page 14-275).



Countershaft Reverse Selector Hub Removal

1. Remove the reverse selector hub from the countershaft by hand. If the reverse selector hub (A) cannot be removed by hand, it is press-fitted to the countershaft (B), and must be removed from the countershaft with a press. Place 4th-5th gear (C) on press bases (D), and place a shaft protector (E) between the countershaft and press to prevent damaging the countershaft.

NOTE: Some reverse selector hubs are not press-fitted, and can be removed without using a press.



2. Press the countershaft out of the press-fitted reverse selector hub, and remove the countershaft while holding the underside the countershaft. Do not let the countershaft fall down when pressing the countershaft out of the press-fitted reverse selector hub.
3. Remove the remaining parts from the countershaft, if necessary.

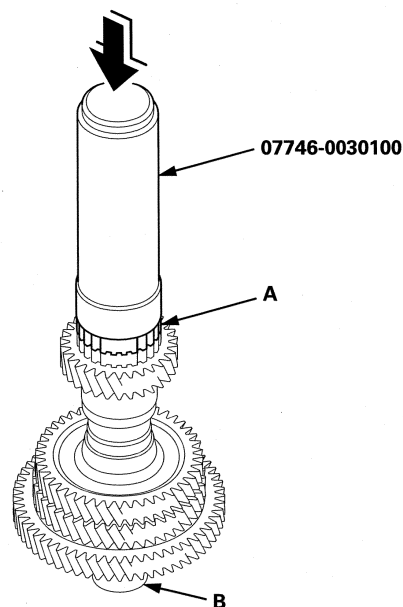
Countershaft Reverse Selector Hub Installation

Special Tools Required

Driver Handle, 40 mm I.D. 07746-0030100

1. Install 1st gear, 2nd gear, 3rd gear, the 33.2 x 40 x 26 mm collar, the 29 mm cotters, and the 33 x 45 x 7.8 mm collar on the countershaft, and secure them with the snap ring.
2. Install the needle bearings and the 4th-5th gear.
3. Slide the reverse selector hub (A) over the countershaft (B), then press it in place using the driver handle (40 mm I.D.) and a press.

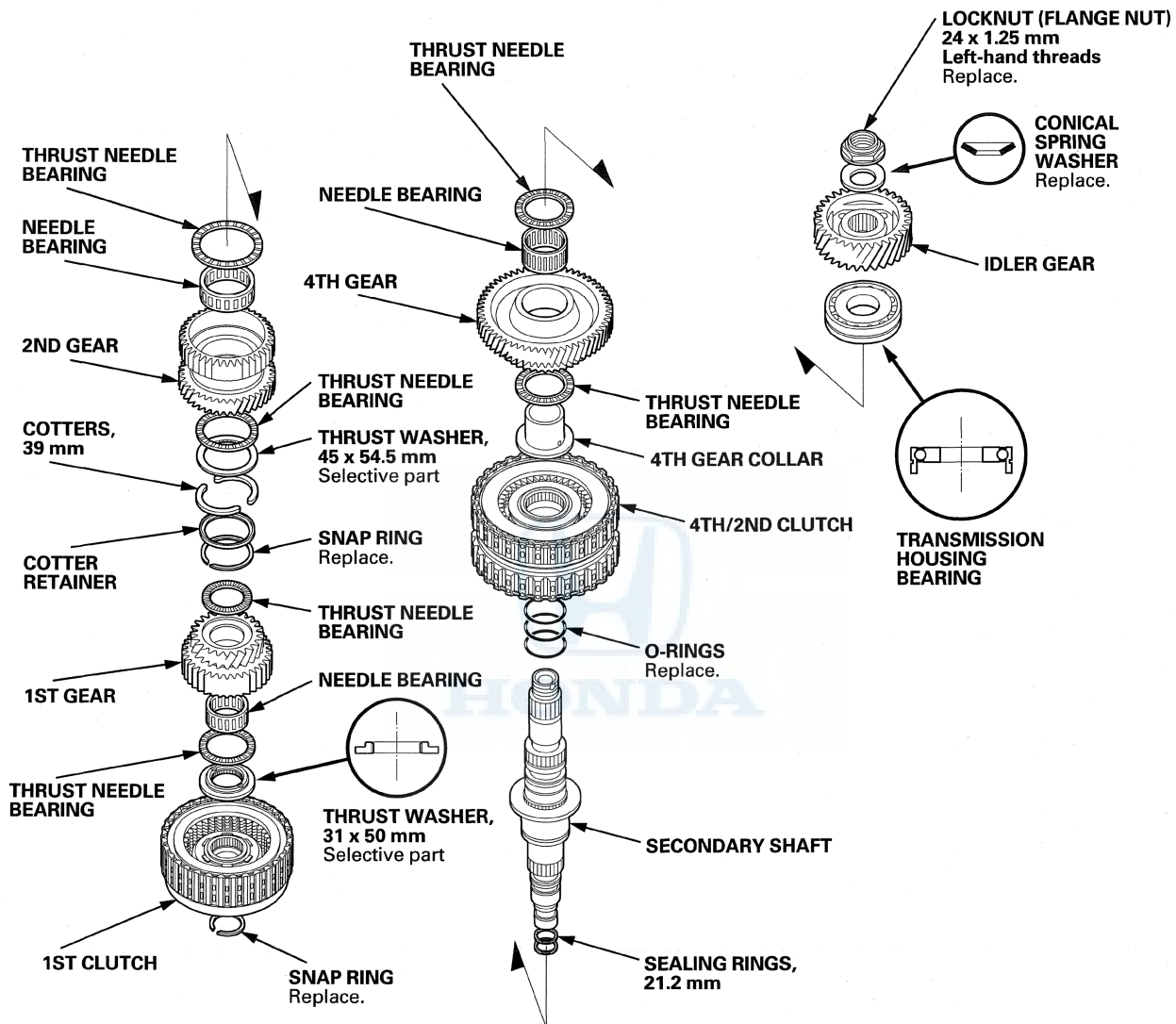
NOTE: Some reverse selector hubs are not press-fitted, and can be installed without using the a press.



Shafts and Clutches

Secondary Shaft Disassembly, Inspection, and Reassembly

1. Inspect the thrust needle bearings and the needle bearings for galling and rough movement.

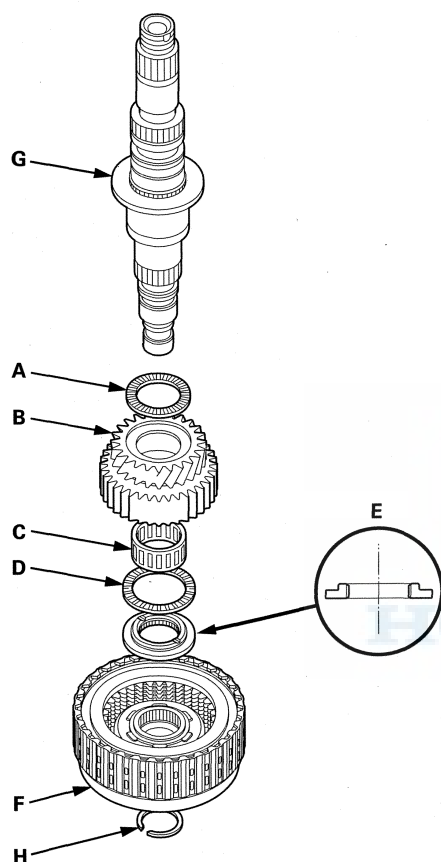


2. Inspect the splines for excessive wear and damage.
3. Check the shaft bearing surface for scoring and excessive wear.
4. Before installing the O-rings, wrap the shaft splines with tape to prevent O-ring damage.
5. Lubricate all parts with ATF during assembly.
6. Install the conical spring washer, the idler gear, and the 31 x 50 mm thrust washer in the direction shown.
7. Replace the locknut and the conical spring washer with new ones when assembling the transmission. The locknut has left-hand threads.
8. Check the axial clearance of 1st gear (see page 14-277) and 2nd gear (see page 14-278).
9. Inspect the condition of the sealing rings. If the sealing rings are worn, distorted, or damaged, replace them (see page 14-279).



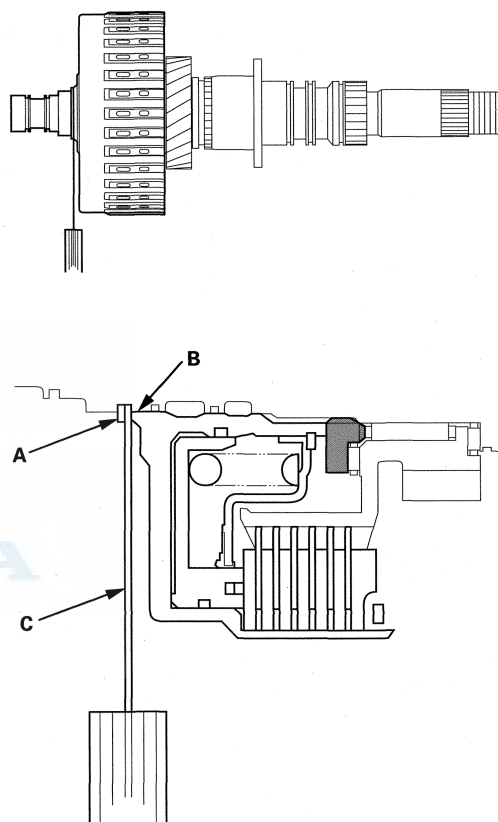
Secondary Shaft 1st Gear Axial Clearance Inspection

1. Install the thrust needle bearing (A), 1st gear (B), the needle bearing (C), the thrust needle bearing (D), the 31 x 50 mm thrust washer (E), and the 1st clutch (F) on the secondary shaft (G), then secure them with the snap ring (H).



2. Measure the clearance between the snap ring (A) and the 1st clutch guide (B) with a feeler gauge (C), in at least three places. Use the average as the actual clearance.

Standard: 0.04—0.12 mm (0.002—0.004 in)

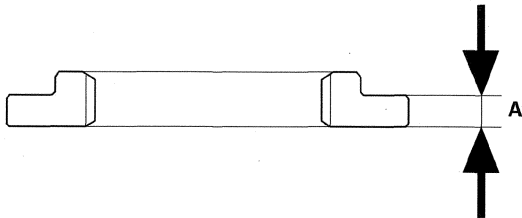


(cont'd)

Shafts and Clutches

Secondary Shaft 1st Gear Axial Clearance Inspection (cont'd)

3. If the clearance is out of standard, remove the 31 x 50 mm thrust washer and measure its thickness (A).



4. Select and install a new thrust washer, then recheck.

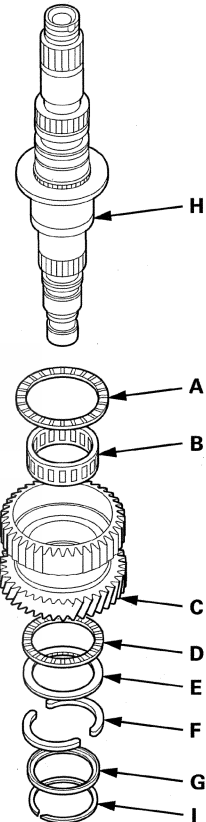
THRUST WASHER, 31 x 50 mm

No.	Thickness
1	3.925 mm (0.1545 in)
2	3.950 mm (0.1555 in)
3	3.975 mm (0.1565 in)
4	4.000 mm (0.1575 in)
5	4.025 mm (0.1585 in)
6	4.050 mm (0.1594 in)
7	4.075 mm (0.1604 in)
8	4.100 mm (0.1614 in)
9	4.125 mm (0.1624 in)
10	4.150 mm (0.1634 in)
11	4.175 mm (0.1644 in)
12	4.200 mm (0.1654 in)
13	4.225 mm (0.1663 in)
14	4.250 mm (0.1673 in)
15	4.275 mm (0.1683 in)
16	4.300 mm (0.1693 in)
17	4.325 mm (0.1703 in)

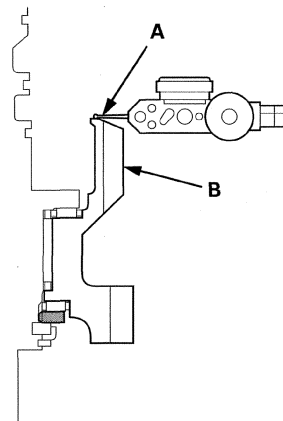
5. After replacing the thrust washer, make sure the clearance is within standard.
6. Disassemble the installed parts from the secondary shaft.

Secondary Shaft 2nd Gear Axial Clearance Inspection

1. Install the thrust needle bearing (A), the needle bearing (B), 2nd gear (C), the thrust needle bearing (D), the 43 x 54.5 mm thrust washer (E), the 39 mm cotter (F), and the cotter retainer (G) on the secondary shaft (H), then secure them with the snap ring (I).



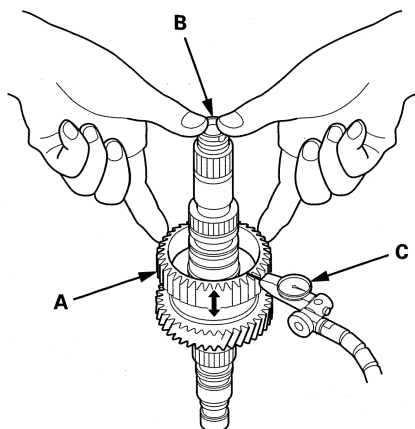
2. Set the dial indicator (A) on 2nd gear (B).





Secondary Shaft Sealing Ring Replacement

3. Lift 2nd gear (A) up while holding the secondary shaft (B), and use the dial indicator (C) to read the 2nd gear axial clearance.



4. Measure the 2nd gear axial clearance in at least three places while turning 2nd gear. Use the average as the actual clearance.

Standard: 0.04–0.12 mm (0.002–0.005 in)

5. If the clearance is out of standard, remove the 43 x 54.5 mm thrust washer and measure its thickness.
6. Select and install a new thrust washer, then recheck.

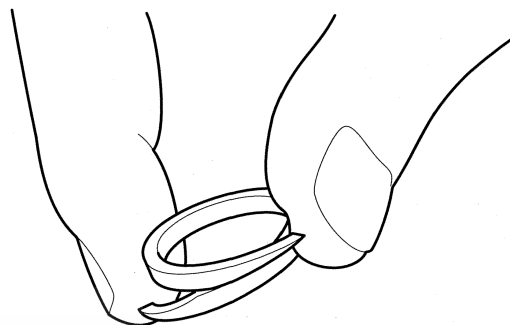
THRUST WASHER, 43 x 54.5 mm

No.	Thickness
1	2.900 mm (0.114 in)
2	2.925 mm (0.115 in)
3	2.950 mm (0.116 in)
4	2.975 mm (0.117 in)
5	3.000 mm (0.118 in)
6	3.025 mm (0.119 in)
7	3.050 mm (0.120 in)
8	3.075 mm (0.121 in)
9	3.100 mm (0.122 in)
10	3.125 mm (0.123 in)
11	3.150 mm (0.124 in)
12	3.175 mm (0.125 in)
13	3.200 mm (0.126 in)

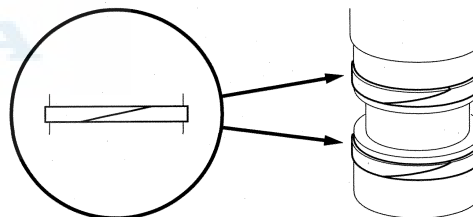
7. After replacing the thrust washer, make sure the clearance is within standard.
8. Disassemble the installed parts from the secondary shaft.

The sealing rings are synthetic resin with chamfered ends. Check the condition of the sealing rings, and replace them only if they are worn, distorted, or damaged.

1. For a better fit, squeeze sealing rings together slightly before installing them.



2. Apply ATF to the new sealing rings, then install them on the secondary shaft.



3. After installing the sealing rings, verify the following:
- The rings are fully seated in the groove.
 - The rings are not twisted.
 - The chamfered ends of the rings are properly joined.

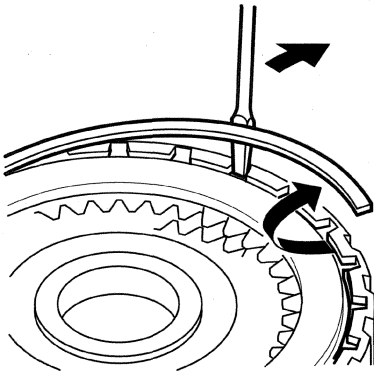
Shafts and Clutches

Clutch Disassembly

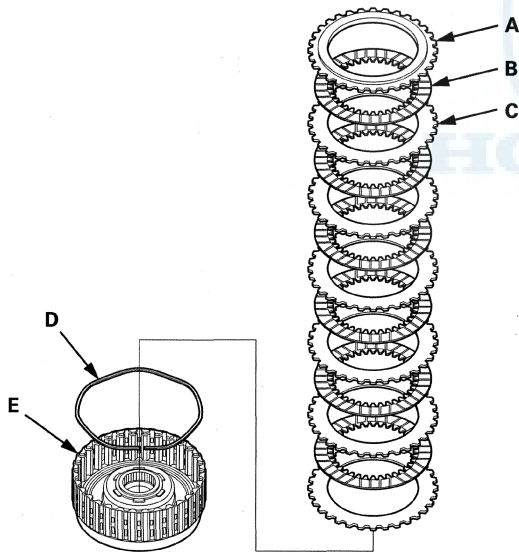
Special Tools Required

Clutch Spring Compressor Set 07LAE-PX40000

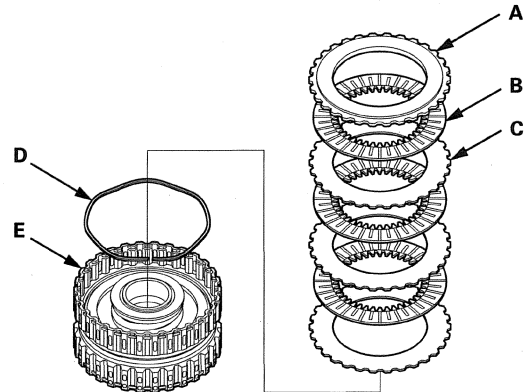
1. Remove the snap ring with a screwdriver.



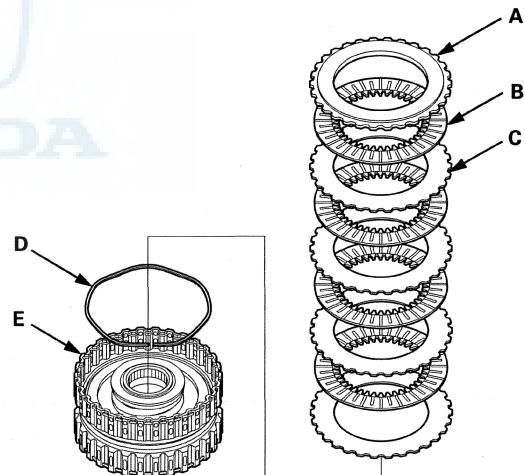
2. Remove the clutch end-plate (A), the clutch discs (B) (6), the clutch wave-plates (C) (6), and the wave spring (D) from the 1st clutch drum (E).



3. Remove the clutch end-plate (A), the clutch discs (B) (3), the clutch flat-plates (C) (3), and the wave spring (D) from the 2nd clutch drum (E).

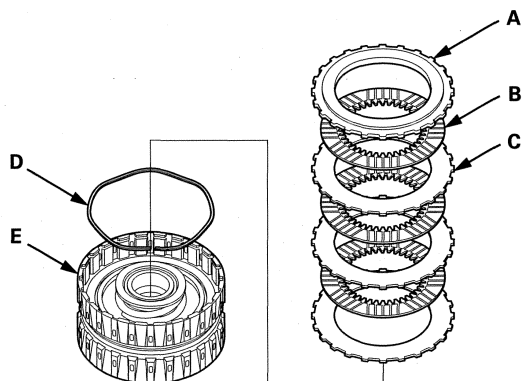


4. Remove the clutch end-plate (A), the clutch discs (B) (4), the clutch flat-plates (C) (4), and the wave spring (D) from the 4th clutch drum (E).

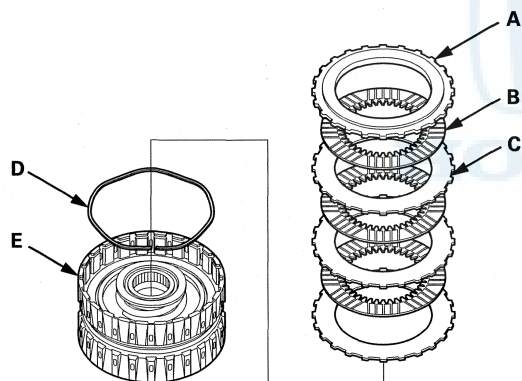




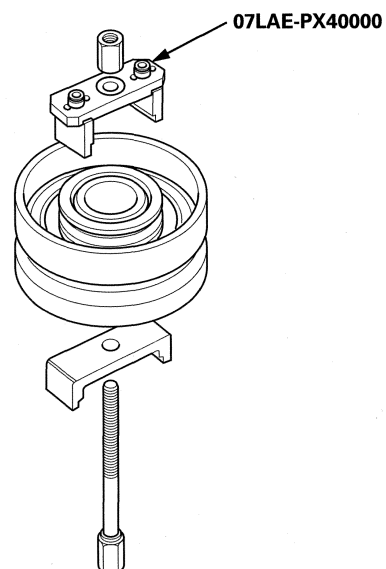
5. Remove the clutch end-plate (A), the clutch discs (B) (3), the clutch wave-plates (C) (3), and the wave spring (D) from the 4th clutch drum (E).



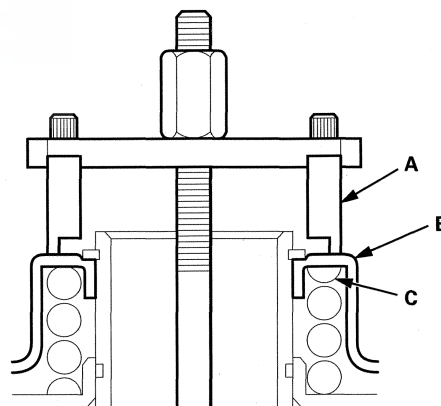
6. Remove the clutch end-plate (A), the clutch discs (B) (3), the clutch wave-plates (C) (3), and the wave spring (D) from the 5th clutch drum (E).



7. Install the clutch spring compressor set.



8. Set the clutch spring compressor attachment (A) on the 1st clutch spring retainer (B) so the clutch spring compressor attachment works on the clutch return spring (C).



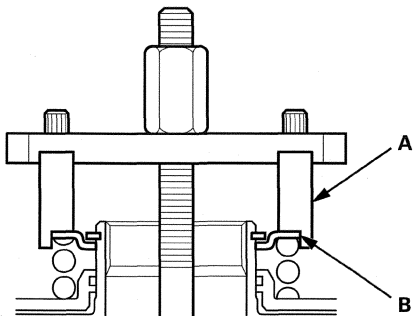
9. If either end of the clutch spring compressor attachment is not set over the clutch return spring end, the spring retainer may be tilted and damaged. If the retainer is tilted when compressing the return spring, reset the clutch spring compressor attachment on the retainer at another range.

(cont'd)

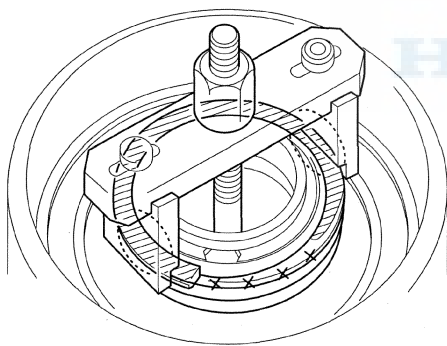
Shafts and Clutches

Clutch Disassembly (cont'd)

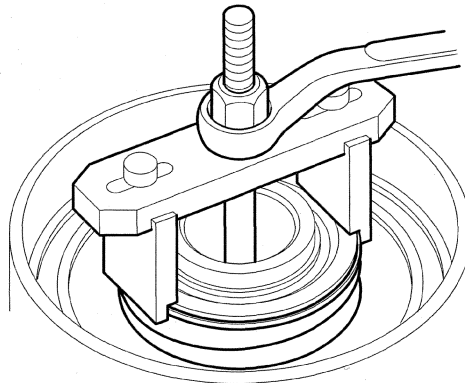
10. Be sure the clutch spring compressor attachment (A) is adjusted to have full contact with the spring retainer (B) on the 2nd, 3rd, 4th, and 5th clutches, and set either end of the spring compressor attachment over the clutch return spring end.



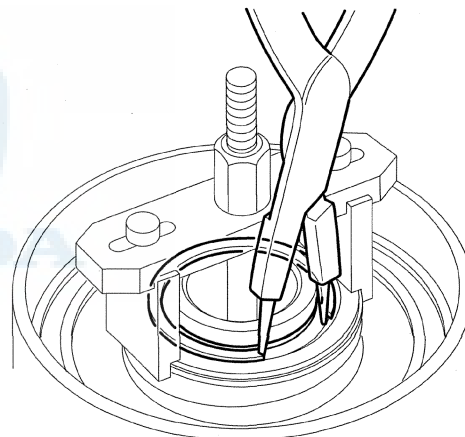
11. Check the placement of the clutch spring compressor attachment. If either end of the clutch spring compressor attachment is set over an area of the spring retainer that is unsupported by the return spring, the spring retainer may be damaged.



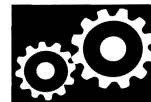
12. Compress the return spring until the snap ring can be removed.



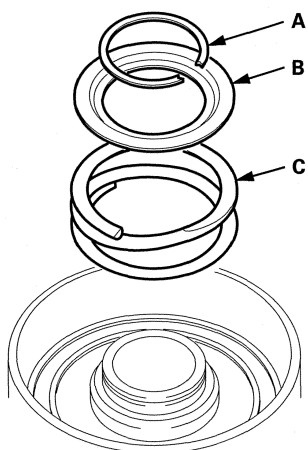
13. Remove the snap ring with snap ring pliers.



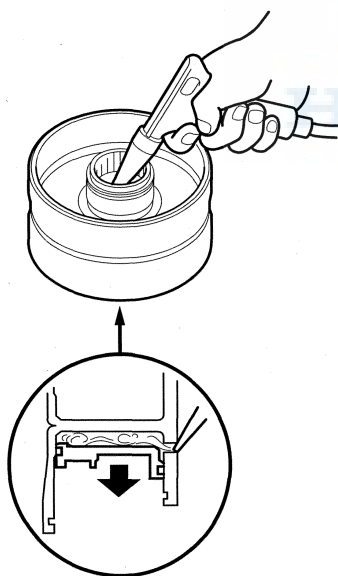
14. Remove the clutch spring compressor set.



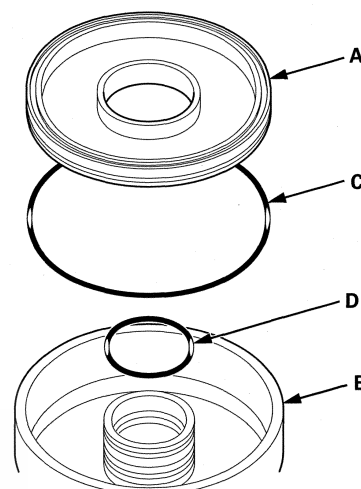
15. Remove the snap ring (A), the spring retainer (B), and the return spring (C).



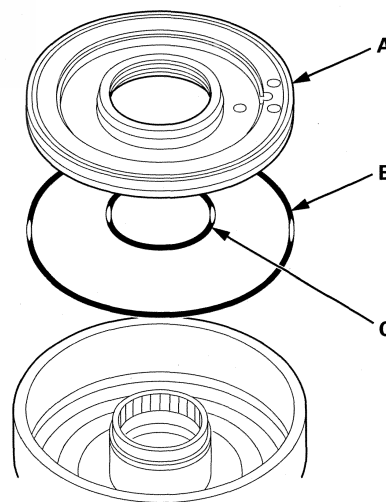
16. Wrap a shop rag around the clutch drum, and apply air pressure to the fluid passage to remove the piston. Place a finger tip on the other passage while applying air pressure.



17. Remove the clutch piston (A) from the clutch drum (B) of the 1st, 2nd, and 4th clutches. Remove the O-ring (C) from the clutch piston, and O-ring (D) from the drum.



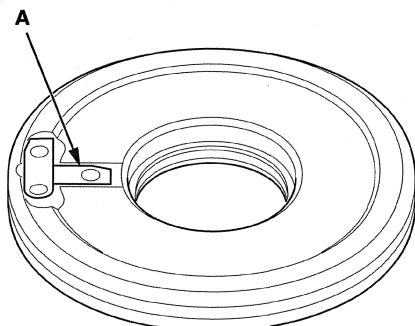
18. Remove the clutch piston (A) from the clutch drum of the 3rd and 5th clutches, and remove the outer O-ring (B) and inner O-ring (C) from the piston.



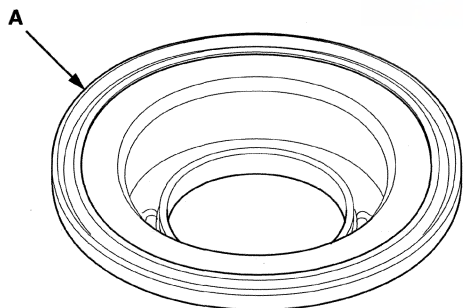
Shafts and Clutches

Clutch Inspection

1. Inspect the clutch pistons and the clutch piston check valves (A).



2. If the clutch piston check valve is loose or damaged, replace the clutch piston.
3. Check the spring retainer for wear and damage.
4. If the spring retainer is worn or damaged, replace it.
5. Check the oil seal (A) on the 1st clutch spring retainer for wear, damage, and peeling.
6. If the oil seal is worn, damaged, or peeling, replace the spring retainer.



7. Inspect the clutch discs, the clutch plates, and the clutch end-plate for wear, damage, and discoloration.

Clutch Discs Standard Thickness

- 1st Clutch: 1.94 mm (0.076 in)
- 2nd Clutch: 1.96 mm (0.077 in)
- 3rd Clutch: 1.94 mm (0.076 in)
- 4th Clutch: 1.96 mm (0.077 in)
- 5th Clutch: 1.94 mm (0.076 in)

Clutch Plates Standard Thickness

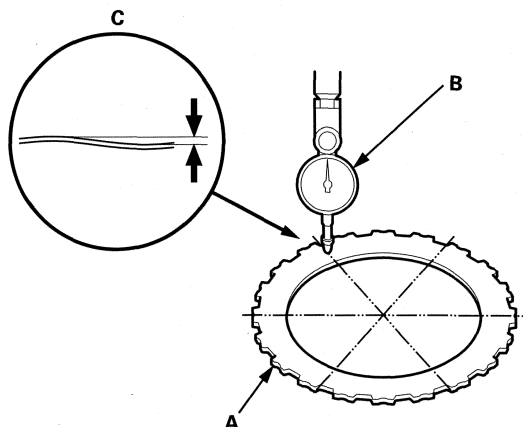
- 1st Clutch (wave-plates): 1.6 mm (0.063 in)
- 2nd (flat-plates): 2.3 mm (0.091 in)
- Clutch
- 3rd Clutch (wave-plates): 2.0 mm (0.079 in)
- 4th Clutch (flat-plates): 1.6 mm (0.063 in)
- 5th Clutch (wave-plate): 2.0 mm (0.079 in)

8. If the clutch discs are worn or damaged, replace them as a set. If the clutch discs are replaced, inspect the clearance between the clutch end-plate and the top disc.
9. If any flat-plate is worn, damaged, or discolored, replace them as a set. If the clutch flat-plates are replaced, inspect the clearance between the clutch end-plate and the top disc.
10. If any wave-plate is worn, damaged, or discolored, replace the damaged plate with a new plate, and inspect the other wave-plates for a phase difference. If the clutch wave-plate is replaced, inspect the clearance between the clutch end-plate and the top disc.
11. If the clutch end-plate is worn, damaged, or discolored, inspect the clearance between the clutch end-plate and the top disc, then replace the clutch end-plate.



Clutch Wave-Plate Phase Difference Inspection

1. Place the clutch wave-plate (A) on a surface plate, and set a dial indicator (B) on the wave-plate.



2. Find the bottom (C) of a phase difference of the wave-plate, zero the dial indicator, and make a reference mark on the bottom of the wave-plate.

3. Measure the phase differences of 1st clutch wave-plates.

- 1. Rotate the clutch wave-plate about 5 or 6 tooth while holding the wave-plate by its circumference. The dial indicator should be at the top of a phase difference. Do not rotate the wave-plate while holding its surface, always rotate it by holding its circumference.
- 2. Read the dial indicator. The dial indicator reads the phase difference of the wave-plate between the bottom and top.

Standard: 0.07—0.20 mm (0.003—0.008 in)

- 3. Rotate the clutch wave-plate about 5 or 6 tooth. The dial indicator should be at the bottom of a phase difference. Zero the dial indicator.
- 4. Measure the phase difference at the other two tops of the wave-plate by following steps -1 thru -3.

4. Measure the phase differences of 3rd and 5th clutch wave-plates.

- 1. Rotate the clutch wave-plate about 60 degrees while holding the wave-plate by its circumference. The dial indicator should be at the top of a phase difference. Do not rotate the wave-plate while holding its surface, always rotate it by holding its circumference.
- 2. Read the dial indicator. The dial indicator reads the phase difference of the wave-plate between the bottom and top.

Standard: 0.07—0.20 mm (0.003—0.008 in)

- 3. Rotate the clutch wave-plate another 60 degrees. The dial indicator should be at the bottom of a phase difference. Zero the dial indicator.
- 4. Measure the phase difference at the other two tops of the wave-plate by following steps -1 thru -3.
5. If two of the three measurements are within the standard, the wave-plate is OK. If two of the three measurements are out of the standard, replace the wave-plate.

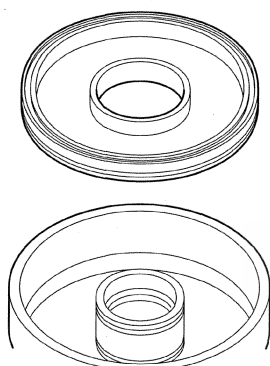
Shafts and Clutches

Clutch Clearance Inspection

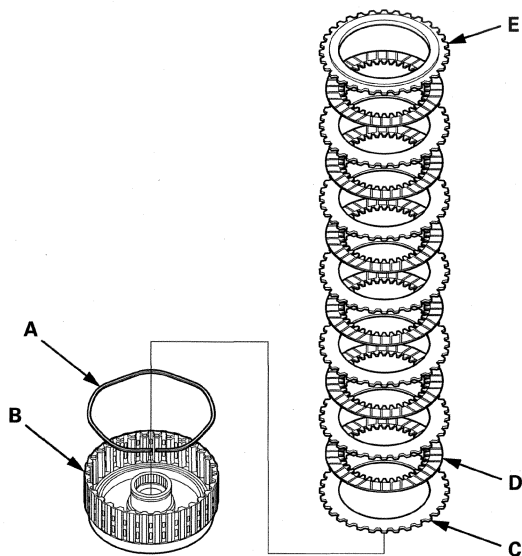
Special Tools Required

Clutch Compressor Attachment 07ZAE-PRP0100

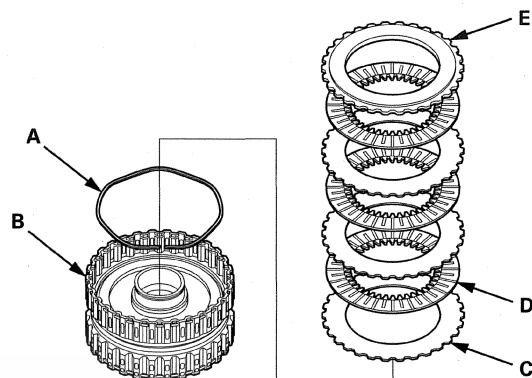
1. Inspect the clutch piston, the discs, the plates, and the end-plate for wear and damage (see page 14-284), and inspect the clutch wave-plate phase difference (see page 14-285), if necessary.
2. Install the clutch piston in the clutch drum. Do not install the O-rings on the clutch piston during inspection.



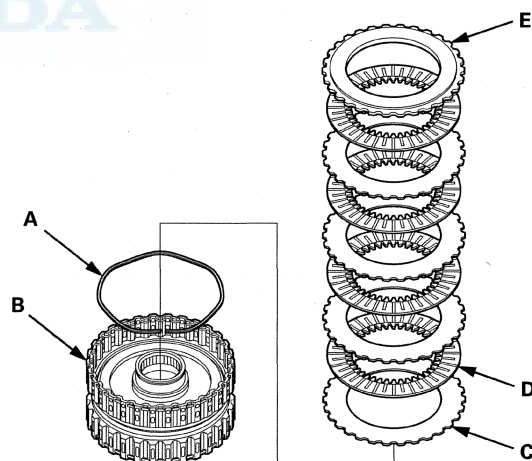
3. Install the wave spring (A) in the 1st clutch drum (B). Starting with the clutch wave-plate, alternately install the wave-plates (C) (6) and discs (D) (6). Install the clutch end-plate (E) with the flat side down on the top disc.



4. Install the wave spring (A) in the 2nd clutch drum (B). Starting with the clutch flat-plate, alternately install the flat-plates (C) (3) and the discs (D) (3). Install the clutch end-plate (E) with the flat side down on the top disc.

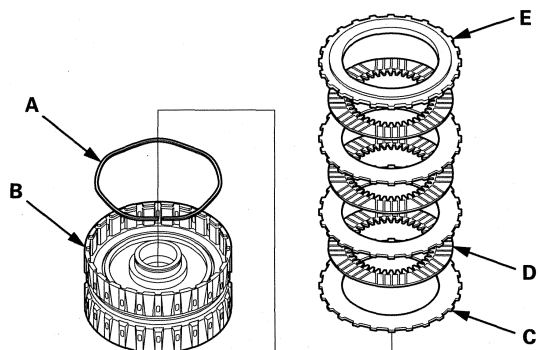


5. Install the wave spring (A) in the 4th clutch drum (B). Starting with the clutch flat-plate, alternately install the flat-plates (C) (4) and the discs (D) (4). Install the clutch end-plate (E) with the flat side down on the top disc.

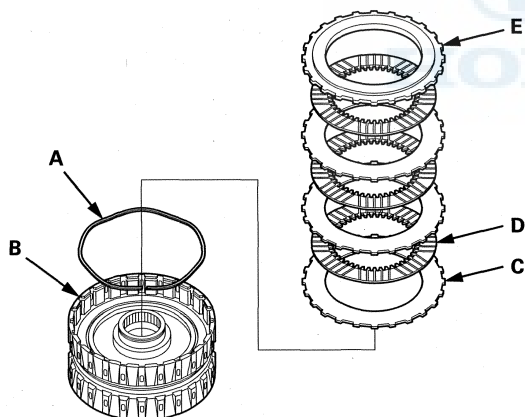




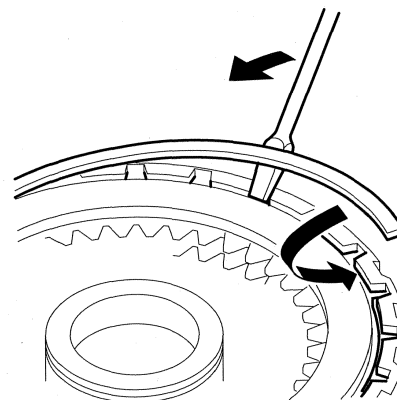
6. Install the wave spring (A) in the 3rd clutch drum (B). Starting with the clutch wave-plate, alternately install the wave-plates (C) (3) and the discs (D) (3). Install the clutch end-plate (E) with the flat side down on the top disc.



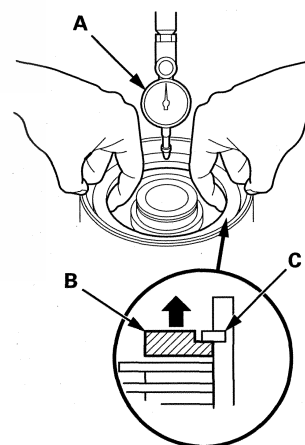
7. Install the wave spring (A) in the 5th clutch drum (B). Starting with the clutch wave-plate, alternately install the wave-plates (C) (3) and the discs (D) (3). Install the clutch end-plate (E) with the flat side down on the top disc.



8. Install the snap ring with a screwdriver to secure the clutch end-plate.



9. Set a dial indicator (A) on the clutch end-plate (B).



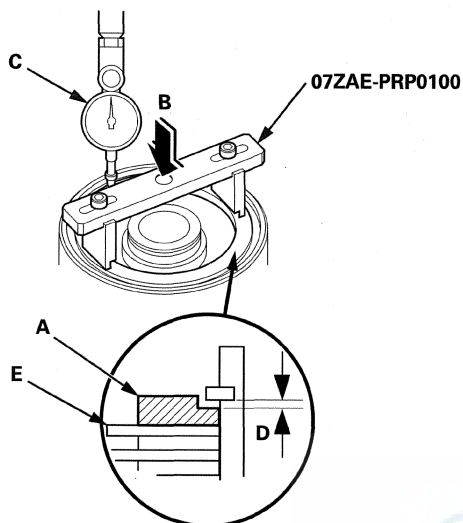
10. Zero the dial indicator with the clutch end-plate lifted up to the snap ring (C).

(cont'd)

Shafts and Clutches

Clutch Clearance Inspection (cont'd)

11. Release the clutch end-plate to lower it, then put the clutch compressor attachment on the end-plate (A).

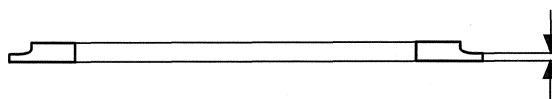


12. For the 1st, 3rd, and 5th clutches:
Press the clutch compressor attachment down with 150—160 N (15—16 kgf, 33—35 lbf) (B) using a force gauge, and read the dial indicator (C). The dial indicator reads the clearance (D) between the clutch end-plate and top disc (E). Take measurements in at least three places, and use the average as the actual clearance.
13. For 2nd and 4th clutches:
Press the clutch compressor attachment down with 39 N (4 kgf, 9 lbf) (B) using a force gauge, and read the dial indicator (C). The dial indicator reads the clearance (D) between the clutch end-plate and top disc (E). Take measurements in at least three places, and use the average as the actual clearance.

Clearance between Clutch End-Plate and Top Disc Service Limit

- 1st clutch: 1.62—1.82 mm (0.064—0.072 in)
2nd clutch: 0.5—0.7 mm (0.020—0.028 in)
3rd clutch: 0.73—0.93 mm (0.029—0.037 in)
4th clutch: 0.7—0.9 mm (0.028—0.035 in)
5th clutch: 0.73—0.93 mm (0.029—0.037 in)

14. If the clearance of the 1st, 3rd, or 5th clutch is out of the service limit, select a new clutch end-plate from the following table.



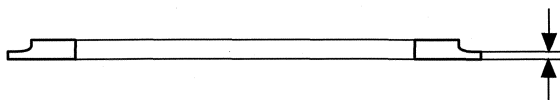
1ST, 3RD and 5TH CLUTCH END-PLATES

Mark	Thickness
1	2.1 mm (0.083 in)
2	2.2 mm (0.087 in)
3	2.3 mm (0.091 in)
4	2.4 mm (0.094 in)
5	2.5 mm (0.098 in)
6	2.6 mm (0.102 in)
7	2.7 mm (0.106 in)
8	2.8 mm (0.110 in)
9	2.9 mm (0.114 in)



1st Clutch Reassembly

15. If the clearance of the 2nd or 4th clutch is out of the service limit, remove the clutch end-plate and check the clutch end-plate mark. Select a new clutch end-plate from the following tables by the mark on the old clutch end-plate. Use the AC-AL Plates table when the old clutch end-plate is marked with between AC and AL. Use the AM-AV Plates table when the old clutch end-plate is marked with between AM and AV.



2ND and 4TH CLUTCH END-PLATES AC-AL Plates

Mark	Thickness
AC	2.1 mm (0.083 in)
AD	2.2 mm (0.087 in)
AE	2.3 mm (0.091 in)
AF	2.4 mm (0.094 in)
AG	2.5 mm (0.098 in)
AH	2.6 mm (0.102 in)
AJ	2.7 mm (0.106 in)
AK	2.8 mm (0.110 in)
AL	2.9 mm (0.114 in)

AM-AV Plates

Mark	Thickness
AM	2.1 mm (0.083 in)
AN	2.2 mm (0.087 in)
AP	2.3 mm (0.091 in)
AQ	2.4 mm (0.094 in)
AR	2.5 mm (0.098 in)
AS	2.6 mm (0.102 in)
AT	2.7 mm (0.106 in)
AU	2.8 mm (0.110 in)
AV	2.9 mm (0.114 in)

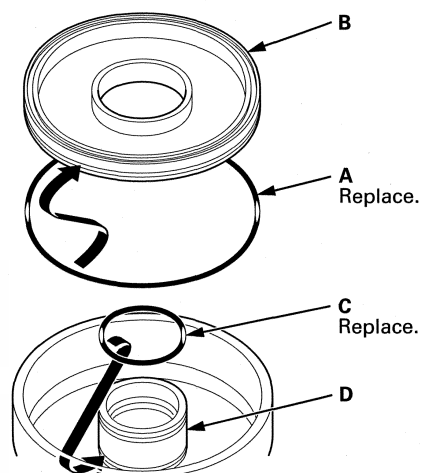
16. Install the new clutch end-plate, and recheck the clearance. If the thickest clutch end-plate is installed but the clearance is still over the service limit, replace the clutch discs and plates.

Special Tools Required

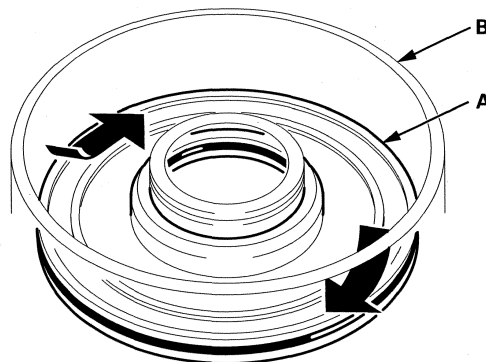
Clutch Spring Compressor Set 07LAE-PX40000

NOTE: Coat all parts with ATF during reassembly.

1. Soak the clutch discs thoroughly in ATF for a minimum of 30 minutes.
2. Install a new O-ring (A) on the clutch piston (B), and install a new O-ring (C) on the clutch drum (D).



3. Coat the piston O-ring with ATF, and install the clutch piston (A) in the clutch drum (B) while applying pressure and rotating to ensure proper seating. Do not pinch the O-ring.

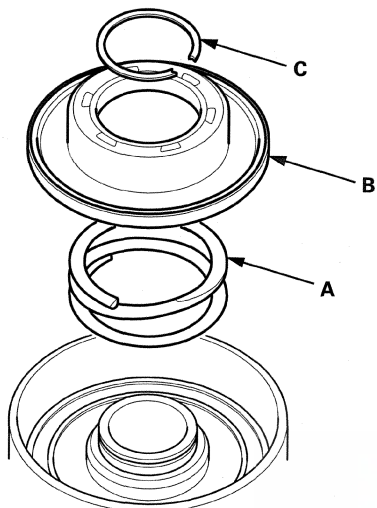


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Shafts and Clutches

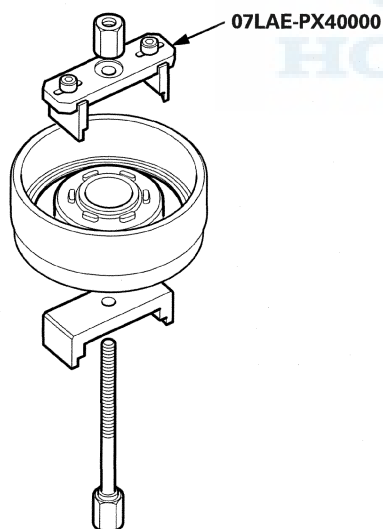
1st Clutch Reassembly (cont'd)

4. Install the return spring (A), and install the spring retainer (B) adjusted (center of tolerance) to prevent damaging the retainer oil seal.

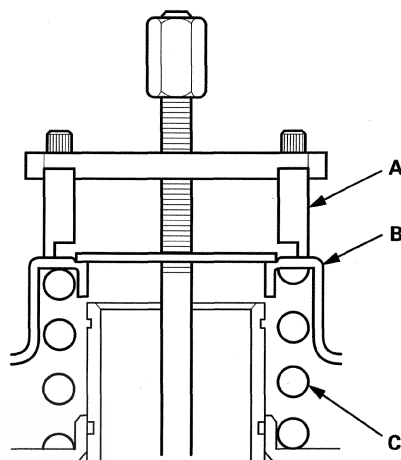


5. Position the snap ring (C) on the spring retainer.

6. Install the clutch spring compressor set.

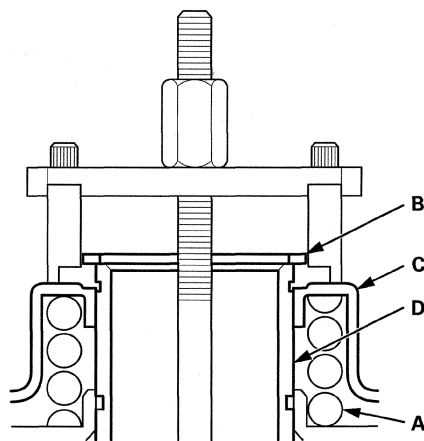


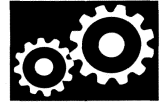
7. Set the clutch spring compressor attachment (A) on the spring retainer (B), and over the clutch return spring end, so the clutch spring compressor attachment works on the clutch return spring (C).



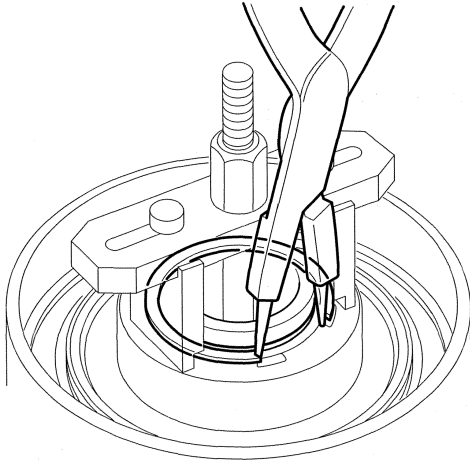
8. Check the placement of the clutch spring compressor attachment. If either end of the clutch spring compressor attachment is not set over the clutch return spring end, the spring retainer may be damaged.

9. Coat the mating areas of the spring retainer oil seal and the clutch piston with ATF. Compress the return spring (A) carefully until the snap ring (B) can be installed, and install the spring retainer (C) to ensure proper seating in the clutch piston, and over the clutch hub (D). Do not pinch the spring retainer oil seal.





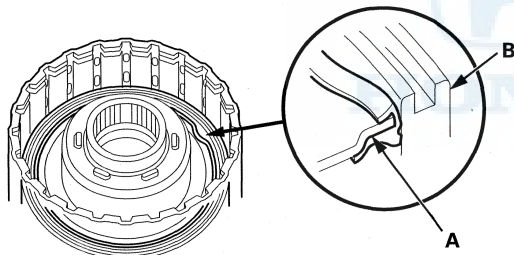
10. Install the snap ring with the snap ring pliers.



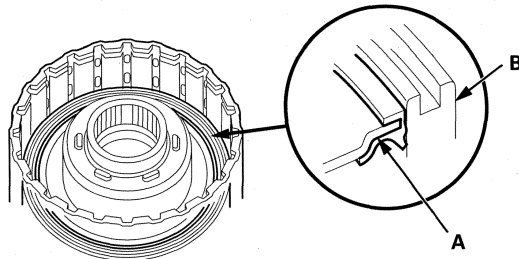
11. Remove the clutch spring compressor set.

12. Check that the spring retainer oil seal (A) is properly seated in the clutch piston (B).

Improperly installed:

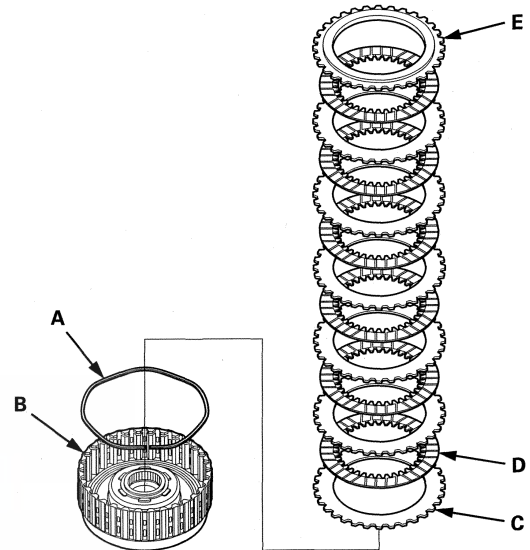


Properly installed:

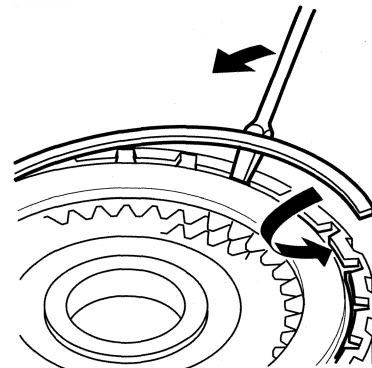


13. If improperly seated, remove the spring retainer, and check the oil seal. If the oil seal is worn, damaged, or peeling, replace the spring retainer, and reinstall the new retainer in the clutch piston.

14. Install the wave spring (A) in the 1st clutch drum (B). Starting with the clutch wave-plate, alternately install the wave-plates (C) (6) and discs (D) (6). Install the clutch end-plate (E) with the flat side down on the top disc.



15. Install the snap ring with a screwdriver to secure the clutch end-plate.



16. Check that the clutch piston moves by applying air pressure into the fluid passage.

Shafts and Clutches

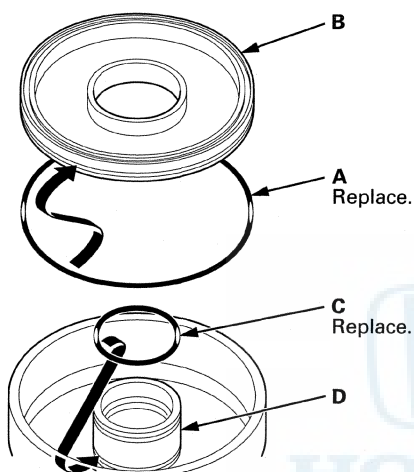
2nd, 3rd, 4th, and 5th Clutch Reassembly

Special Tools Required

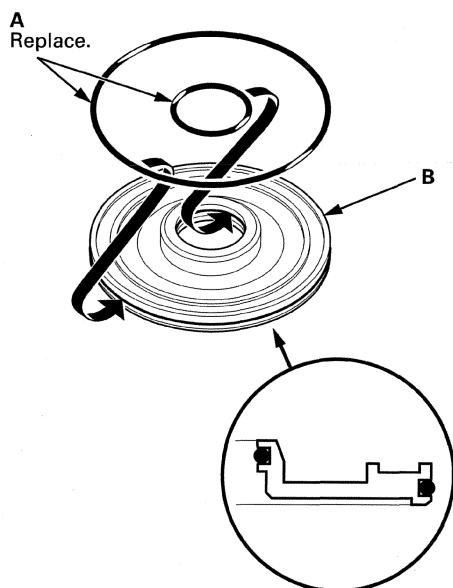
Clutch Spring Compressor Set 07LAE-PX40000

NOTE: Coat all parts with ATF during reassembly.

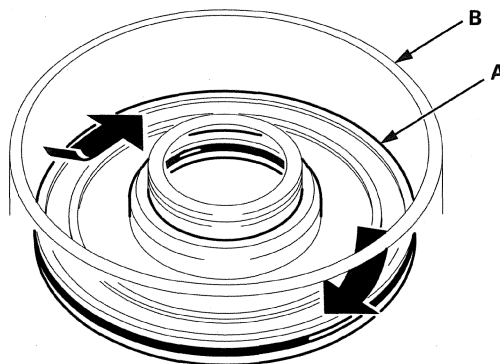
1. Soak the clutch discs thoroughly in ATF for a minimum of 30 minutes.
2. Install a new O-ring (A) on the clutch piston (B) of the 2nd, and 4th clutches, and install a new O-ring (C) on each clutch drum (D).



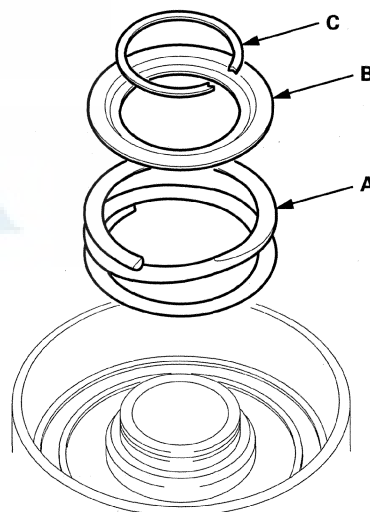
3. Install new O-rings (A) on the piston (B) of the 3rd and 5th clutches.



4. Install the clutch piston (A) in the clutch drum (B) while applying pressure and rotating to ensure proper seating. Do not pinch the O-ring.

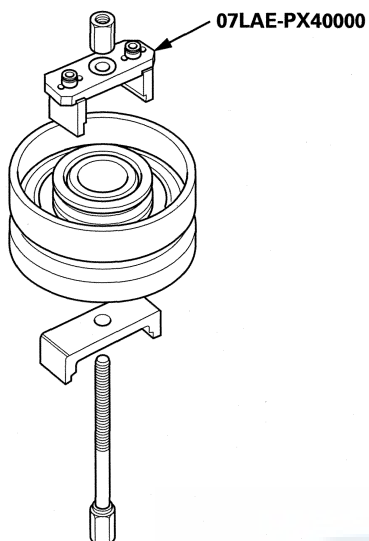


5. Install the return spring (A) and the spring retainer (B), and position the snap ring (C) on the spring retainer.

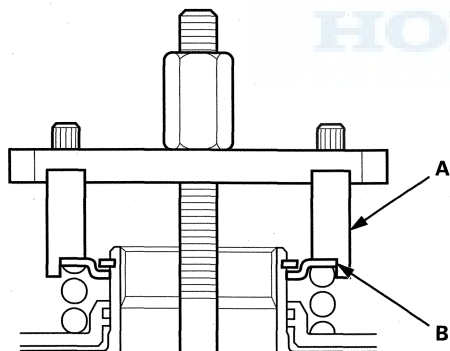




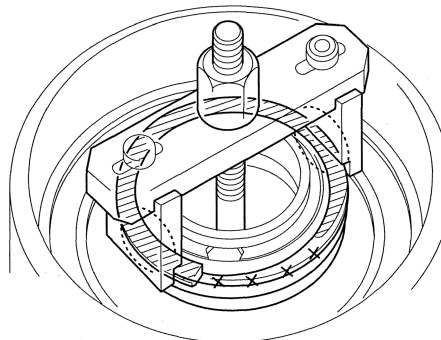
6. Install the clutch spring compressor set.



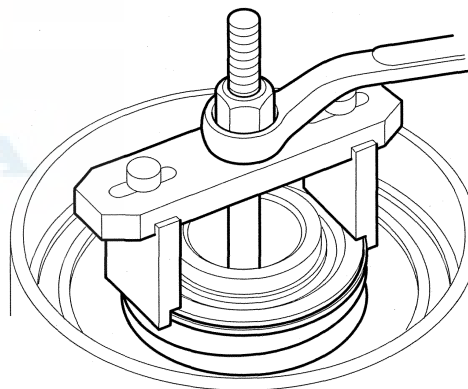
7. Be sure the clutch spring compressor attachment (A) is adjusted to have full contact with the spring retainer (B), and set either end of the clutch spring compressor attachment over the clutch return spring end.



8. Check the placement of the clutch spring compressor attachment. If either end of the clutch spring compressor attachment is set over an area of the spring retainer that is unsupported by the return spring, the spring retainer may be damaged.



9. Compress the return spring until the snap ring can be installed.

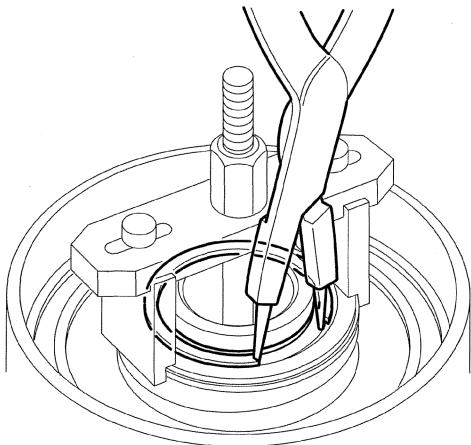


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Shafts and Clutches

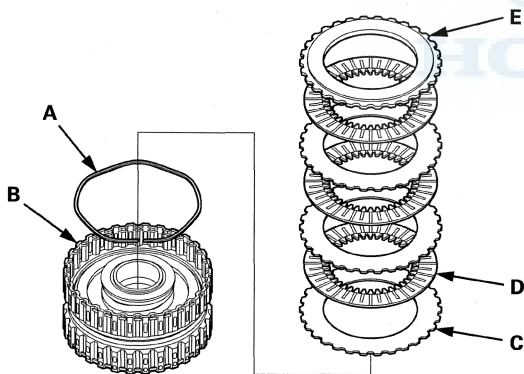
2nd, 3rd, 4th, and 5th Clutch Reassembly (cont'd)

10. Install the snap ring with the snap ring pliers.

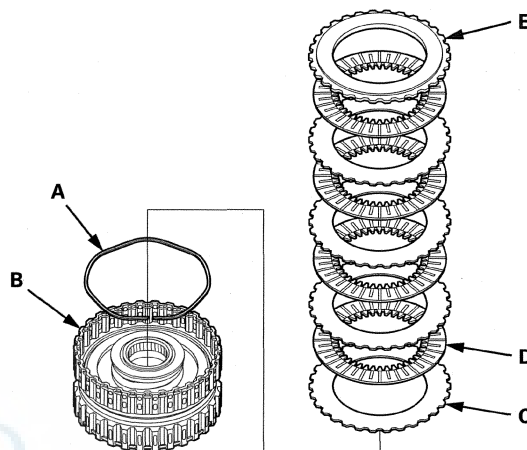


11. Remove the clutch spring compressor set.

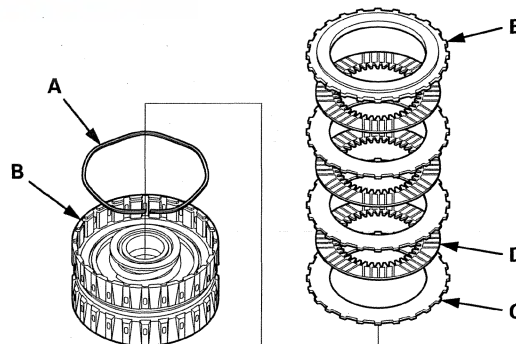
12. Install the wave spring (A) in the 2nd clutch drum (B). Starting with the clutch flat-plate, alternately install the flat-plates (C) (3) and the discs (D) (3). Install the clutch end-plate (E) with the flat side down on the top disc.



13. Install the wave spring (A) in the 4th clutch drum (B). Starting with the clutch flat-plate, alternately install the flat-plates (C) (4) and the discs (D) (4). Install the clutch end-plate (E) with the flat side down on the top disc.

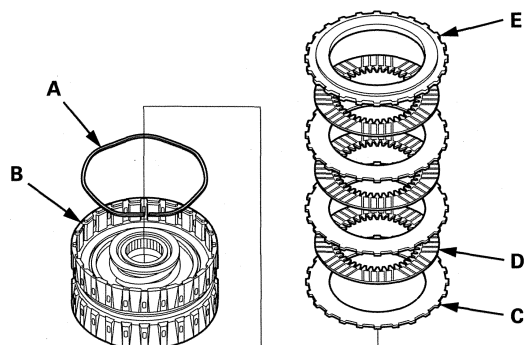


14. Install the wave spring (A) in the 3rd clutch drum (B). Starting with the clutch wave-plate, alternately install the wave-plates (C) (3) and the discs (D) (3). Install the clutch end-plate (E) with the flat side down on the top disc.

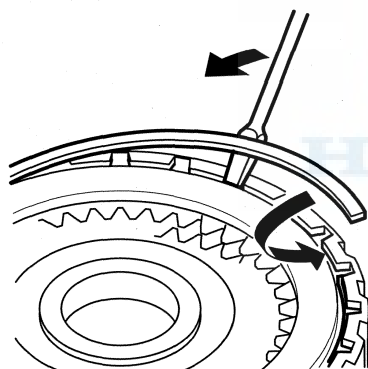




15. Install the wave spring (A) in the 5th clutch drum (B). Starting with the clutch wave-plate, alternately install the wave-plates (C) (3) and the discs (D) (3). Install the clutch end-plate (E) with the flat side down on the top disc.



16. Install the snap ring with a screwdriver to secure the clutch end-plate.



17. Check that the clutch piston moves by applying air pressure into the fluid passage.

Valve Body

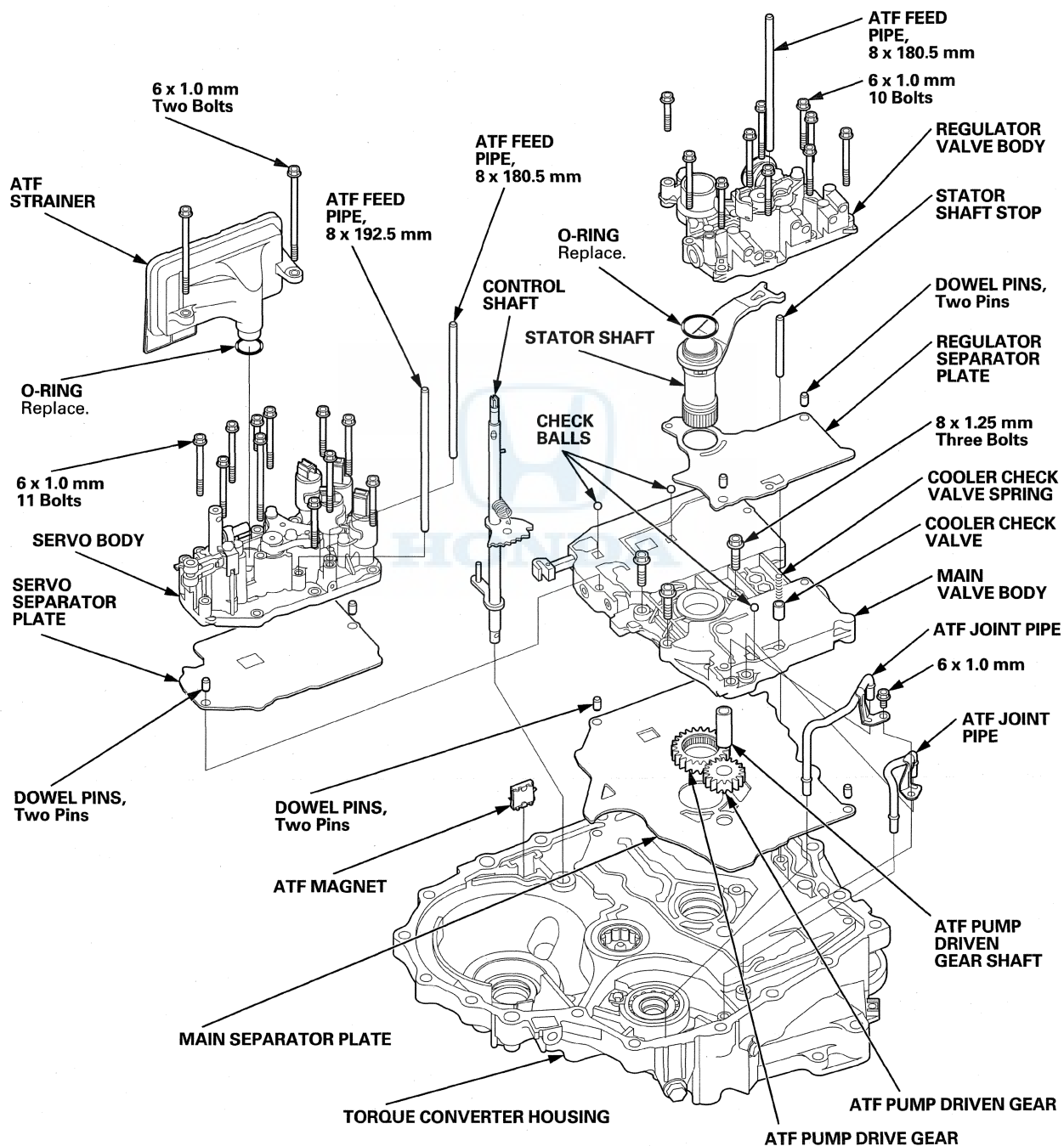
Valve Body and ATF Strainer Installation

1. Make sure that the ATF magnet is cleaned and installed in the torque converter housing.

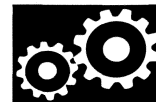
Torque Specifications;

6 x 1.0 mm: 12 N·m (1.2 kgf·m, 8.7 lbf·ft)

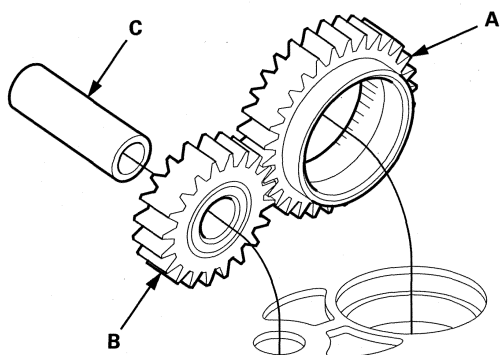
8 x 1.25 mm: 18 N·m (1.8 kgf·m, 13 lbf·ft)



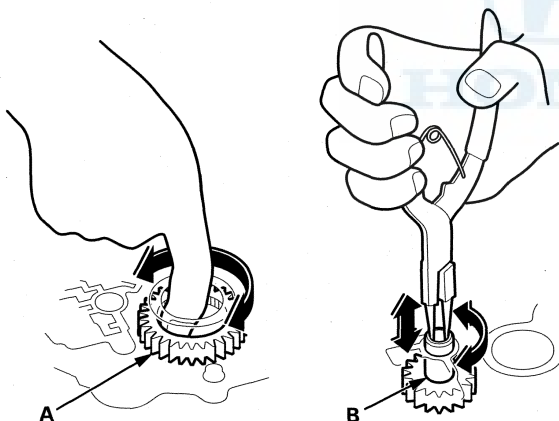
2. Install the main separator plate and two dowel pins on the torque converter housing.



3. Install the ATF pump drive gear (A), the ATF pump driven gear (B), and the ATF pump driven gear shaft (C). Install the ATF pump driven gear with its grooved and chamfered side facing down.

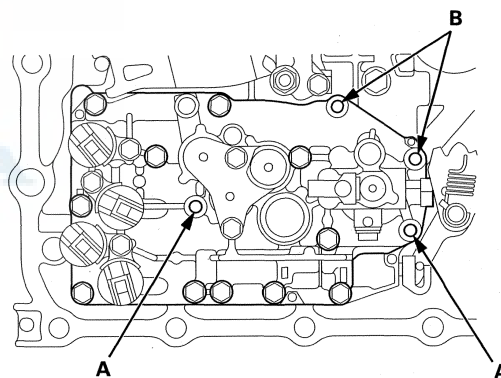


4. Install the main valve body.
5. Make sure the ATF pump drive gear (A) rotates smoothly in the normal operating direction, and the ATF pump driven gear shaft (B) moves smoothly in the axial and normal operating direction.



6. If the ATF pump drive gear and the ATF pump driven gear shaft do not move smoothly, loosen the main valve body bolts. Realign the ATF pump driven gear shaft, and retighten the bolts to the specified torque, then recheck. Failure to align the ATF pump driven gear shaft correctly will result in a seized ATF pump drive gear or ATF pump driven gear shaft.

7. Make sure that the three check balls and the cooler check valve are in the main valve body, then install the cooler check valve spring in the cooler check valve.
8. Install the ATF joint pipes between the main valve body and the torque converter housing.
9. Install the regulator separator plate and the two dowel pins on the main valve body.
10. Install a new O-ring on the stator shaft, and install the stator shaft and the stator shaft stop.
11. Install the regulator valve body (10 bolts).
12. Install the servo separator plate and the two dowel pins on the main valve body.
13. Install the servo body (11 bolts). The ATF strainer will be installed with the two bolts in the bolt holes (A) in step 17, and the baffle plate will be installed with the two bolts in the bolt holes (B) in step 4 in shaft assembly and housing installation.

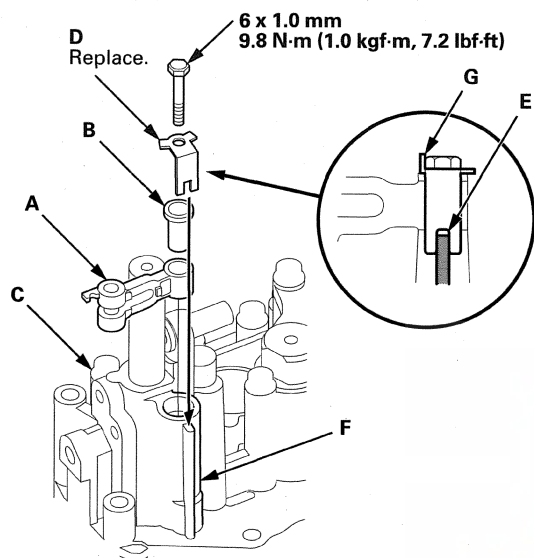


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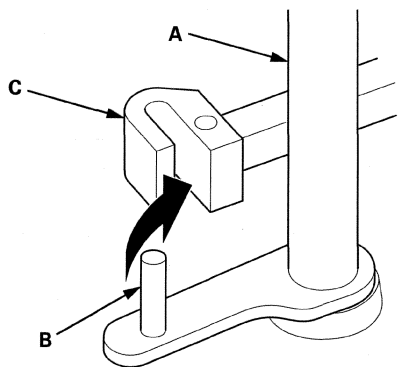
Valve Body

Valve Body and ATF Strainer Installation (cont'd)

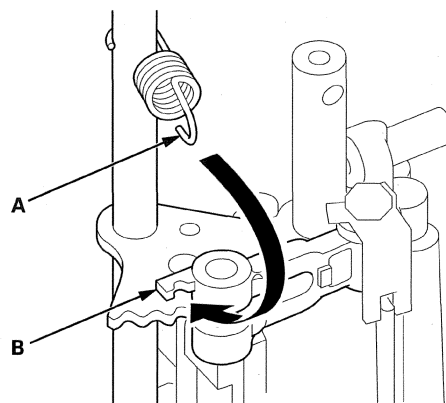
14. If the detent arm was removed, install the detent arm (A) with the arm collar (B) on the servo body (C), and install the new lock washer (D) by aligning its cutout (E) with the projection (F) of the servo body. Install and tighten the bolt, then bend the lock tab (G) of the lock washer against the bolt head.



15. Install the control shaft (A) in the torque converter housing while aligning the manual valve lever pin (B) on the control shaft with the guide of the manual valve (C).



16. Hook the detent arm spring (A) to the detent arm (B).



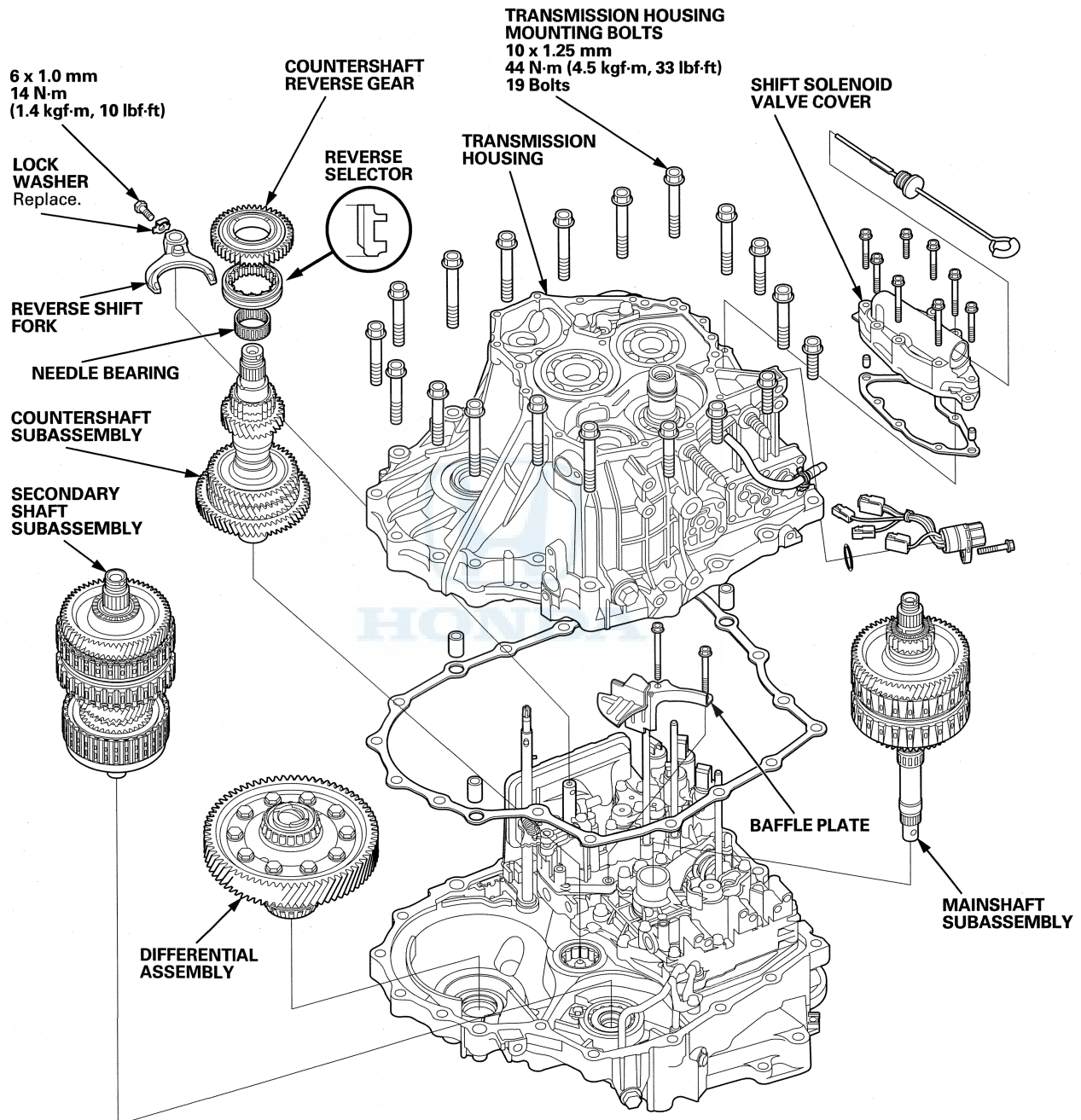
17. Install a new O-ring on the ATF strainer, and install the ATF strainer (two bolts).
18. Install the 8 x 180.5 mm ATF feed pipe in the regulator valve body.
19. Install the 8 x 192.5 mm ATF feed pipe and 8 x 180.5 mm ATF feed pipe in the servo body.

Transmission Housing



Shaft Assembly and Housing Installation

1. Install the differential assembly in the torque converter housing.



2. Install the baffle plate.

(cont'd)

Transmission Housing

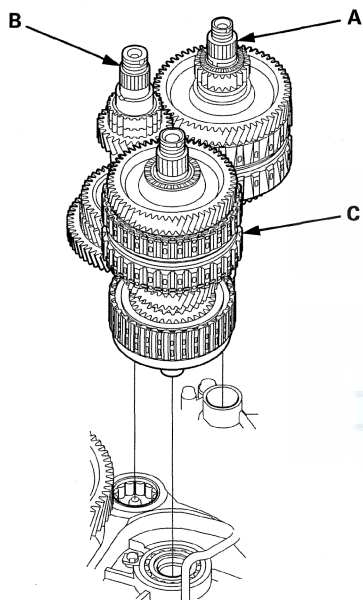
Shaft Assembly and Housing Installation (cont'd)

3. Assemble the mainshaft, the countershaft, and the secondary shaft.

NOTE:

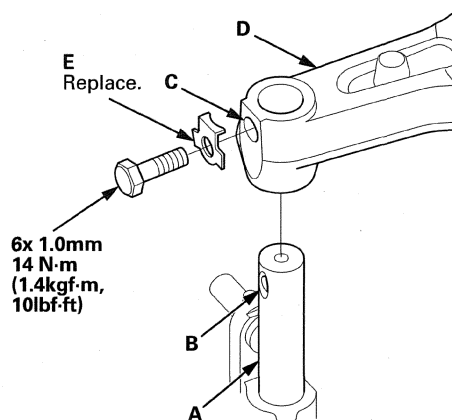
- If the countershaft reverse selector hub is press-fitted type, go to step 4.
- If the countershaft reverse selector hub is not press-fitted type, go to step 5.

4. Join the mainshaft subassembly (A), the countershaft subassembly (B), and the secondary shaft subassembly (C) together, and install them in the torque converter housing.



5. Join the countershaft subassembly and the secondary shaft subassembly together, then install them in the torque converter housing, and install the mainshaft subassembly. Install the needle bearings, 4th-5th gear, and the reverse selector hub over the countershaft.

6. Turn the shift fork shaft (A) so the large chamfered hole (B) is facing the fork bolt hole (C) of the shift fork (D).

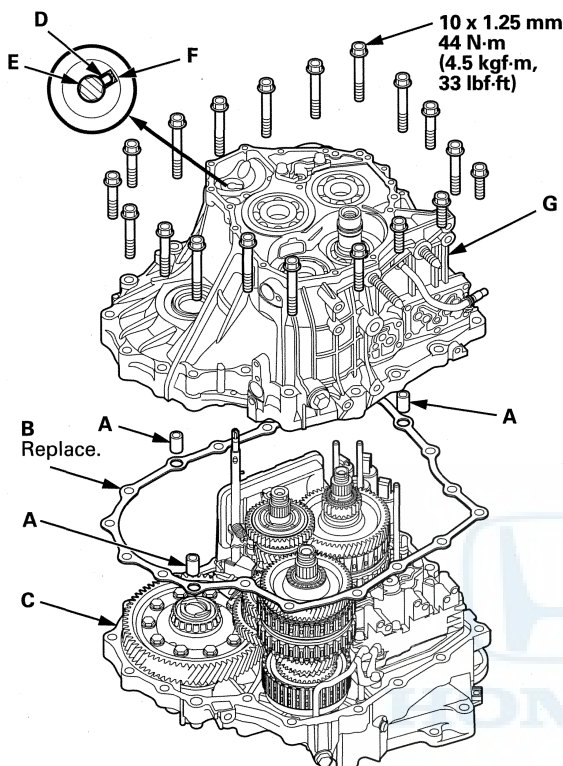


6x 1.0mm
14 N·m
(1.4kgf·m,
10lbf·ft)

7. Install the shift fork and the reverse selector together on the shift fork shaft and the countershaft. Secure the shift fork to the shift fork shaft with the lock bolt and a new lock washer (E), then bend the lock tab of the lock washer against the bolt head.
8. Install the needle bearing and the countershaft reverse gear on the countershaft.
9. Install the reverse idler gear in the transmission housing (see page 14-256).



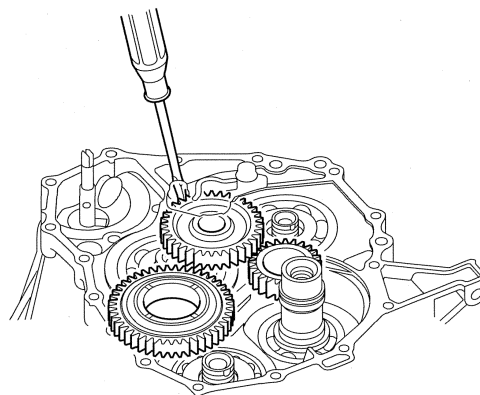
10. Install the three dowel pins (A) and a new gasket (B) on the torque converter housing (C).



11. Align the spring pin (D) of the control shaft (E) with the transmission housing groove (F) by turning the control shaft detent plate. Do not squeeze the end of the control shaft tips together when turning the shaft. If the tips are squeezed together, it will cause a faulty shift position signal or position due to the play between the control shaft and the switch.

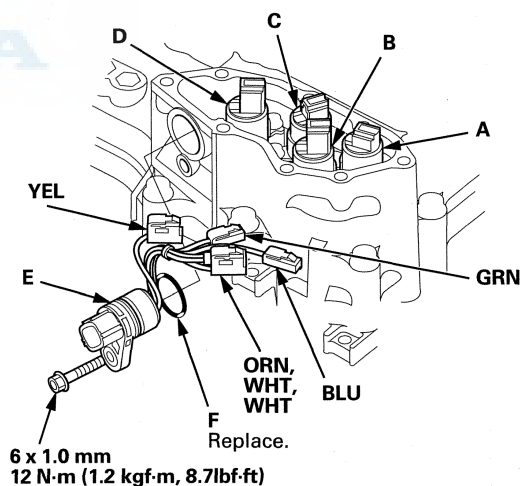
12. Place the transmission housing (G) on the torque converter housing. Do not install the input shaft (mainshaft) speed sensor and the output shaft (countershaft) speed sensor before installing the transmission housing on the torque converter housing.

13. Wrap a screwdriver tip with tape to prevent damage to the reverse idler gear teeth. Engage the reverse idler gear with reverse gears by rotating the idler gear using the screwdriver.



14. Install the transmission housing mounting bolts, and tighten the bolts to 44 N·m (4.5 kgf-m, 33 lbf-ft) in at least two steps in a crisscross pattern.

15. Install the shift solenoid harness connector (E) in the transmission housing with a new O-ring (F).



16. Connect the WHT and ORN wires connector to shift solenoid valve B. The ATF temperature sensor is assembled in the WHT wires connector.

17. Connect the harness terminals to the solenoids:

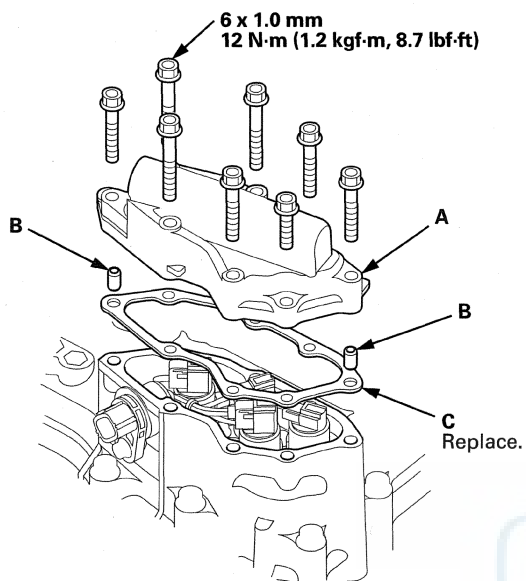
- BLU wire connector to shift solenoid valve A.
- GRN wire connector to shift solenoid valve C.
- YEL wire connector to shift solenoid valve D.

(cont'd)

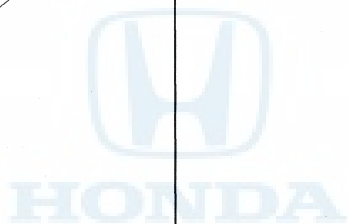
Transmission Housing

Shaft Assembly and Housing Installation (cont'd)

18. Install the shift solenoid valve cover (A), the two dowel pins (B), and a new gasket (C).



19. Install the ATF dipstick.



Transmission End Cover

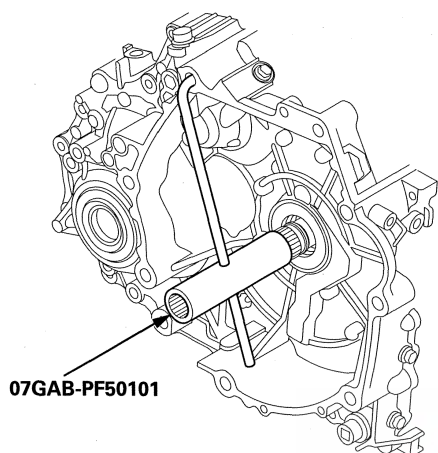


End Cover Installation

Special Tools Required

- Mainshaft Holder 07GAB-PF50101
- Gear Installer Set 070AC-XFD0100

1. Install the special tool onto the mainshaft.



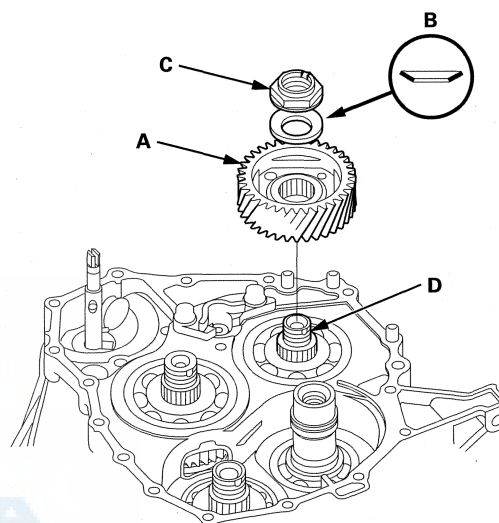
2. Lubricate the following parts with ATF:

- Splines and threads of the mainshaft.
- Splines of the mainshaft idler gear.
- Old conical spring washer and old locknut.

3. Install the mainshaft idler gear (A), the old conical spring washer (B), and the old locknut (C) on the mainshaft (D), and tighten the locknut to 216 N·m (22.0 kgf·m, 159 lbf·ft).

NOTE:

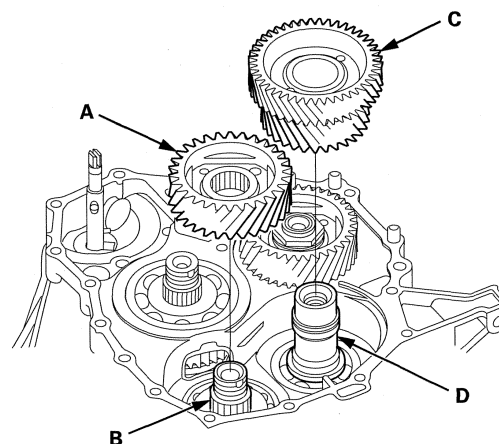
- Do not tap the idler gear to install.
- Use a torque wrench to tighten the locknut. Do not use an impact wrench.



4. Lubricate the following parts with ATF:

- Splines and threads of the secondary shaft and idler gear shaft.
- Splines of the secondary shaft idler gear.
- Old conical spring washer and old locknut.

5. Install the secondary shaft idler gear (A) on the secondary shaft (B), and install the idler gear shaft idler gear (C) on the idler gear shaft (D).



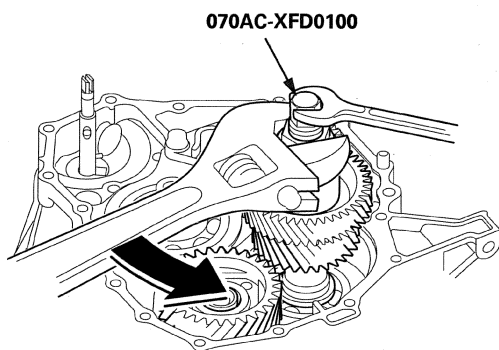
(cont'd)

Transmission End Cover

End Cover Installation (cont'd)

6. Set the special tool on the idler gear shaft and idler gear, and tighten the installer nut to install the idler gear part-way.

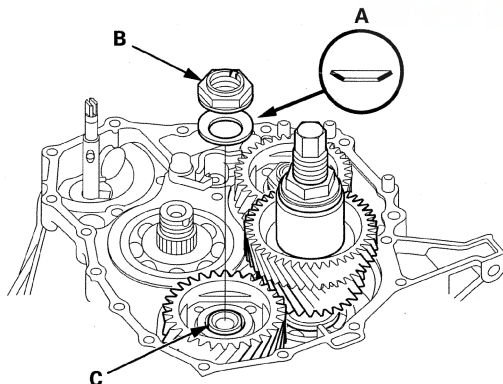
NOTE: The installer nut has left-hand threads.



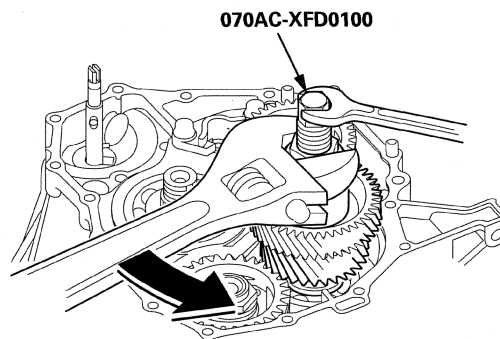
7. Install the old conical spring washer (A) and the old locknut (B) on the secondary shaft (C), and tighten the locknut to 226 N·m (23.0 kgf·m, 166 lbf·ft).

NOTE:

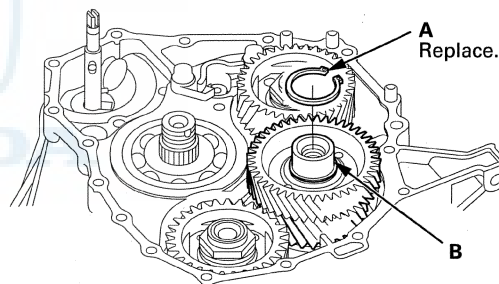
- Do not tap the idler gear to install.
- Use a torque wrench to tighten the locknut. Do not use an impact wrench.
- The secondary shaft locknut has left-hand threads.



8. Retighten the installer nut to seat the idler gear in the idler gear shaft until it stops. Remove the special tool from the idler gear shaft.

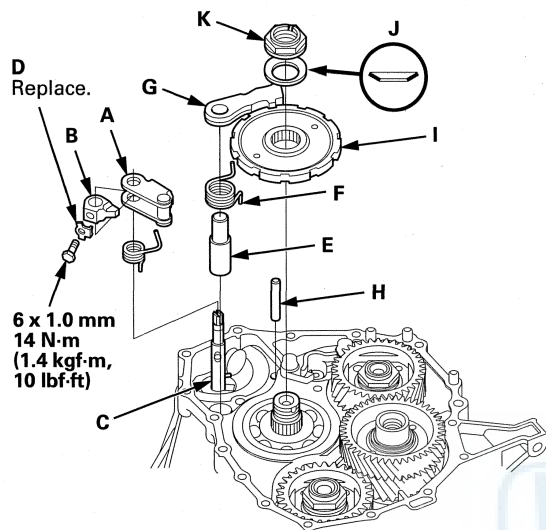


9. Install the new snap ring (A) on the idler gear shaft (B), and verify that the snap ring is seated securely into the groove.





10. Install the park lever (A) and the park lever stop (B) on the selector control shaft (C), then install the lock bolt and the new lock washer (D). Do not bend the lock tab of the lock washer until step 23.



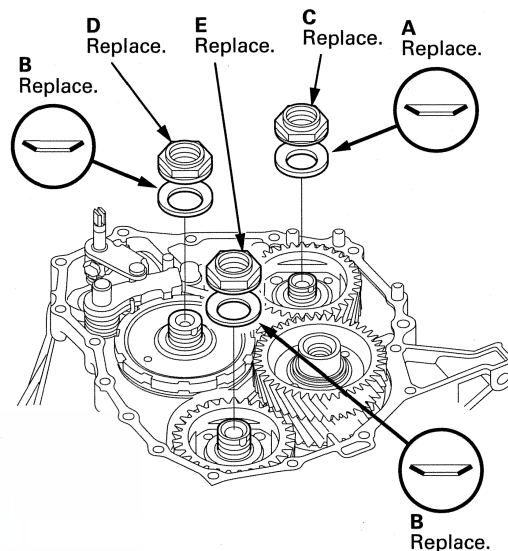
11. Install the park pawl shaft (E), the park pawl spring (F), the park pawl (G), and the stop shaft (H) on the transmission housing.
12. Lubricate the following parts with ATF:
- Threads and splines of the countershaft.
 - Old conical spring washer and old locknut.
 - Areas where the park gear contacts the conical spring washer.
13. Install the park gear (I), the old conical spring washer (J), and the old locknut (K) on the countershaft.
14. Lift the park pawl up, and engage it with the park gear, then tighten the locknut to 226 N·m (23.0 kgf·m, 166 lbf·ft).

NOTE:

- Do not tap the park gear to install.
- Use a torque wrench to tighten the locknut. Do not use an impact wrench.
- The countershaft locknut has left-hand threads.

15. Remove the locknuts and the conical spring washers from the mainshaft, the countershaft, and the secondary shaft.
16. Lubricate the threads of the shafts, the new locknuts, and the new conical spring washers with ATF.

17. Install the new conical spring washers (A) (B) in the direction shown, and install the new mainshaft locknut (C), the new countershaft locknut (D), and the new secondary shaft locknut (E).



18. Tighten the countershaft locknut and the secondary shaft locknut to 167 N·m (17.0 kgf·m, 23 lbf·ft), and tighten the mainshaft locknut to 155 N·m (15.8 kgf·m, 114 lbf·ft).

NOTE:

- Be sure to install the conical spring washers in the direction shown.
- Use a torque wrench to tighten the locknuts. Do not use an impact wrench.
- Countershaft and secondary shaft locknuts have left-hand threads.

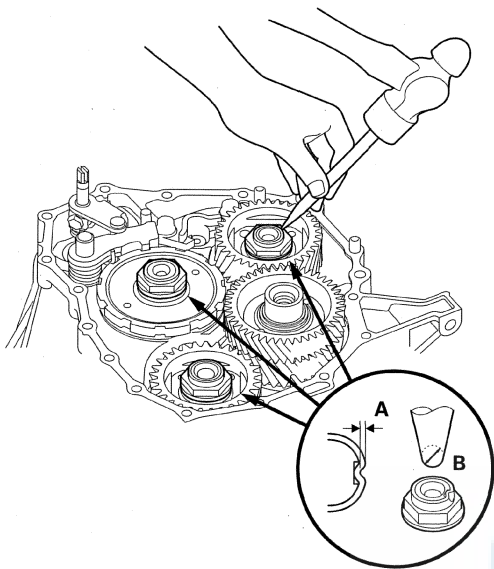
19. Remove the special tool from the mainshaft.

(cont'd)

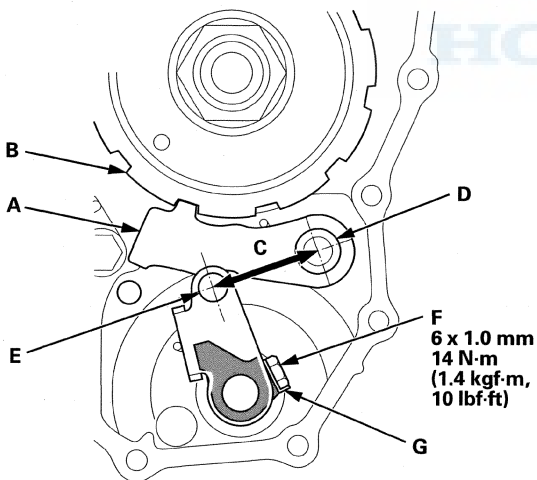
Transmission End Cover

End Cover Installation (cont'd)

20. Stake the locknuts into the shafts to a depth (A) of 0.7–1.3 mm (0.03–0.05 in) using a 3.5 mm punch (B).

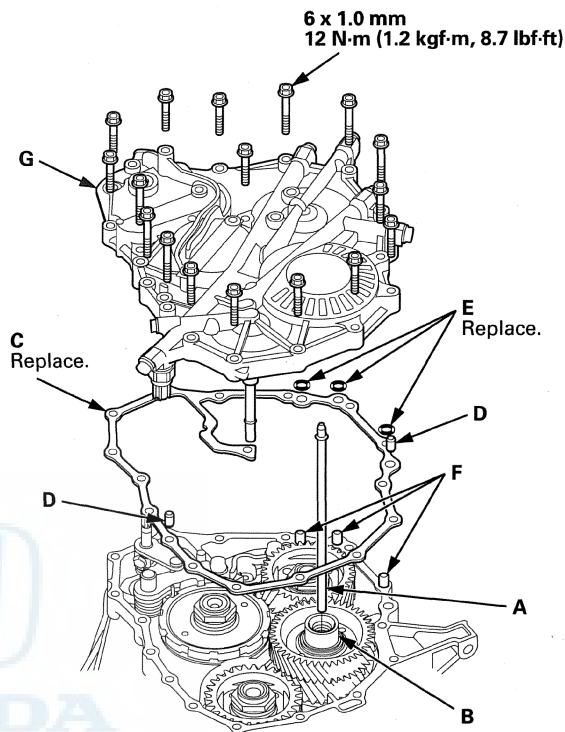


21. Set the park pawl (A) in the P position, then verify that the park pawl engages with the park gear (B).



22. If the park pawl does not engage fully, check center-to-center distance (C) between the pawl shaft (D) and the park lever roller pin (E) (see page 14-246).
23. Tighten the lock bolt (F), and bend the lock tab of the lock washer (G) against the bolt head.

24. Install the ATF lubrication pipe (A) into the idler gear shaft (B).



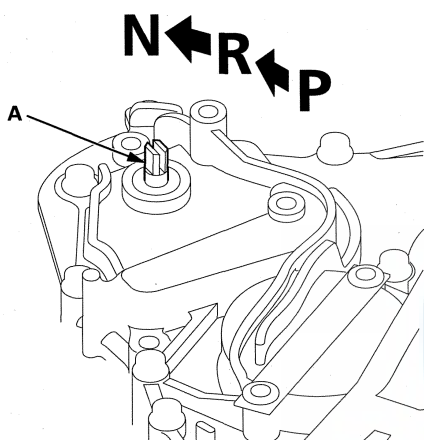
25. Install the new gasket (C) on the transmission housing, and install the two dowel pins (D) and new O-rings (E) over the top of the ATF feed pipes (F).

26. Install the end cover (G), and tighten the 17 bolts.



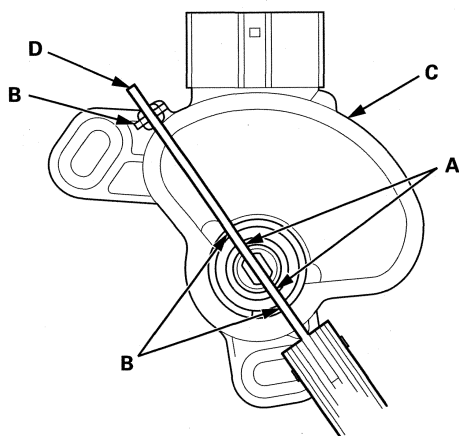
27. Using the selector control shaft end on the torque converter housing side, turn the control shaft (A) fully clockwise (view from end cover) to the P position. Turn the control shaft counterclockwise two clicks to the N position.

NOTE: Do not squeeze the end of the selector control shaft tips together when turning the shaft. If the control shaft tips are squeezed together it will cause a faulty signal or position due to play between the selector control shaft and the switch.

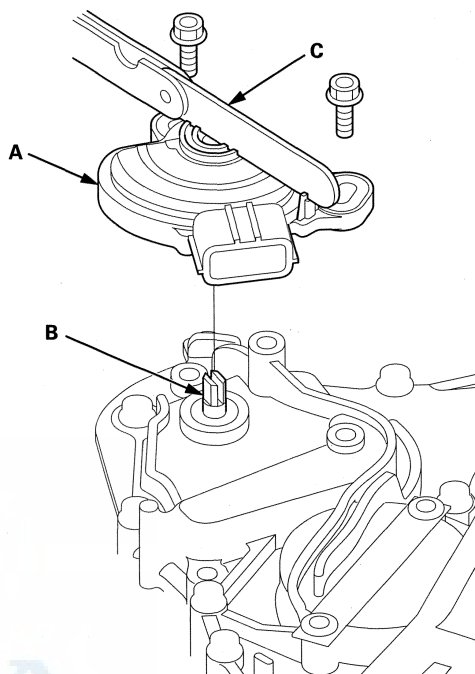


28. Align the cutouts (A) on the rotary-frame with the neutral positioning cutouts (B) on the transmission range switch (C), then put a 2.0 mm (0.08 in) feeler gauge blade (D) in the cutouts to hold the switch in the N position.

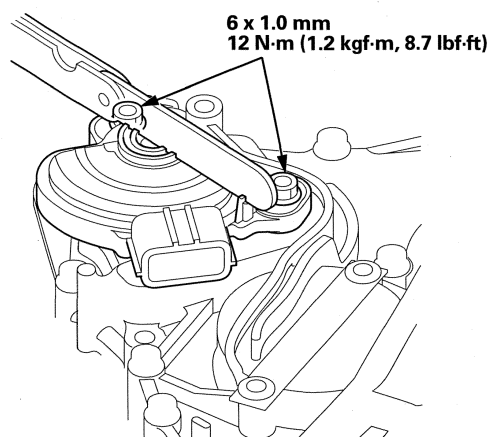
NOTE: Be sure to use a 2.0 mm (0.08 in) blade or equivalent to hold the switch in the N position.



29. Install the transmission range switch (A) gently on the selector control shaft (B) while holding it in the N position with the 2.0 mm (0.08 in) blade (C).



30. Tighten the bolts on the transmission range switch while you continue to hold it in the N position. Do not move the transmission range switch while tightening the bolts. Remove the feeler gauge.

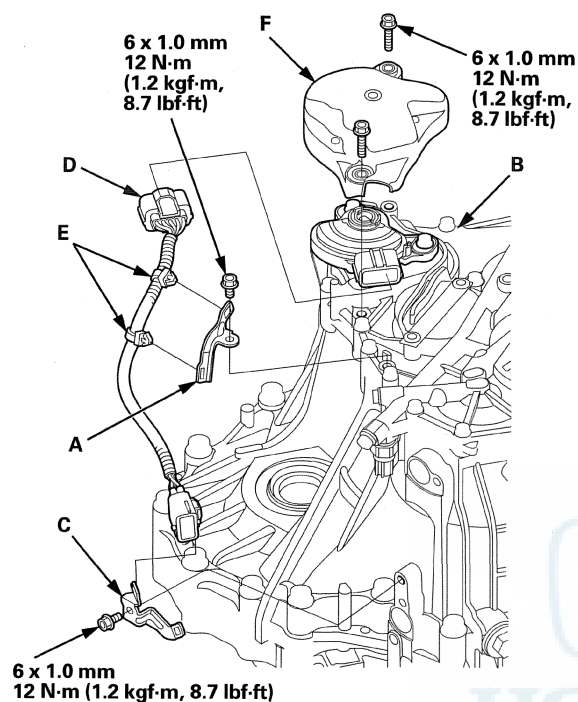


(cont'd)

Transmission End Cover

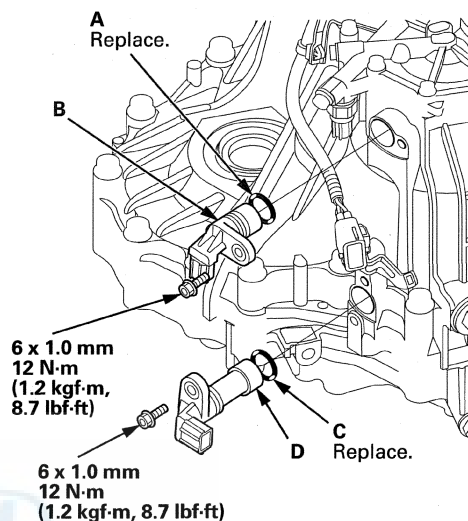
End Cover Installation (cont'd)

31. Install the harness clamp bracket (A) on the end cover (B).

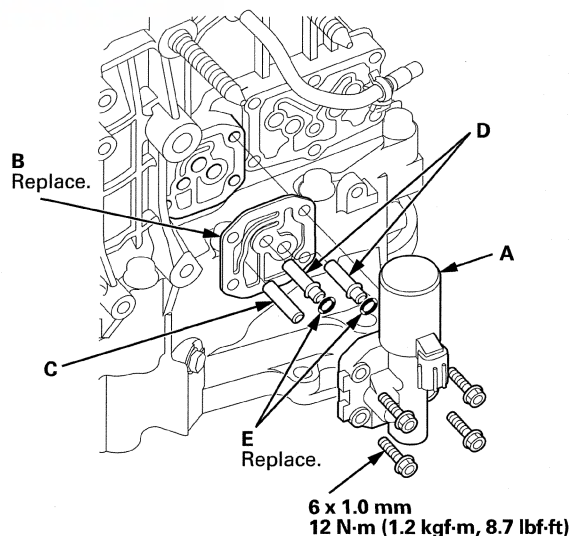


32. Install the connector bracket (C) on the transmission housing.
33. Connect the transmission range switch connector (D) securely, then install the harness clamps (E) on the clamp bracket.
34. Install the transmission range switch cover (F).

35. Install a new O-ring (A) on the input shaft (mainshaft) speed sensor (B), then install the input shaft (mainshaft) speed sensor.



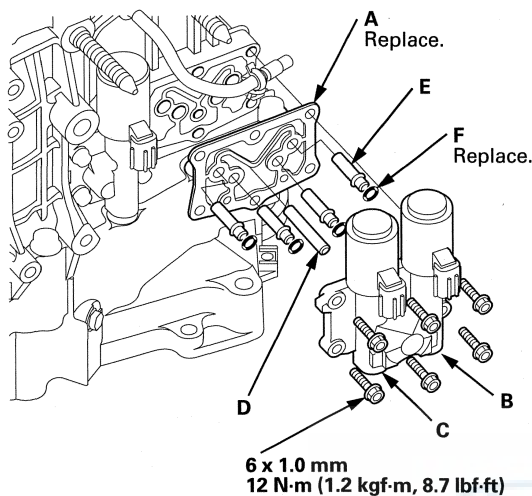
36. Install a new O-ring (C) on the output shaft (countershaft) speed sensor (D), then install the output shaft (countershaft) speed sensor.
37. Install a new gasket (B) on the transmission housing, and install the ATF pipe (C) and the ATF joint pipes (D).



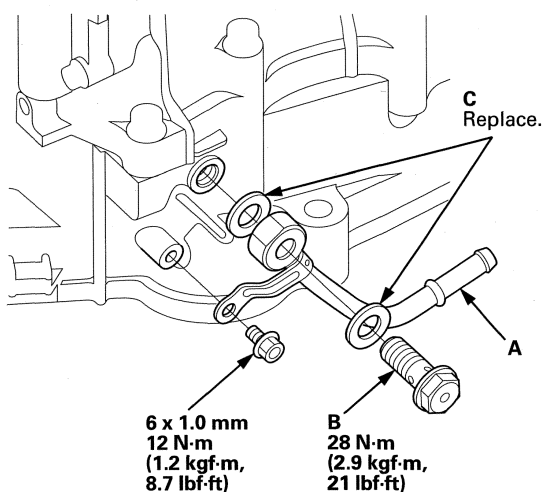
38. Install new O-rings (E) over the ATF joint pipes, and install the A/T clutch pressure control solenoid valve A.



39. Install a new gasket (A) with the blue side facing the transmission housing and the white side facing the A/T clutch pressure control solenoid valve body.

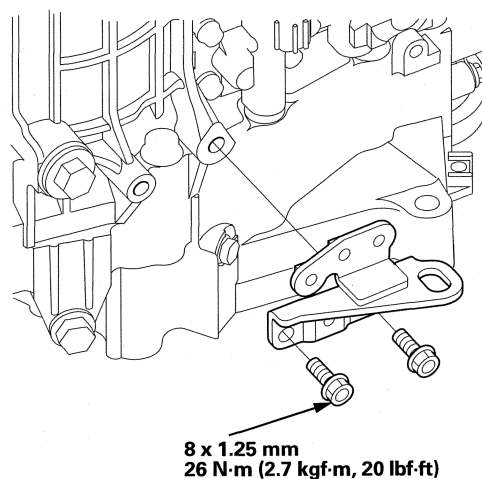


40. Install the ATF pipe (D) and the ATF joint pipes (E), and install the new O-rings (F) over the ATF joint pipes.
41. Install A/T clutch pressure control solenoid valve B and C.
42. Install the ATF outlet line (A) on the torque converter housing, and secure it with the line bolt (B) and new sealing washers (C).

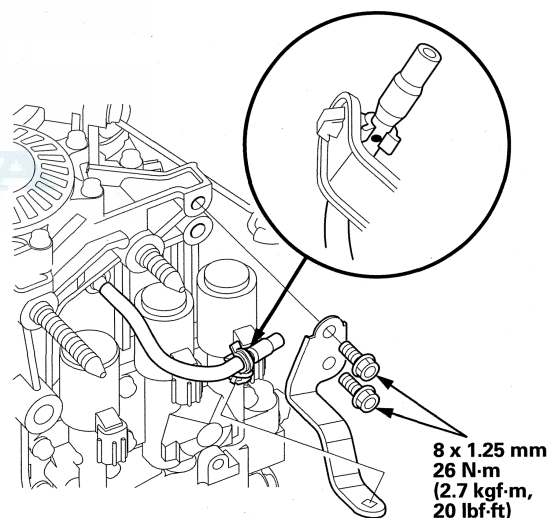


43. Secure the ATF outlet line with the bracket bolt.

44. Install the transmission hanger.



45. Install the breather hose clamp bracket, and install the clamp on the bracket.

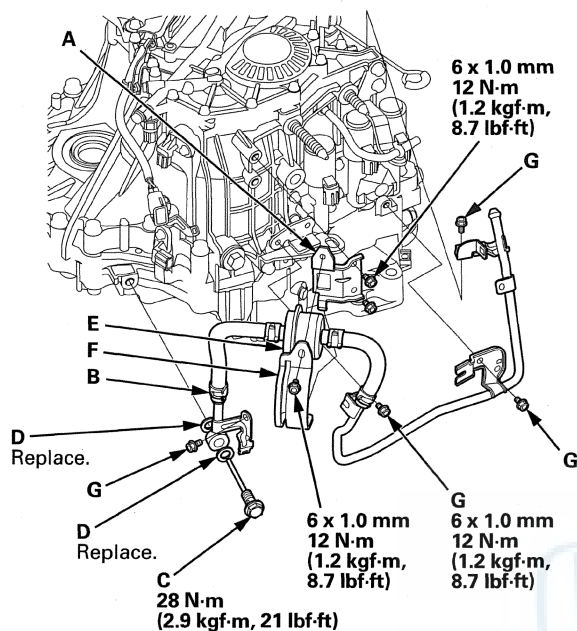


(cont'd)

Transmission End Cover

End Cover Installation (cont'd)

46. Install the ATF filter bracket (A).



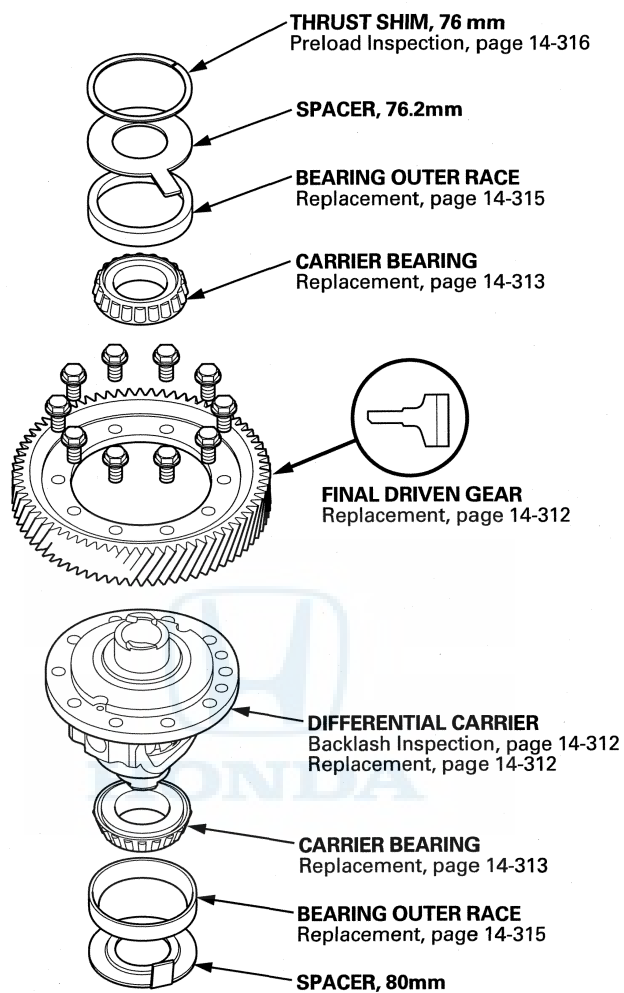
47. Install the ATF inlet line and hose (B) on the torque converter housing, and secure it with the line bolt (C) and new sealing washers (D).

48. Put the ATF filter (E) on its bracket, and secure with the holder (F) and the bolt.

49. Secure the inlet line with the bolts (G) on the transmission.



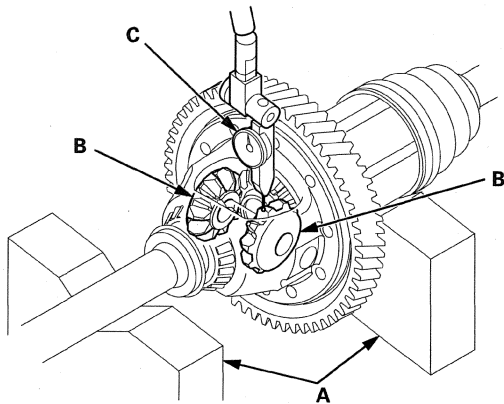
Component Location Index



A/T Differential

Backlash Inspection

1. Install the driveshaft and intermediate shaft into the differential assembly, and place the axles on V-blocks (A).



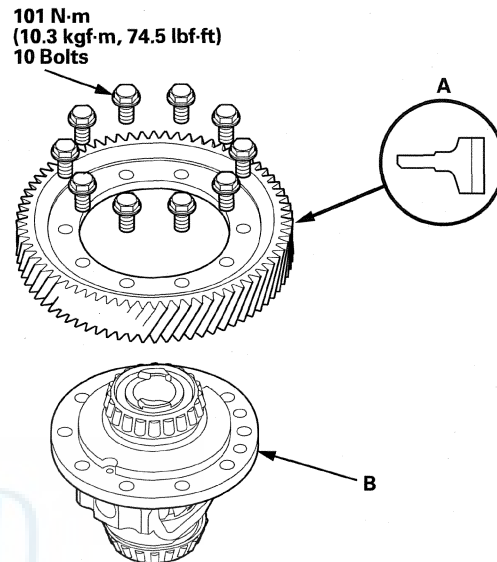
2. Measure the backlash of the pinion gears (B) with a dial indicator (C).

Standard: 0.05—0.15 mm (0.002—0.006 in)

3. If the backlash is out of standard, replace the differential carrier (see page 14-313).

Differential Carrier and Final Driven Gear Replacement

1. Remove the final driven gear (A) from the differential carrier (B). The final driven gear bolts have left-hand threads.



2. Install the final driven gear on the differential carrier in the direction shown.

3. Tighten the bolts to 101 N·m (10.3 kgf·m, 74.5 lbf·ft) in a crisscross pattern in at least two steps.



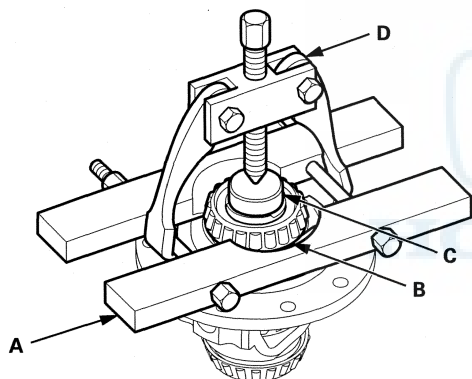
Carrier Bearing Replacement

Special Tools Required

Installer Attachment 40 mm 07LAD-PW50601

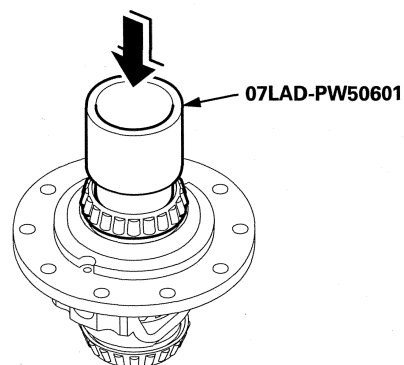
NOTE:

- The bearing and outer race should be replaced as a set.
 - Inspect and adjust the carrier bearing preload whenever the bearing is replaced.
 - Check the bearing for wear and rough rotation. If the bearing is OK, removal is not necessary.
1. Remove the final driven gear from the differential carrier when replacing the carrier bearing on the final driven gear side. When only replacing the carrier bearing on opposite side of the final driven gear, final driven gear removal is not needed.
 2. Set a commercially available bearing separator (A) under the carrier bearing (B).



3. Place a stepped adapter (C) on the differential carrier, and install a commercially available bearing puller (D), then remove the carrier bearing.

4. Install the new bearing using the installer attachment (40 mm) and a press. Press the bearing on securely until it bottoms so there is no clearance between the bearing and the differential carrier.



5. Install the final driven gear if the gear was removed.

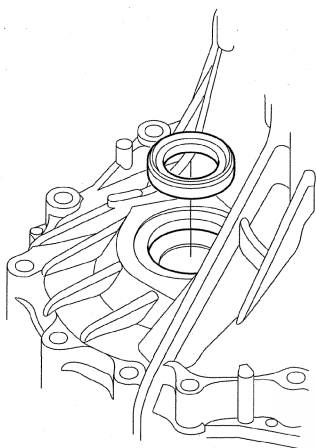
A/T Differential

Oil Seal Replacement

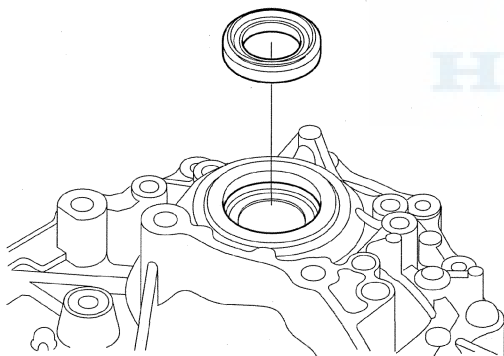
Special Tools Required

- Driver Handle, 15 x 135L 07749-0010000
- Oil Seal Driver Attachment, 58 mm 07JAD-PH80101

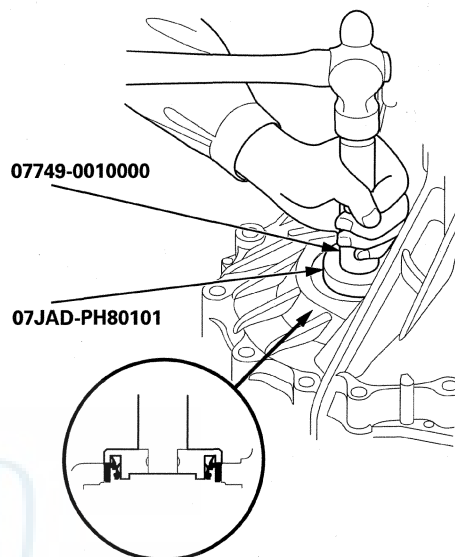
1. Remove the oil seal from the transmission housing.



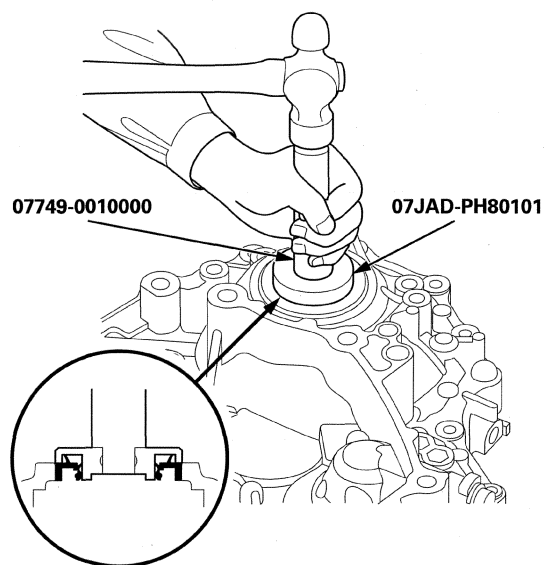
2. Remove the oil seal from the torque converter housing.

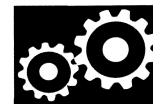


3. Install the new oil seal in the transmission housing between 0.2 mm below and 0.5 mm above the housing surface using the driver handle and the oil seal driver attachment (58 mm).



4. Install the new oil seal in the torque converter housing between 0.2 mm below and 0.5 mm above the housing surface using the driver handle and the oil seal driver attachment (58 mm).





Carrier Bearing Outer Race Replacement

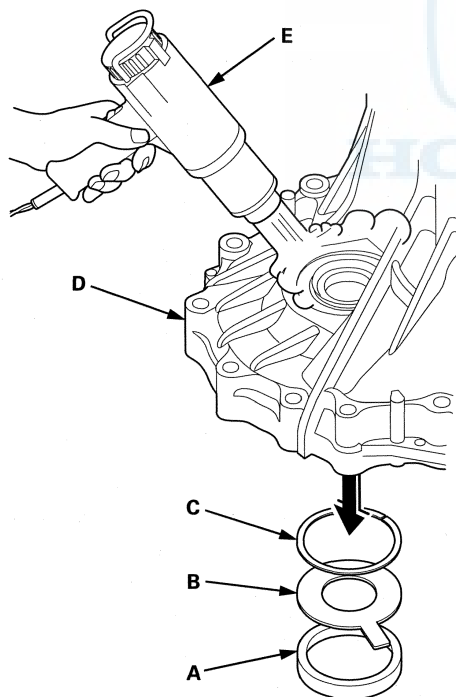
Special Tools Required

- Driver Handle, 15 x 135L 07749-0010000
- Attachment, 78 x 90 mm 07GAD-SD40101
- Bearing Driver Attachment, 72 x 75 mm 07746-0010600

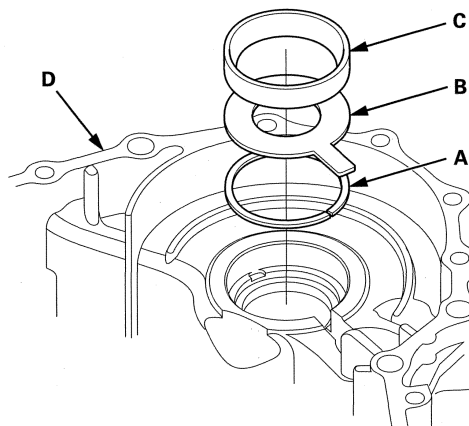
NOTE:

- The bearing and the bearing outer race should be replaced as a set.
- Replace the bearing with a new one whenever the outer race is replaced.
- Do not use shim(s) on the torque converter housing side.
- Adjust the preload after replacing the bearing and the outer race.
- Coat all parts with ATF during installation.

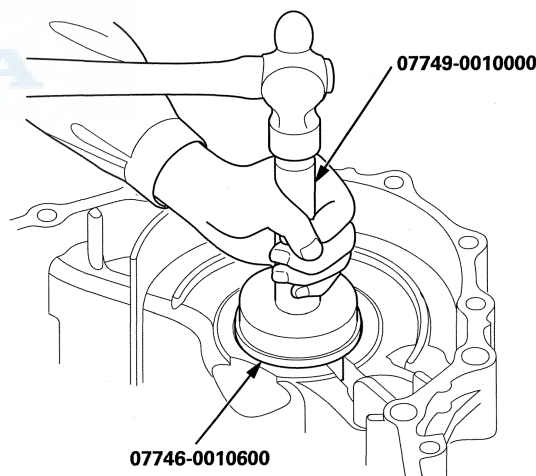
1. Remove the bearing outer race (A), the 76.2 mm spacer (B), and the 76 mm thrust shim (C) from the transmission housing (D) by heating the housing to about 212 °F (100 °C) with a heat gun (E). Do not heat the housing more than 212 °F (100 °C).



2. Install the 76 mm thrust shim (A), the 76.2 mm spacer (B), and the outer race (C) in the transmission housing (D).



3. Using the driver handle and the bearing driver attachment (72 x 75 mm), drive the outer race securely in the housing so there is no clearance between the outer race, the spacer, the shim, and the housing.

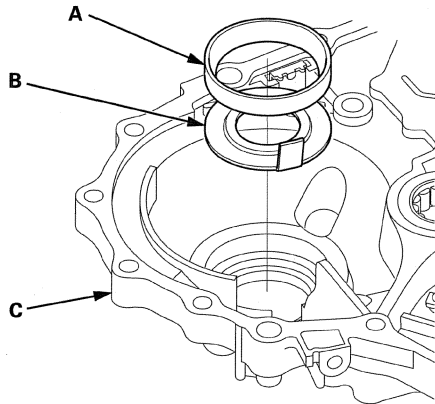


(cont'd)

A/T Differential

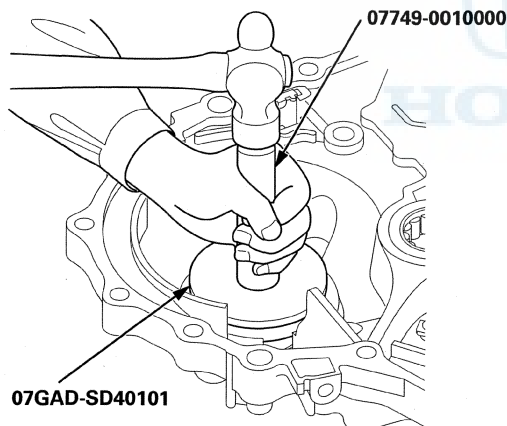
Carrier Bearing Outer Race Replacement (cont'd)

4. Remove the bearing outer race (A) and the 80 mm spacer (B) from the torque converter housing (C).



5. Install the spacer and the new outer race in the torque converter housing.

6. Drive the bearing outer race securely in the housing using the driver handle and the attachment (78 x 80 mm).



Carrier Bearing Preload Inspection

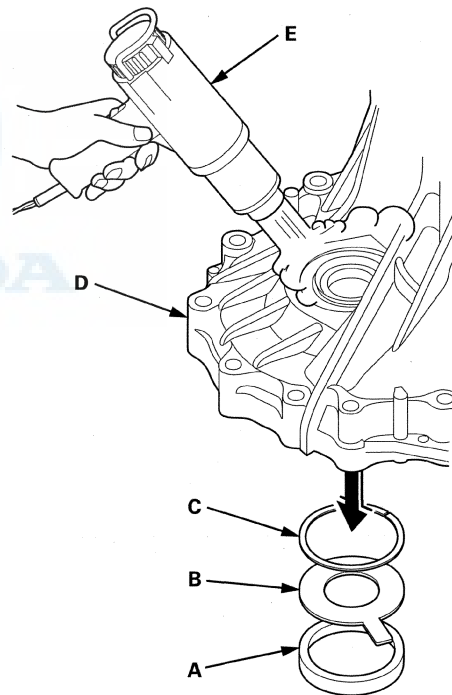
Special Tools Required

- Driver Handle, 15 x 135L 07749-0010000
- Bearing Driver Attachment, 72 x 75 mm 07746-0010600
- Preload Inspection Tool 07HAJ-PK40201

NOTE: If the transmission housing, torque converter housing, differential carrier, tapered roller bearing, bearing outer race, or thrust shim were replaced, the bearing preload must be adjusted.

1. Remove the bearing outer race (A), the 76.2 mm spacer (B), and the 76 mm thrust shim (C) from the transmission housing (D) by heating the housing to about 212 °F (100 °C) with a heat gun (E). Do not heat the housing more than 212 °F (100 °C).

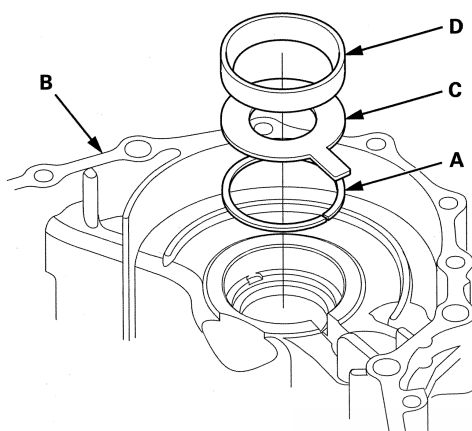
NOTE: Let the transmission housing cool to room temperature before adjusting the bearing preload.



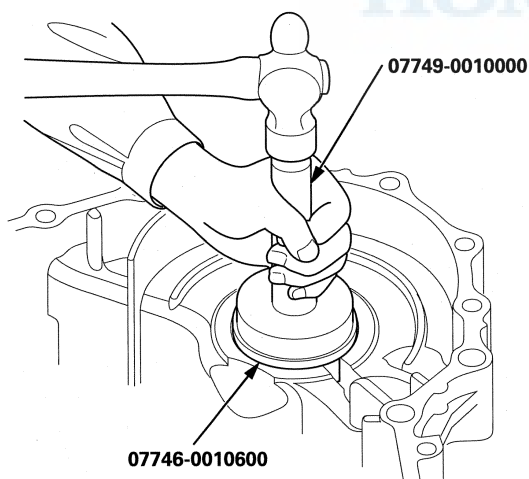
2. Replace the tapered roller bearing when the outer race is to be replaced.
3. Do not use a shim on the torque converter housing side.



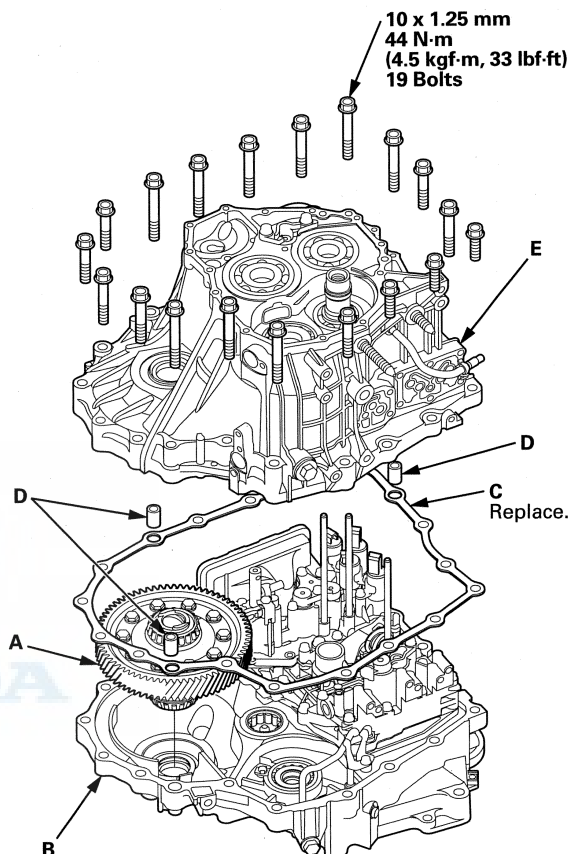
4. Install the 76 mm thrust shim (A) in the transmission housing (B). If you replace the 76 mm thrust shim with a new one, use the same thickness shim as the old one.



5. Install the 76.2 mm spacer (C) and the bearing outer race (D) in the transmission housing.
6. Drive the outer race securely in the housing using the driver handle and the bearing driver attachment (72 x 75 mm), so there is no clearance between the outer race, the spacer, the shim, and the housing.



7. Install the differential assembly (A) in the torque converter housing (B), and install the gasket (C) and the three dowel pins (D) on the housing.



8. Install the transmission housing (E), and install the transmission housing mounting bolts. Tighten the 19 bolts to 44 N·m (4.5 kgf·m, 33 lbf·ft) in at least two steps in a crisscross pattern.
9. Rotate the differential assembly in both directions to seat the bearings.

(cont'd)

A/T Differential

Carrier Bearing Preload Inspection (cont'd)

10. Measure the starting torque of the differential assembly with the special tool, a torque wrench (A), and a socket (B). Measure the starting torque at normal room temperature in both directions.

Standard

New Bearing:

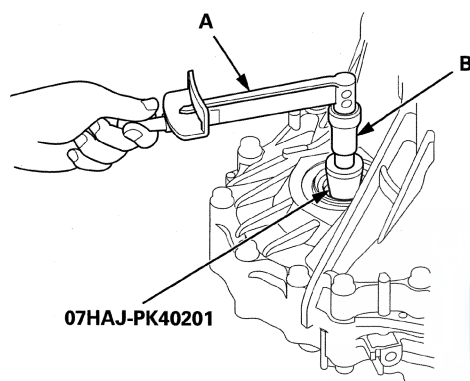
2.7–3.9 N·m

(28–40 kgf·cm, 24–35 lbf·in)

Reused Bearing:

2.5–3.6 N·m

(25–37 kgf·cm, 22–32 lbf·in)



11. If the starting torque is out of the standard, remove the thrust shim and measure its thickness.

12. Select a new thrust shim. To increase the starting torque, increase thickness of the thrust shim. To decrease the starting torque, decrease the thickness of the thrust shim.

Changing the shim to the next size will increase or decrease the starting torque about 0.5–0.6 N·m (5–6 kgf·cm, 5–5 lbf·in)

THRUST SHIM, 76 mm

No.	Thickness
0A	1.55 mm (0.0610 in)
0B	1.60 mm (0.0630 in)
0C	1.65 mm (0.0650 in)
0D	1.70 mm (0.0669 in)
0E	1.75 mm (0.0689 in)
0F	1.80 mm (0.0709 in)
0G	1.85 mm (0.0728 in)
0H	1.90 mm (0.0748 in)
0I	1.95 mm (0.0768 in)
0J	2.00 mm (0.0787 in)
S	2.05 mm (0.0807 in)
T	2.10 mm (0.0827 in)
U	2.15 mm (0.0846 in)
A	2.20 mm (0.0866 in)
B	2.25 mm (0.0886 in)
C	2.30 mm (0.0906 in)
D	2.35 mm (0.0925 in)
E	2.40 mm (0.0945 in)
F	2.45 mm (0.0965 in)
G	2.50 mm (0.0984 in)
H	2.55 mm (0.1004 in)
I	2.60 mm (0.1024 in)
J	2.65 mm (0.1043 in)
K	2.70 mm (0.1063 in)
L	2.75 mm (0.1083 in)
M	2.80 mm (0.1102 in)
N	2.85 mm (0.1122 in)
O	2.90 mm (0.1142 in)
P	2.95 mm (0.1161 in)
Q	3.00 mm (0.1181 in)
R	3.05 mm (0.1201 in)
A	1.575 mm (0.0620 in)
B	1.626 mm (0.0640 in)
C	1.675 mm (0.0659 in)
D	1.725 mm (0.0679 in)
E	1.775 mm (0.0699 in)
F	1.825 mm (0.0719 in)
G	1.875 mm (0.0738 in)
H	1.925 mm (0.0758 in)
I	1.975 mm (0.0778 in)

(cont'd)



THRUST SHIM, 76 mm (cont'd)

No.	Thickness
J	2.025 mm (0.0797 in)
K	2.075 mm (0.0817 in)
L	2.125 mm (0.0837 in)
M	2.175 mm (0.0856 in)
N	2.225 mm (0.0876 in)
O	2.275 mm (0.0896 in)
P	2.325 mm (0.0915 in)
Q	2.375 mm (0.0935 in)
R	2.425 mm (0.0955 in)
S	2.475 mm (0.0974 in)
T	2.525 mm (0.0994 in)
U	2.575 mm (0.1014 in)
V	2.625 mm (0.1033 in)
W	2.675 mm (0.1053 in)
X	2.725 mm (0.1073 in)
Y	2.775 mm (0.1093 in)
Z	2.825 mm (0.1112 in)
0A	2.875 mm (0.1132 in)
0B	2.925 mm (0.1152 in)
0C	2.975 mm (0.1171 in)
0D	3.025 mm (0.1191 in)

13. Install the new thrust shim, then recheck the starting torque.



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INTRODUCTION

How to Use This Manual

This manual is divided into multiple sections. The first page of each section is marked with a black tab that lines up with its corresponding thumb index tab on this page and the back cover. You can quickly find the first page of each section without looking through a full table of contents. The symbols printed at the top corner of each page can also be used as a quick reference system.


Each section includes:

1. A table of contents, or an exploded view index showing:
 - Parts disassembly sequence.
 - Bolt torques and thread sizes.
 - Page references to descriptions in text.
2. Disassembly/assembly procedures and tools.
3. Inspection.
4. Testing/troubleshooting.
5. Repair.
6. Adjustments.

Safety Messages

Your safety, and the safety of others, is very important. To help you make informed decisions, we have provided safety messages, and other safety information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle. You must use your own good judgment.

You will find important safety information in a variety of forms including:

- **Safety Labels** — on the vehicle.
- **Safety Messages** — preceded by a safety alert symbol  and one of three signal words, DANGER, WARNING, or CAUTION. These signal words mean:

DANGER

You **WILL** be KILLED or SERIOUSLY HURT if you don't follow instructions.

WARNING

You **CAN** be KILLED or SERIOUSLY HURT if you don't follow instructions.

CAUTION

You **CAN** be HURT if you don't follow instructions.

- **Instructions** — how to service this vehicle correctly and safely.
















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As you read this manual, you will find information that is preceded by a **NOTICE** symbol. The purpose of this message is to help prevent damage to your vehicle, other property, or the environment.

First Edition 08/2011
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Honda Motor Co., Ltd.
Service Publication Office

As sections with * include SRS components;
special precautions are required when servicing.

General Information	
Specifications	specs
Maintenance	
*Engine Electrical	
Engine Mechanical	
Engine Cooling	
Fuel and Emissions	
*Transaxle	
*Steering	
Suspension (Including TPMS)	
*Brakes (Including VSA)	
*Body	
*Heating, Ventilation, and Air Conditioning	
*Body Electrical	
*Audio, Navigation, and Telematics	
*Restraints	

2009-12 Honda Fit Volume 2 of 3

SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

The Fit SRS includes a driver's airbag in the steering wheel hub, a front passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags, side airbags, side curtain airbags, and/or seat belt tensioners.
- Do not bump or impact the SRS unit, front impact sensors, or side impact sensors, especially when the ignition switch is in ON (II), or for at least 3 minutes after the ignition switch is turned to LOCK (0); otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, center console, dashboard, dashboard under cover, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.



Transaxle

Driveline/Axle

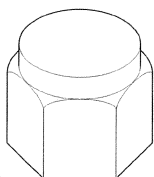
Special Tools	16-2
Component Location Index	16-3
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Intermediate Shaft Installation	16-26



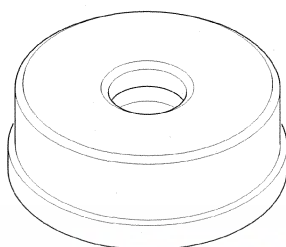
Driveline/Axle

Special Tools

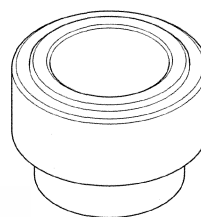
Ref.No.	Tool Number	Description	Qty
①	071AF-S3VA000	Ball Joint Thread Protector, 14 mm	1
②	07746-0010400	Attachment, 52 x 55 mm	1
③	07746-0030400	Attachment, 35 mm I.D.	1
④	07749-0010000	Driver Handle, 15 x 135L	1
⑤	07947-SB00100	Oil Seal Driver, 44.5 mm	1
⑥	07JAD-PL90100	Oil Seal Driver, 65	1
⑦	07MAC-SL0A202	Ball Joint Remover, 28 mm	1
⑧	07NAF-SR30101	Half Shaft Base	1
⑨	07XAC-001010A	Threaded Adapter, 22 x 1.5 mm	1



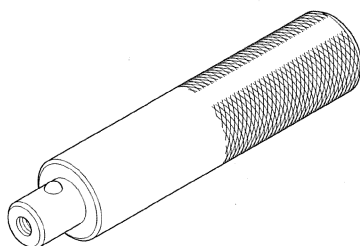
①



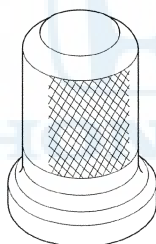
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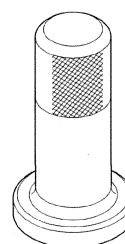
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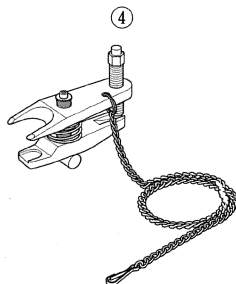
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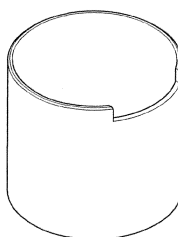
⑤



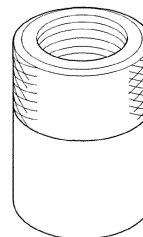
⑥



⑦



⑧

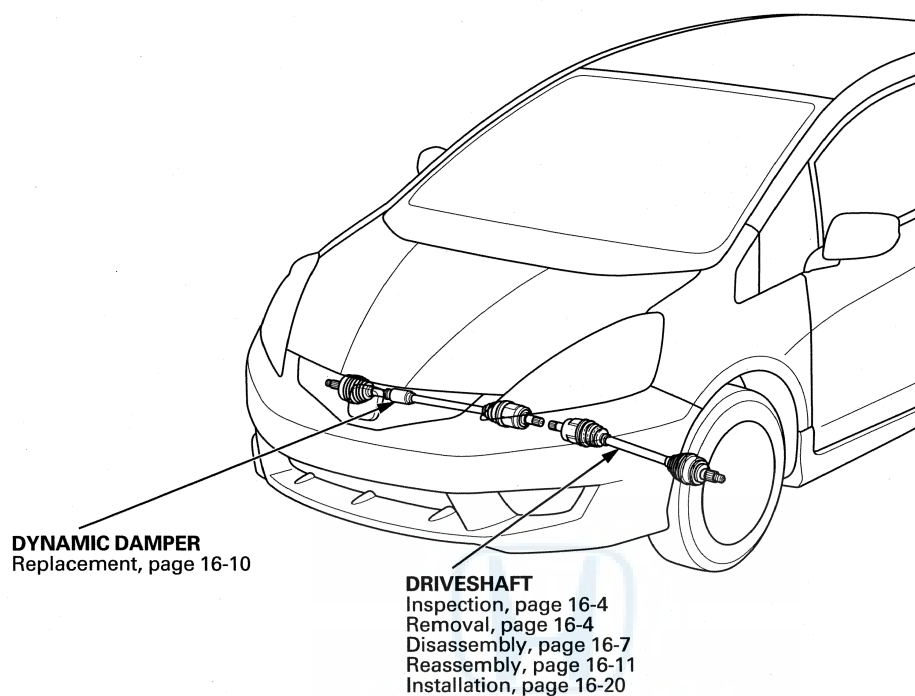


⑨

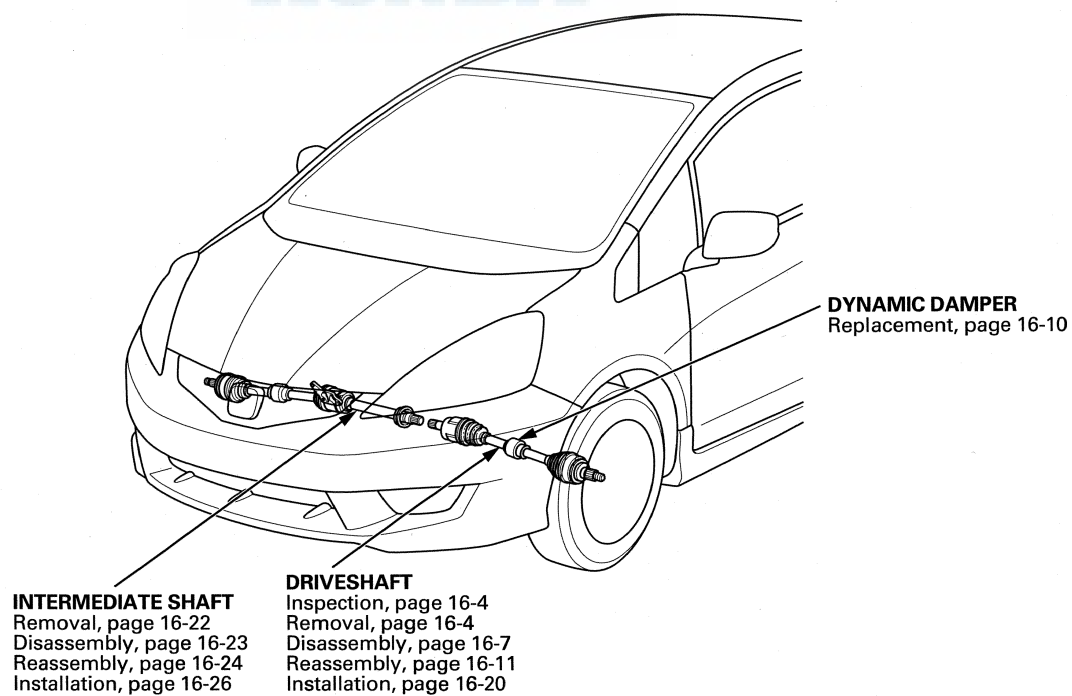


Component Location Index

M/T model



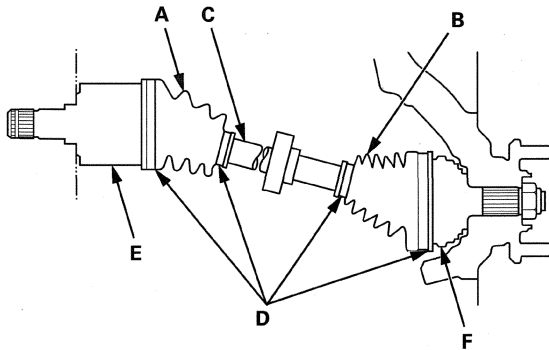
A/T model



Driveline/Axle

Driveshaft Inspection

1. Check the inboard boot (A) and the outboard boot (B) on the driveshaft (C) for cracks, damage, leaking grease, and loose boot bands (D). If any damage is found, replace the boot and the boot bands.



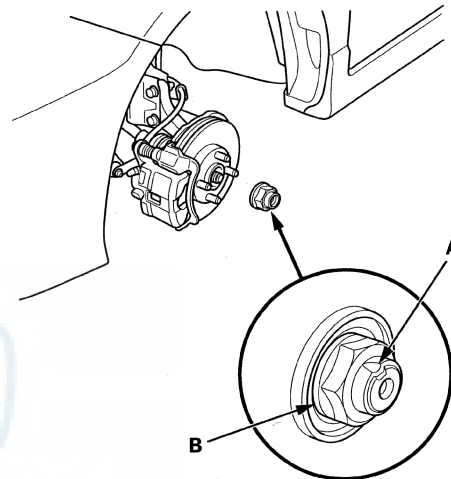
2. Check the driveshaft for cracks and damage. If any damage is found, replace the driveshaft.
3. Check the inboard joint (E) and the outboard joint (F) for cracks and damage. If any damage is found, replace the inboard joint or the outboard joint as an assembly.
4. Hold the inboard joint, and turn the front wheel by hand. Make sure the joint is not excessively loose. If necessary, replace the inboard joint or the outboard joint as an assembly.

Driveshaft Removal

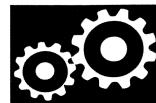
Special Tools Required

- Ball Joint Remover, 28 mm 07MAC-SL0A202
- Ball Joint Thread Protector, 14 mm 071AF-S3VA000

1. Raise and support the vehicle (see page 1-14).
2. Remove the front wheel.
3. Pry up the stake (A) on the spindle nut (B), then remove the nut.



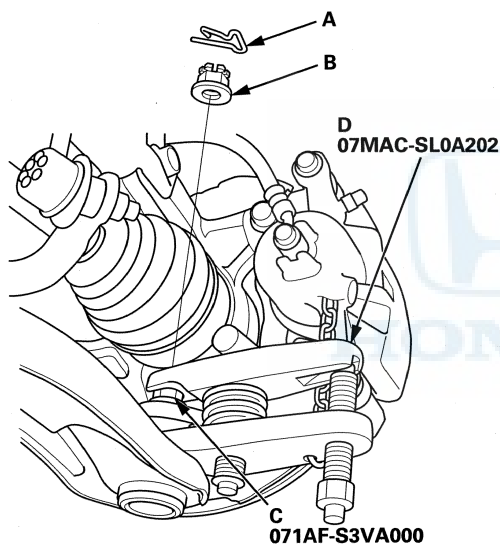
4. Drain the transmission fluid. Reinstall the drain plug using a new sealing washer:
 - Manual transmission (see page 13-5)
 - Automatic transmission (see page 14-191)



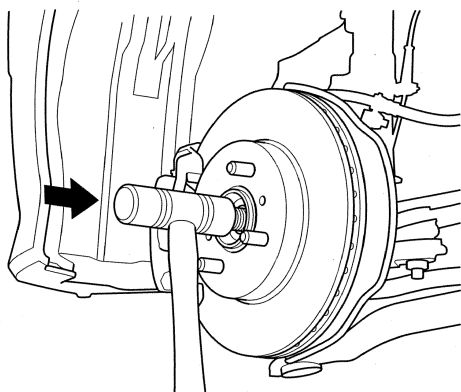
5. Remove the lock pin (A) from the lower arm ball joint, then remove the castle nut (B). Separate the ball joint from the knuckle using the 14 mm ball joint thread protector (C) and the 28 mm ball joint remover (D) (see page 18-13).

NOTE:

- To avoid damaging the ball joint, install the ball joint thread protector onto the threads of the ball joint.
- Be careful not to damage the ball joint boot when installing the remover (see page 18-13).
- Do not force or hammer on the lower arm, or pry between the lower arm and the knuckle. You could damage the ball joint.



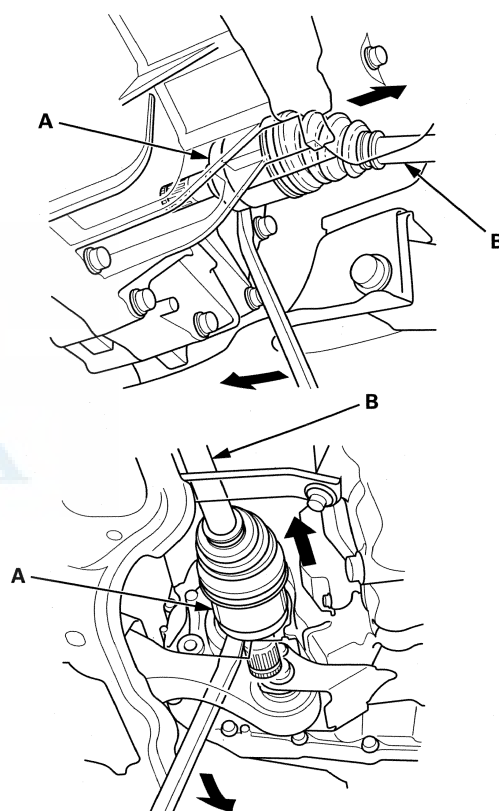
6. Pull the knuckle outward, and separate the outboard joint from the front hub using a soft face hammer.



7. Left and right driveshaft (M/T model)/left driveshaft (A/T model): Pry the inboard joint (A) from the differential using a pry bar. Remove the driveshaft as an assembly.

NOTE:

- Do not pull on the driveshaft (B), or the inboard joint may come apart. Pull the inboard joint straight out to avoid damaging the oil seal.
- Be careful not to damage the oil seal or the end of the inboard joint with the pry bar.



(cont'd)

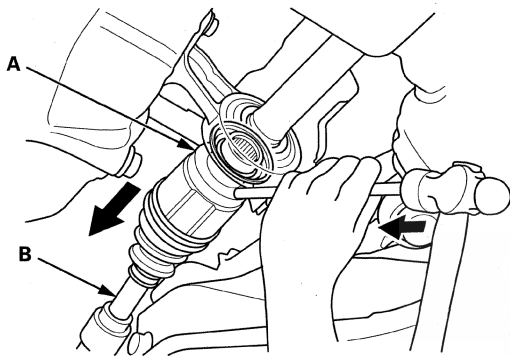
Driveline/Axle

Driveshaft Removal (cont'd)

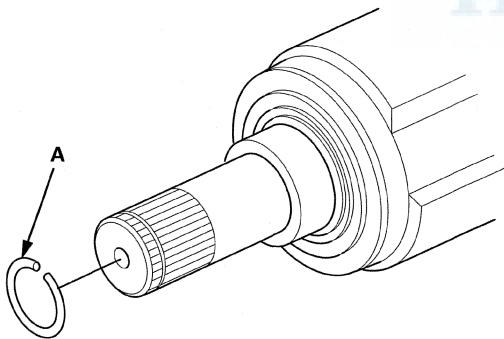
8. Right driveshaft (A/T model): Drive the inboard joint (A) off of the intermediate shaft using a drift punch and a hammer. Remove the driveshaft as an assembly.

NOTE:

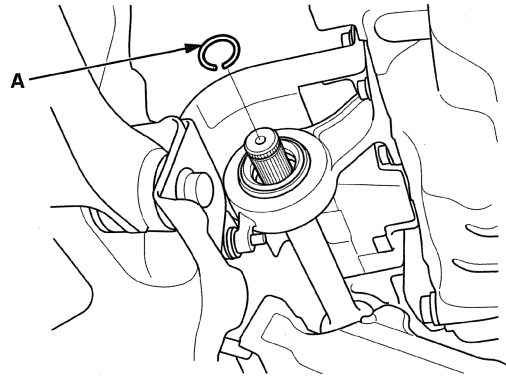
- Do not pull the assembly by the driveshaft (B), or the inboard joint may come apart.
- Be careful not to damage the oil seal or the end of the inboard joint with the drift punch or the pry bar.



9. Remove the set ring (A) from the inboard joint (Except A/T model right driveshaft).



10. Remove the set ring (A) from the intermediate shaft (A/T model right driveshaft).





Driveshaft Disassembly

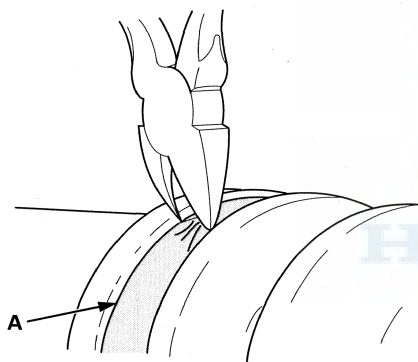
Special Tools Required

- Threaded Adapter, 22 x 1.5 mm 07XAC-001010A
- Slide Hammer 5/8"-18 UNF, commercially available
- Bearing Puller, commercially available
- Boot Band Pliers, commercially available

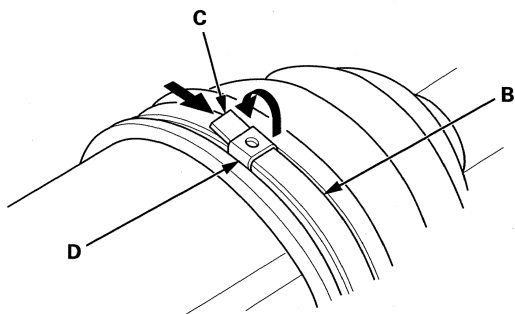
Inboard Joint Side

1. Remove the boot bands. Be careful not to damage the boot.
 - If the boot band is welded type (A), cut the boot band.
 - If the boot band is a double loop type (B), lift up the band end (C), and push it into the clip (D).
 - If the boot band is a low profile type (E), pinch the boot band using commercially available boot band pliers (F).

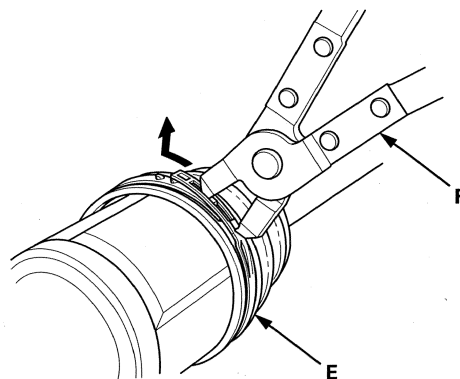
Welded type



Double loop type

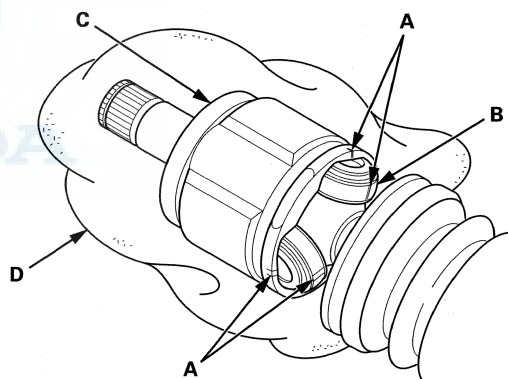


Low profile type



2. Make marks (A) on each roller (B) and the inboard joint (C) to identify the locations of rollers to the grooves in the inboard joint.

NOTE: Do not engrave or scribe any marks on the rolling surface.



3. Remove the inboard joint on a clean shop towel (D). Be careful not to drop the rollers when separating them from the inboard joint.

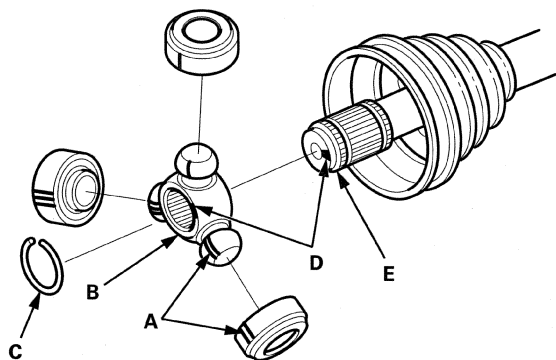
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Driveline/Axle

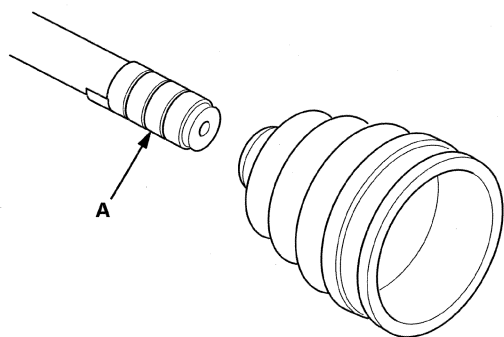
Driveshaft Disassembly (cont'd)

4. Make marks (A) on the spider (B) that match the marks on the rollers then remove the rollers.

NOTE: Do not engrave or scribe any marks on the rolling surface.



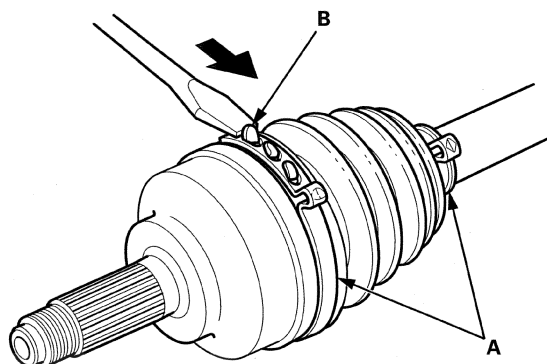
5. Remove the circlip (C).
6. Make marks (D) on the spider and driveshaft (E) to identify the position of the spider on the shaft.
7. Remove the spider.
- NOTE: If necessary, use a commercially available puller while being careful not to damage the spider.
8. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damaging the boot.



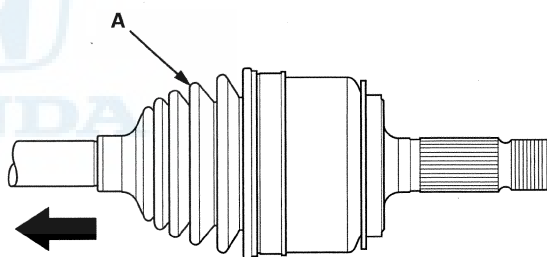
9. Remove the inboard boot. Be careful not to damage the boot.
10. Remove the vinyl tape.

Outboard Joint Side

1. Remove the boot bands (A). Lift up the three tabs (B) with a screwdriver, then release the band. Be careful not to damage the boot.



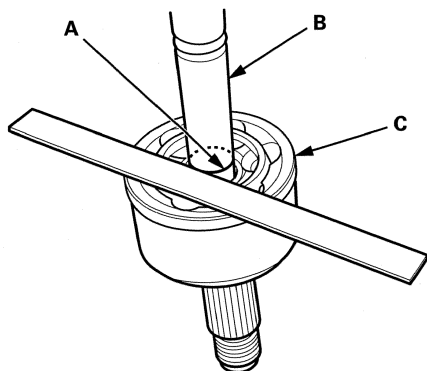
2. Slide the outboard boot (A) partially toward the inboard joint side. Be careful not to damage the boot.



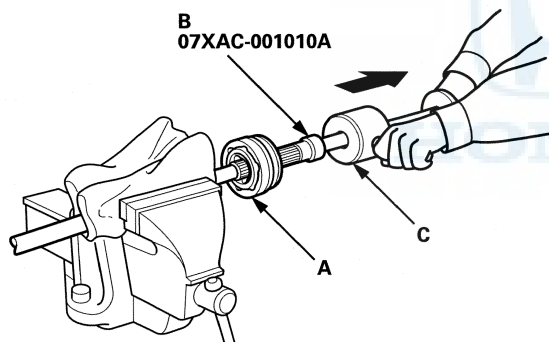
3. Wipe off the grease to expose the driveshaft and the outboard joint inner race.



4. Make a mark (A) on the driveshaft (B) at the same level as the outboard joint end (C).

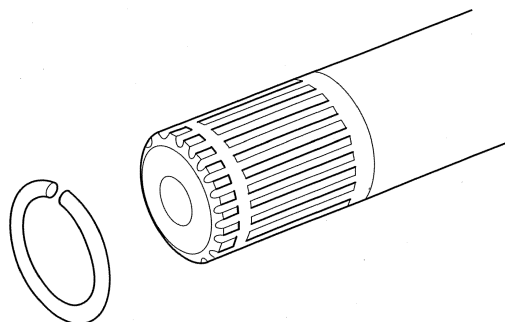


5. Securely clamp the driveshaft in a bench vise with a shop towel wrapped around the driveshaft.
6. Remove the outboard joint (A) using the 22 x 1.5 mm threaded adapter (B) and a commercially available 5/8"-18 UNF slide hammer (C).

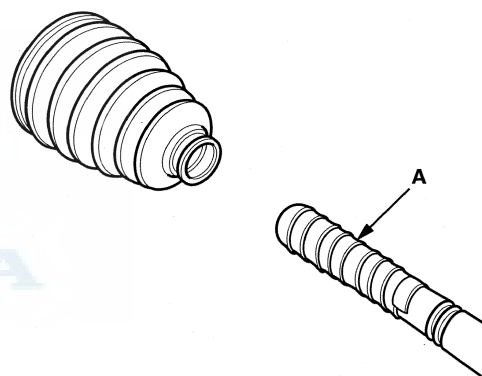


7. Remove the driveshaft from the bench vise.

8. Remove the stop ring from the driveshaft.



9. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damaging the boot.



10. Remove the outboard boot. Be careful not to damage the boot.

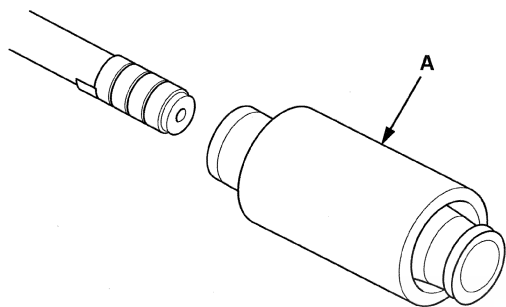
11. Remove the vinyl tape.

Driveline/Axle

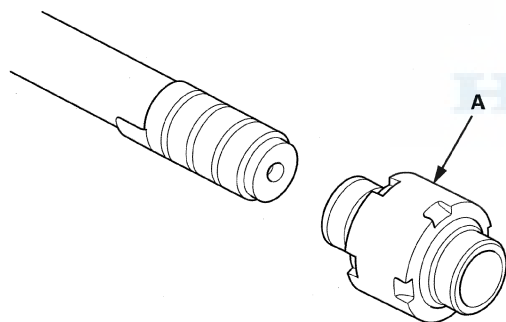
Dynamic Damper Replacement

1. Remove the inboard joint and the inboard joint boot (see page 16-7).
2. Remove the dynamic damper band (see step 1 on page 16-7).
3. Remove the dynamic damper (A).

Dynamic damper type 1



Dynamic damper type 2



4. Install a new dynamic damper.

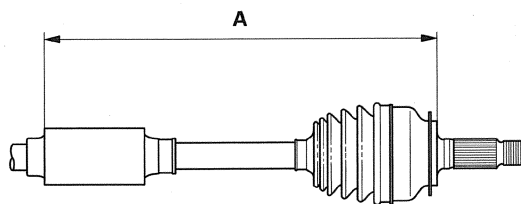
NOTE: Be careful not to swap the dynamic dampers. Check the type of dynamic damper by its shape.

Model	Left/Right driveshaft	Dynamic damper (A) type
M/T	Left	
	Right	1
A/T	Left	2
	Right	2

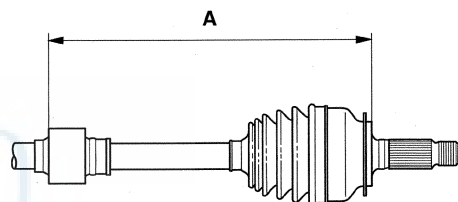
5. Adjust the specified distance (A) between the outboard joint side and the dynamic damper edge.

NOTE: Check the type of dynamic damper by its shape.

Dynamic damper type 1



Dynamic damper type 2



Model	Left/Right driveshaft	Dynamic damper type	Specified distance (A)
M/T	Left		
	Right	1	287—292 mm (11.30—11.50 in)
A/T	Left	2	250.5—255.5 mm (9.8445—10.059 in)
	Right	2	

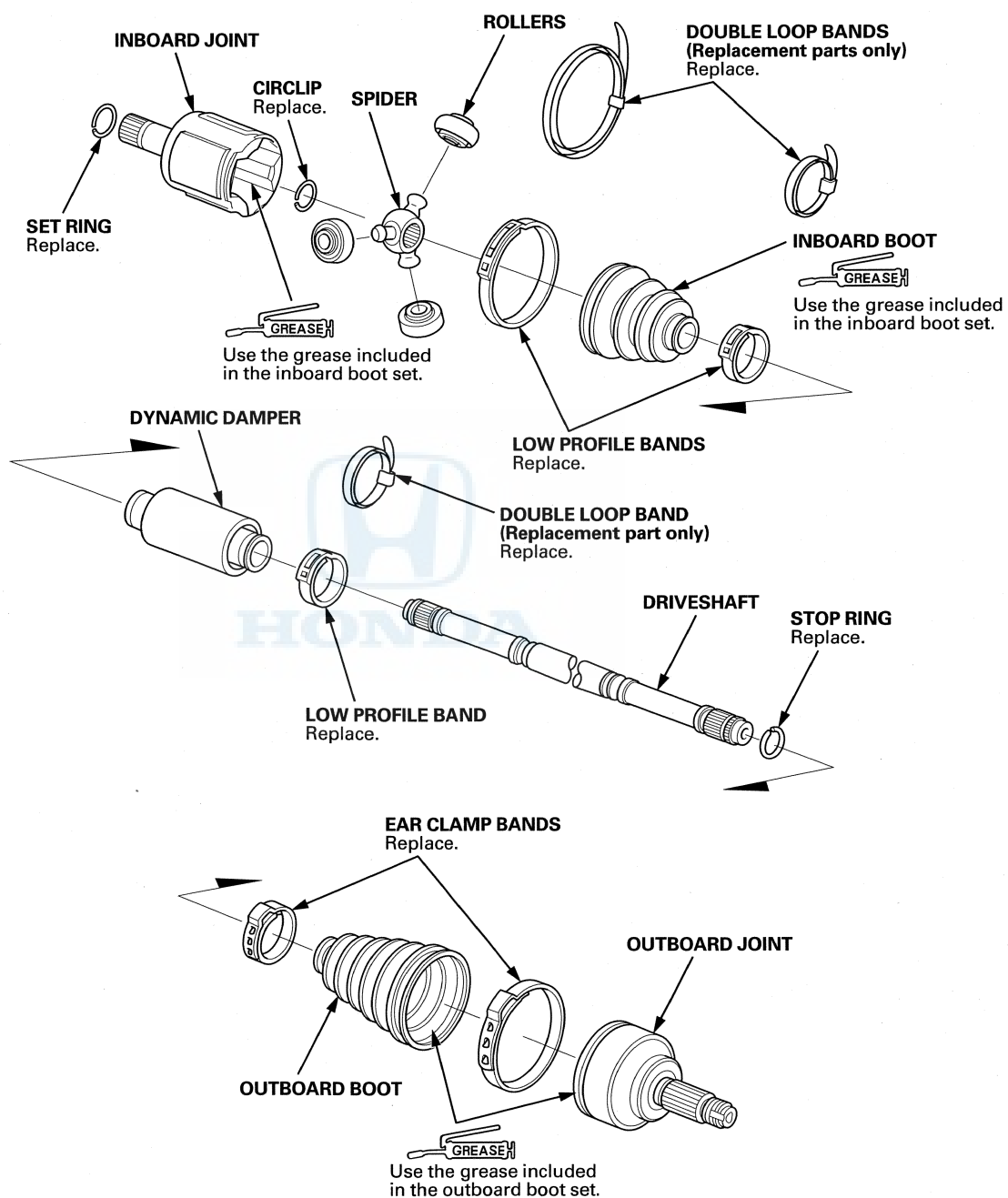
6. Install a new dynamic damper band (see step 10 on page 16-14).
7. Install the inboard joint (see page 16-13).



Driveshaft Reassembly

Exploded View

M/T model



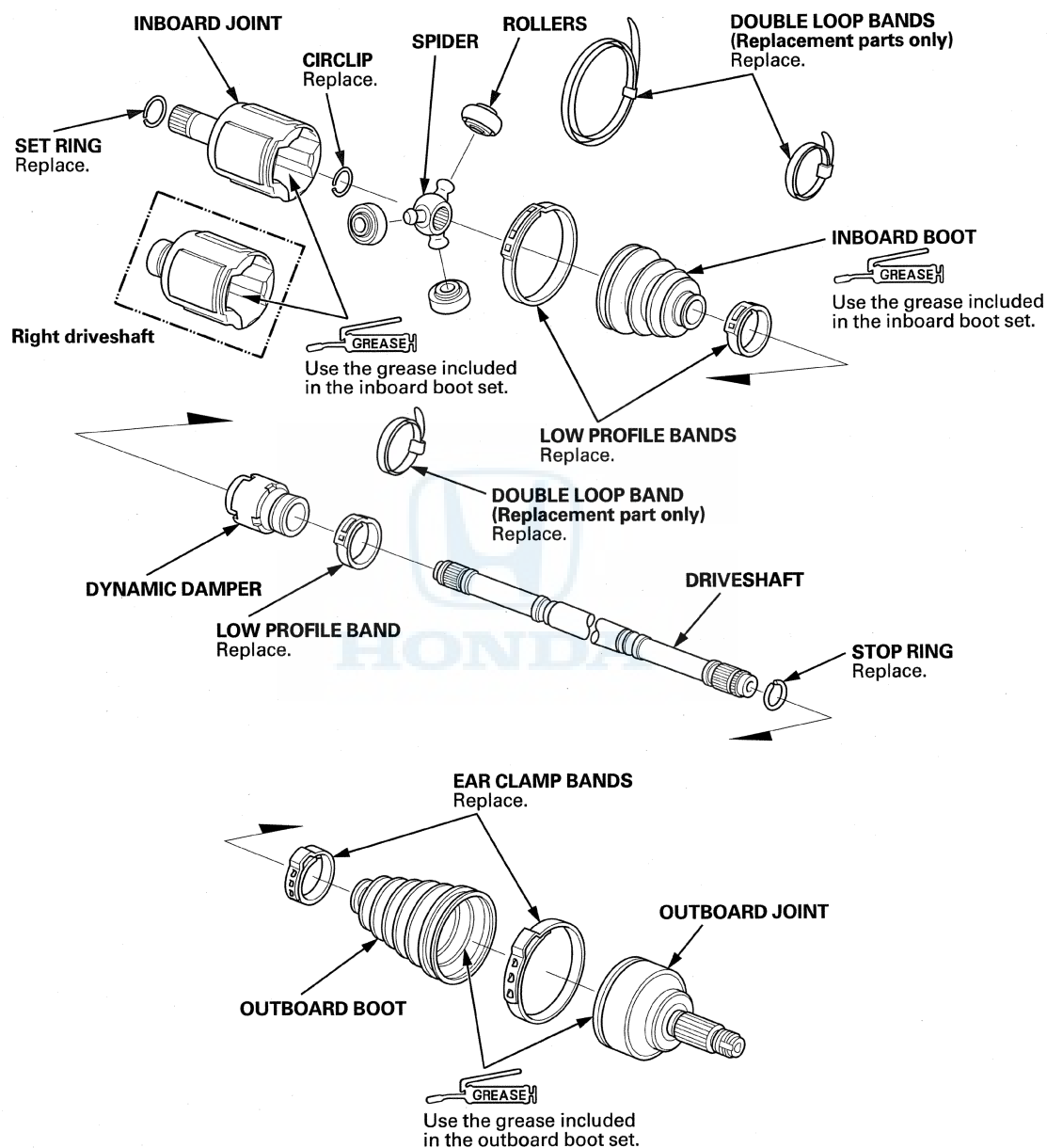
(cont'd)

Driveline/Axle

Driveshaft Reassembly (cont'd)

Exploded View

A/T model





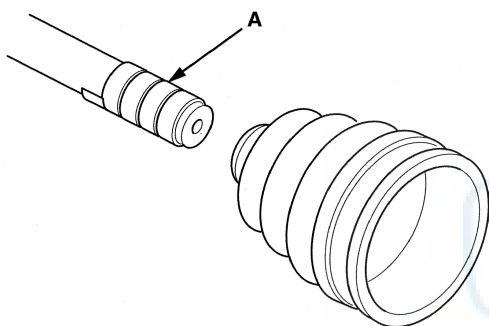
Special Tools Required

- Boot Band Tool KD-3191 or equivalent, commercially available
- Boot Band Clamp Tool Kent-Moore J-35910 or equivalent, commercially available
- Boot Band Pliers, commercially available

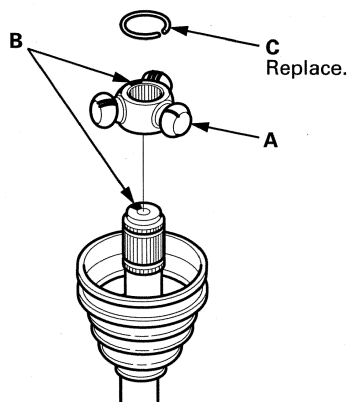
NOTE: Refer to the Exploded View as needed during this procedure.

Inboard Joint Side

1. Wrap the splines with vinyl tape (A) to prevent damaging the inboard boot.



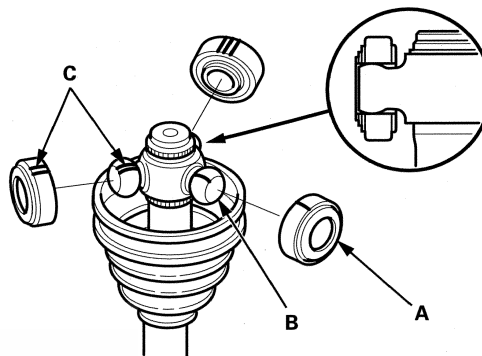
2. Install the inboard boot onto the driveshaft, then remove the vinyl tape. Be careful not to damage the inboard boot.
3. Install the spider (A) onto the driveshaft by aligning the marks (B) you made on the spider and the end of the driveshaft.



4. Install a new circlip (C) into the driveshaft groove. Always rotate the circlip in its groove to make sure it is fully seated.

5. Fit the rollers (A) onto the spider (B) and note these items:

- Reinstall the rollers in their original positions on the spider by aligning the marks (C) you made.
- Hold the driveshaft pointed up to prevent the rollers from falling off.



6. Pack the inboard joint with the joint grease included in a new inboard boot set.

Grease quantity

Inboard joint: 90—100 g (3.17—3.53 oz)



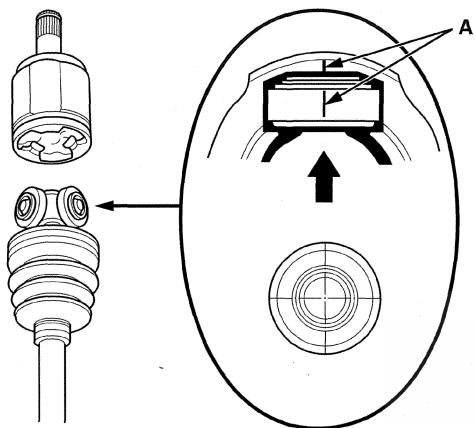
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Driveline/Axle

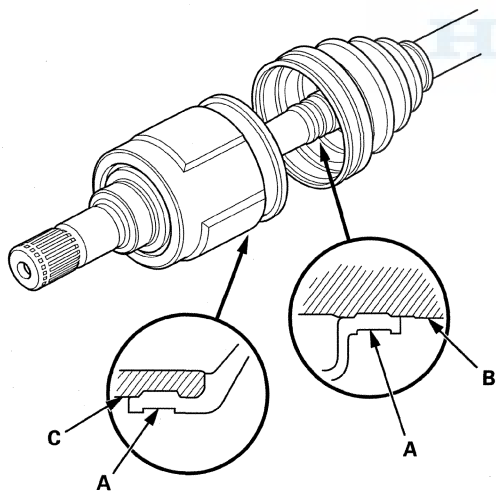
Driveshaft Reassembly (cont'd)

7. Fit the inboard joint onto the driveshaft and note these items:

- Reinstall the inboard joint onto the driveshaft by aligning the marks (A) you made on the inboard joint and the rollers.
- Hold the driveshaft so the inboard joint is pointing up to prevent it from falling off.

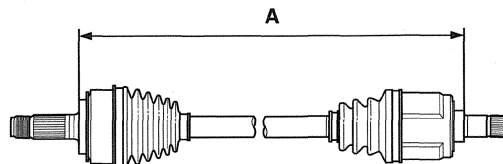


8. Fit the boot ends (A) onto the driveshaft (B) and the inboard joint (C).

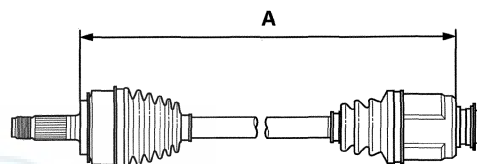


9. Adjust the length (A) of the driveshafts in the figure as shown, then adjust the boots to halfway between full compression and full extension. Bleed excess air from the boots by inserting a flat-tipped screwdriver between the boot and the joint.

Driveshaft type 1



Driveshaft type 2



Model	Left/Right driveshaft	Driveshaft type	Specified length (A)
M/T	Left	1	528—533 mm (20.79—20.98 in)
	Right	1	783—788 mm (30.83—31.02 in)
A/T	Left	1	528—533 mm (20.79—20.98 in)
	Right	2	483—488 mm (19.02—19.21 in)

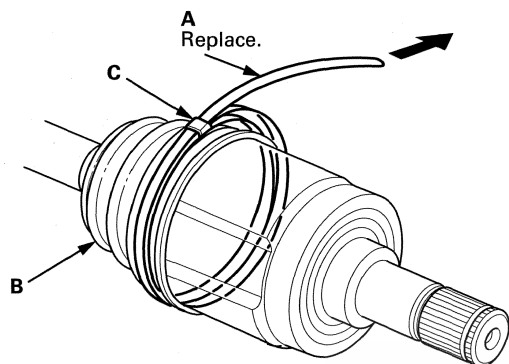
10. Install new boot bands.

- For the double loop type, go to step 11.
- For the low profile type, go to step 20.



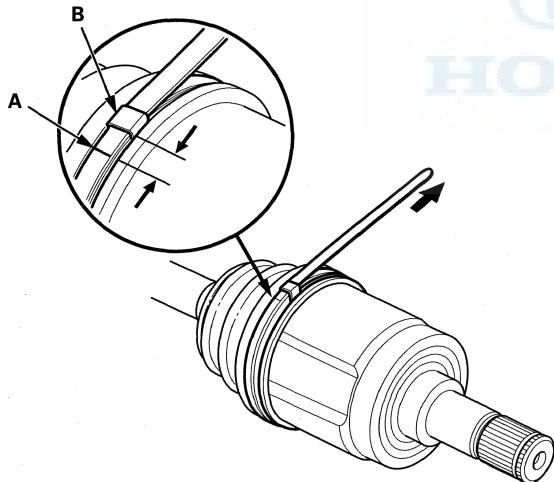
11. Fit the boot ends onto the driveshaft and the inboard joint, then install a new double loop band (A) onto the boot (B).

NOTE: Pass the end of the new double loop band through the clip (C) twice in the direction of the forward rotation of the driveshaft.

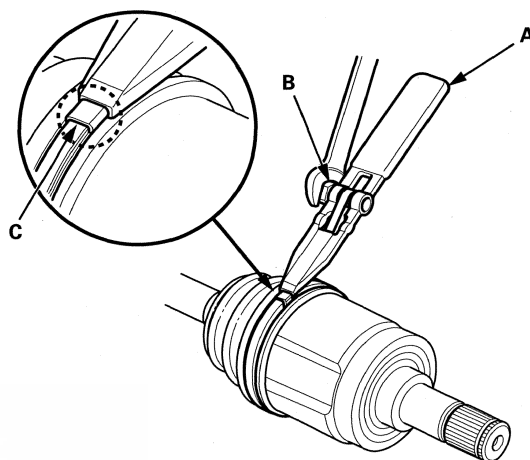


12. Pull up the slack in the band by hand.

13. Mark a line (A) on the band 10–14 mm (0.39–0.55 in) from the clip (B).

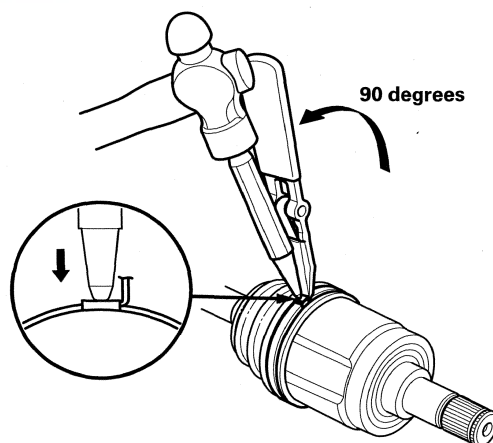


14. Thread the free end of the band through the nose section of the commercially available boot band tool (KD-3191 or equivalent) (A) and into the slot on the winding mandrel (B).



15. Using a wrench on the winding mandrel of the boot band tool, tighten the band until the marked line (C) on the band meets the edge of the clip.

16. Lift up the boot band tool to bend the free end of the band 90 degrees to the clip. Center-punch the clip, then fold over the remaining tail onto the clip.

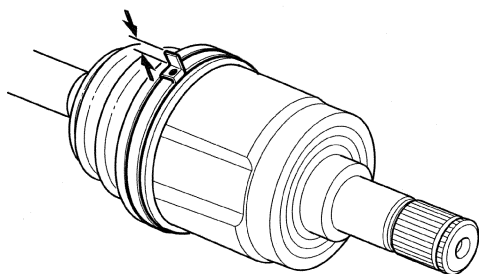


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Driveline/Axle

Driveshaft Reassembly (cont'd)

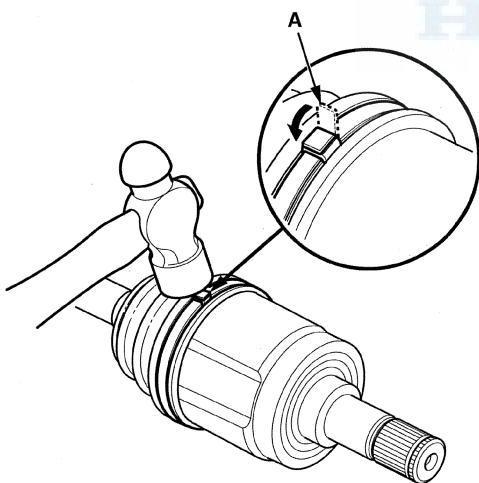
17. Unwind the boot band tool, and cut off the excess free end of the band to leave a 5–10 mm (0.2–0.39 in) tail protruding from the clip.



18. Bend the band end (A) by tapping it down using a hammer.

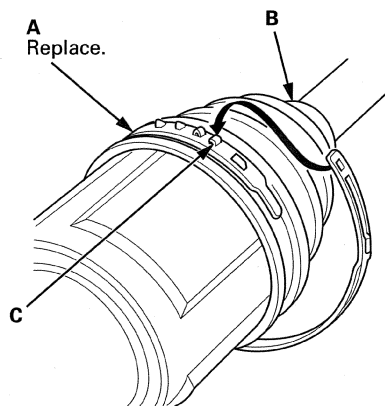
NOTE:

- Make sure the band and the clip do not interfere with anything on the vehicle and the band does not move.
- Clean any grease remaining on the surrounding surfaces.

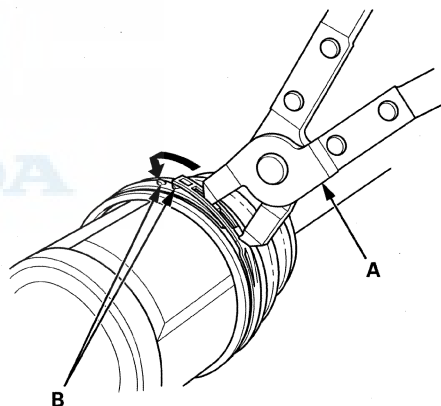


19. Repeat steps 11 through 18 for the band on the other end of the boot.

20. Install a new low profile band (A) onto the boot (B), then hook the tab (C) of the band.



21. Close the hook portion of the band using a commercially available boot band pliers (A), then hook the tabs (B) of the band.

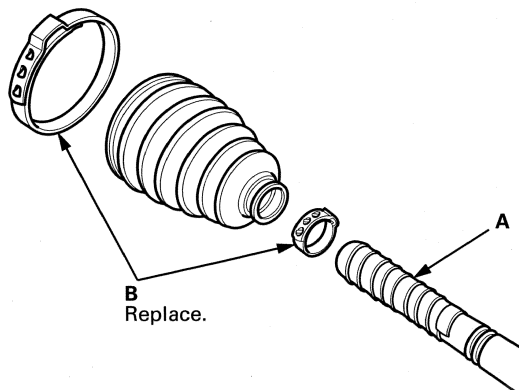


22. Repeat steps 20 and 21 for the band on the other end of the boot.



Outboard Joint Side

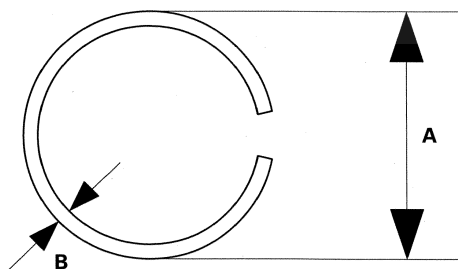
1. Wrap the splines on the driveshaft with vinyl tape (A) to prevent damaging the outboard boot.



2. Install new ear clamp bands (B) and the outboard boot, then remove the vinyl tape. Be careful not to damage the outboard boot.
3. Make sure to check the size of a new stop ring.

NOTICE

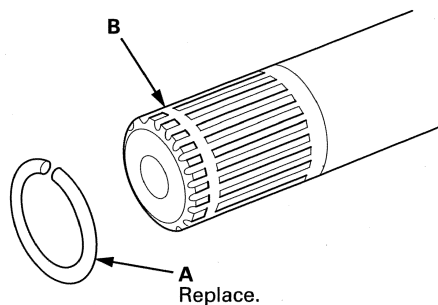
To avoid driveshaft and vehicle damage, make sure you install a new stop ring.



Stop ring specifications

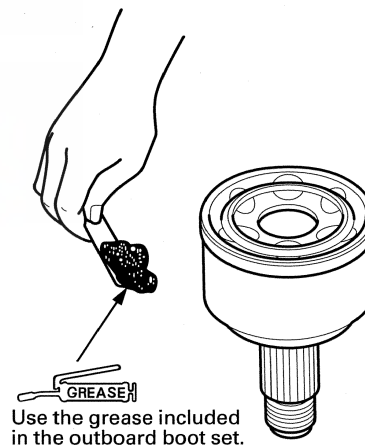
Model	Over diameter (A)	Wire diameter (B)
M/T	26.0 mm (1.024 in)	2.0 mm (0.079 in)
A/T	23.5 mm (0.925 in)	2.0 mm (0.079 in)

4. Install the stop ring (A) into the driveshaft groove (B).



5. Pack about 35 g (1.23 oz) of grease included in the new outboard boot set into the driveshaft hole in the outboard joint.

NOTE: If you are installing a new outboard joint, the grease is already installed.

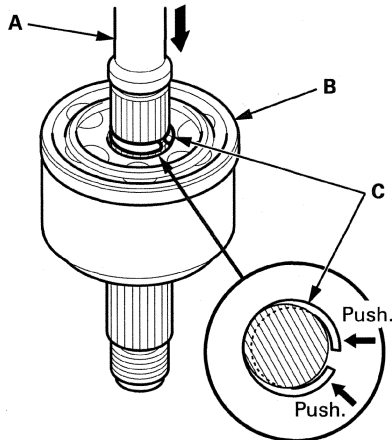


(cont'd)

Driveline/Axle

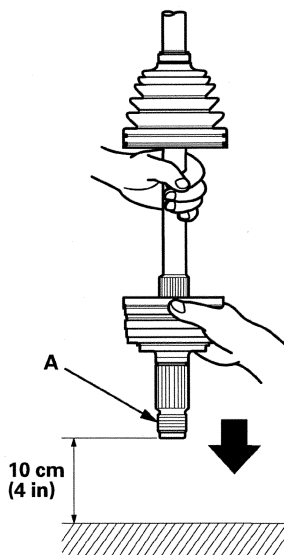
Driveshaft Reassembly (cont'd)

6. Insert the driveshaft (A) into the outboard joint (B) until the stop ring (C) is close to the joint.



7. To completely seat the outboard joint, pick up the driveshaft and joint, and tap or hit the assembly onto a hard surface from a height of about 10 cm (4 in).

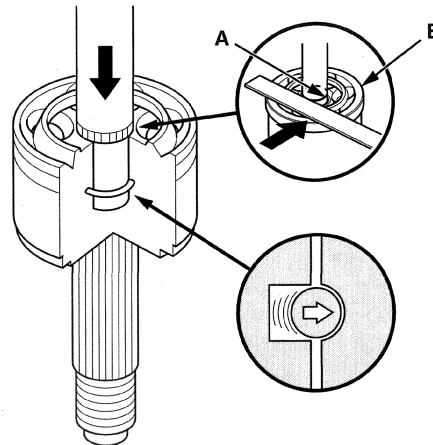
NOTE: Do not use a hammer as excessive force may damage the driveshaft. Be careful not to damage the threaded section (A) of the outboard joint.



8. Check the alignment of the paint mark (A) you made with the outboard joint end (B).

NOTICE

To avoid driveshaft and vehicle damage, the shaft must be all the way into the outer joint to ensure the set ring is properly seated.



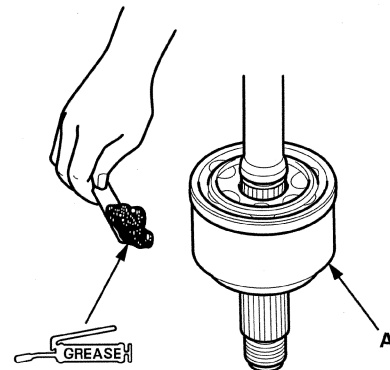
9. Pack the outboard joint (A) with the remaining joint grease included in the outboard boot set.

Total grease quantity

Outboard joint:

M/T model: 85–95 g (3.0–3.35 oz)

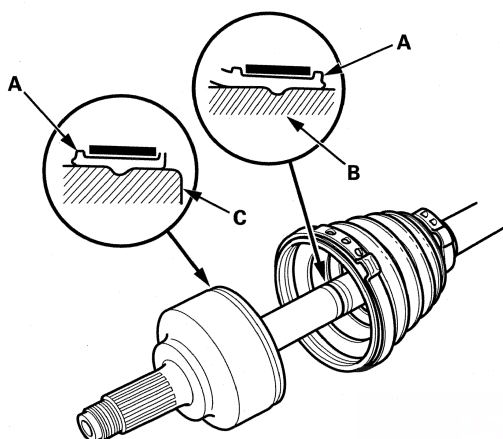
A/T model: 95–105 g (3.35–3.70 oz)



Use the grease included in the outboard boot set.

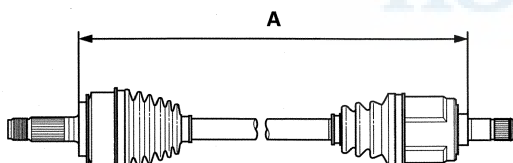


10. Fit the boot ends (A) onto the driveshaft (B) and the outboard joint (C). Bleed any excess air from the boot by inserting a flat-tipped screwdriver between the boot and the joint.

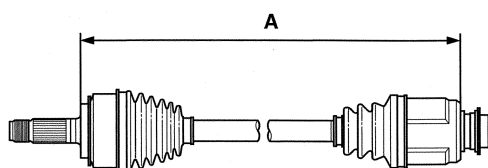


11. Inspect the length (A) of the driveshafts in the figure as shown, then adjust the boots to halfway between full compression and full extension.

Driveshaft type 1

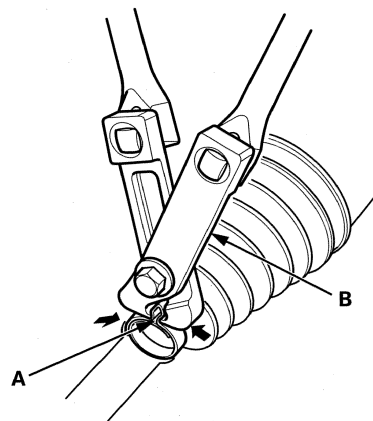


Driveshaft type 2

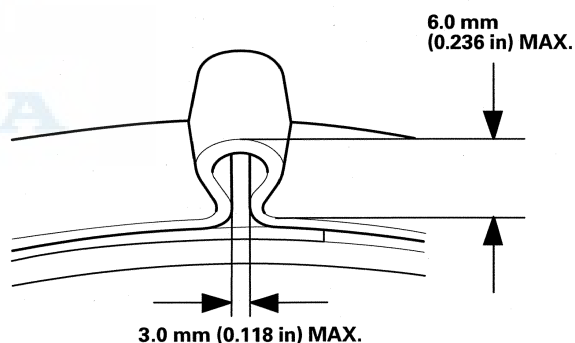


Model	Left/Right driveshaft	Driveshaft type	Specified length (A)
M/T	Left	1	528–533 mm (20.79–20.98 in)
	Right	1	783–788 mm (30.83–31.02 in)
A/T	Left	1	528–533 mm (20.79–20.98 in)
	Right	2	483–488 mm (19.02–19.21 in)

12. Close the ear portion (A) of the band using a commercially available boot band clamp tool (Kent-Moore J-35910 or equivalent) (B).



13. Check the clearance between the closed ear portion of the band. If the clearance is not within the standard, close the ear portion of the band tighter.



14. Repeat steps 12 and 13 for the band on the other end of the boot.

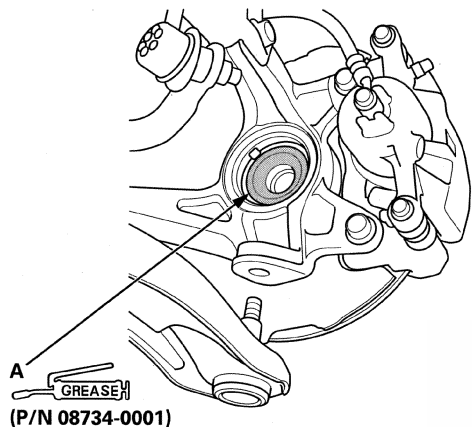
Driveline/Axle

Driveshaft Installation

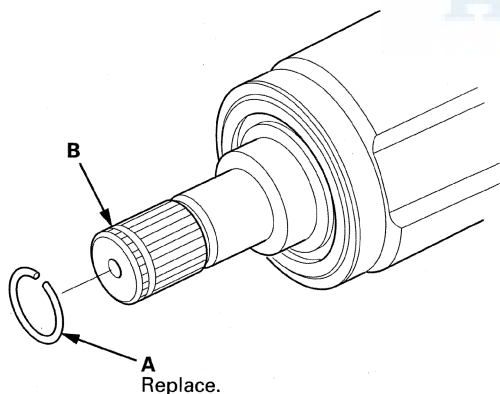
NOTE: Before starting installation, make sure the mating surfaces of the joint and the splined section are clean.

1. Apply about 5 g (0.18 oz) moly 60 paste (P/N 08734-0001) to the contact area (A) of the outboard joint and the front wheel bearing.

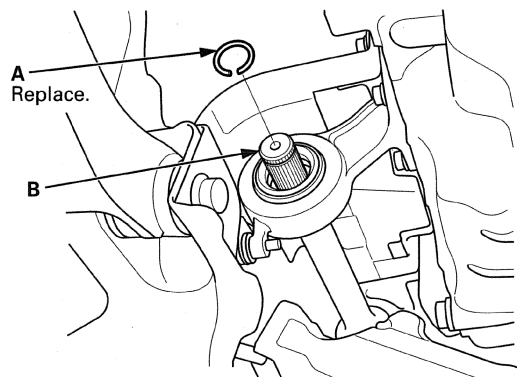
NOTE: The paste helps to prevent noise and vibration.



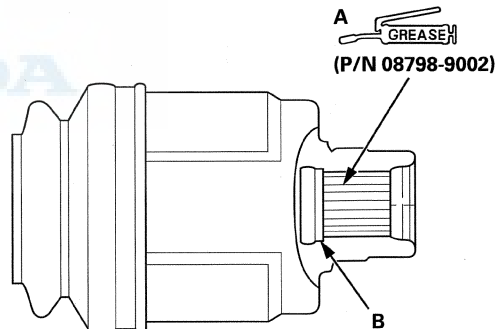
2. Install a new set ring (A) into the set ring groove (B) of the driveshaft inboard joint (except A/T model right driveshaft).



3. Install a new set ring (A) into the set ring groove (B) of the intermediate shaft (A/T model).



4. Apply 0.5—1.0 g (0.018—0.035 oz) of super high temp urea grease (P/N 08798-9002) to the whole splined surface (A) of the right driveshaft. After applying grease, remove the grease from the splined grooves at intervals of 2—3 splines and from the set ring groove (B) so that air can bleed from the intermediate shaft.



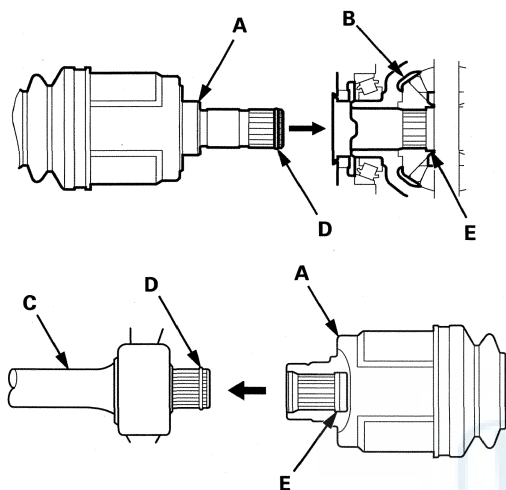
5. Clean the areas where the driveshaft contacts the differential thoroughly with solvent, and dry them with compressed air.

NOTE: Do not wash the rubber parts with solvent.

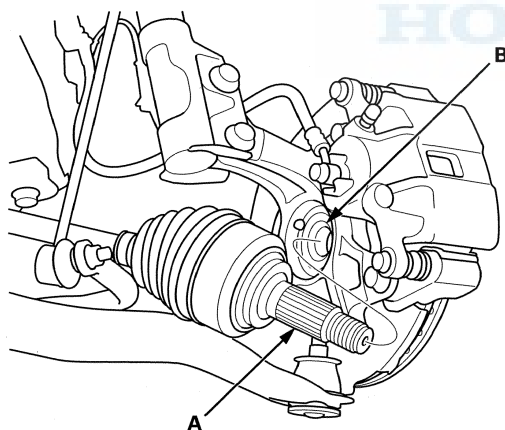


6. Insert the inboard end (A) of the driveshaft into the differential (B) or intermediate shaft (C) until the set ring (D) locks in the groove (E).

NOTE: Insert the driveshaft horizontally to prevent damaging the oil seal.

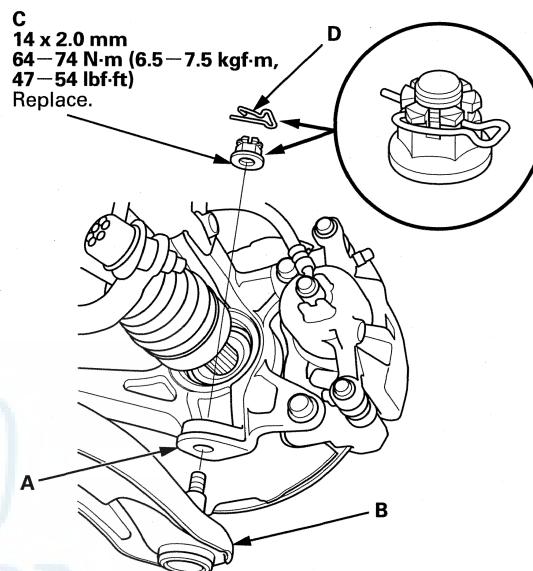


7. Install the outboard joint (A) into the front hub (B) on the knuckle.



8. Wipe off any grease contamination from the ball joint tapered section and threads, then install the knuckle (A) onto the lower arm (B). Be careful not to damage the ball joint boot.

NOTE: Make sure the ball joint boot is not damaged or cracked.



9. Install a new castle nut (C) and torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Install the lock pin (D) into the pin hole as shown.

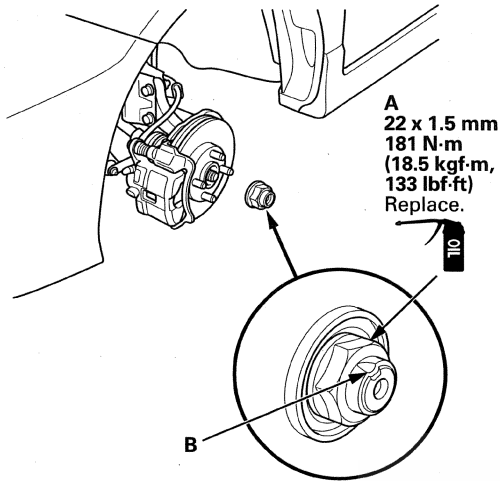
NOTE: Do not align the nut by loosening it.

(cont'd)

Driveline/Axle

Driveshaft Installation (cont'd)

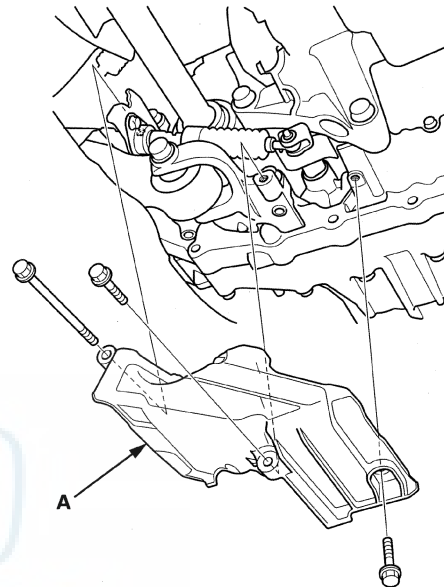
10. Apply a small amount of engine oil to the seating surface of a new spindle nut (A).



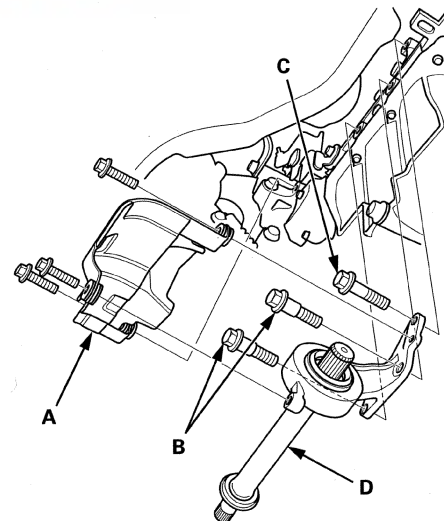
11. Install the spindle nut, then tighten it. After tightening, use a drift to stake the spindle nut shoulder (B) against the driveshaft.
12. Clean the mating surfaces of the brake disc and the wheel, then install the front wheel.
13. Turn the front wheel by hand, and make sure there is no interference between the driveshaft and surrounding parts.
14. Refill the transmission with the recommended transmission fluid:
- Manual transmission (see page 13-5)
 - Automatic transmission (see page 14-191)
15. Lower the vehicle.
16. Check the wheel alignment, and adjust it if necessary (see page 18-6).
17. Test-drive the vehicle.

Intermediate Shaft Removal

1. Drain the transmission fluid. Reinstall the drain plug with a new sealing washer (see page 14-191).
2. Remove the right driveshaft (see page 16-4).
3. Remove the shift cable cover (A).



4. Remove the heat shield (A).



5. Remove the two dowel bolts (B) and the flange bolt (C).
6. Remove the intermediate shaft (D) from the differential. Hold the intermediate shaft horizontally until it is clear of the differential to prevent damaging the oil seal.

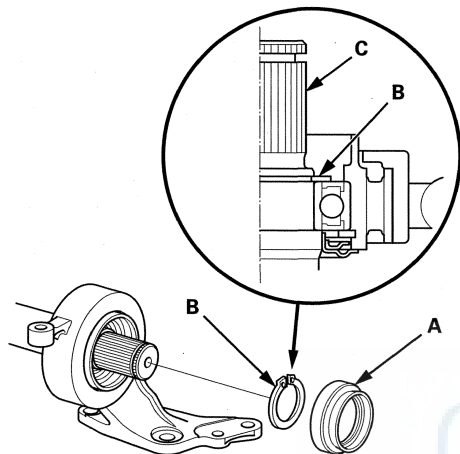


Intermediate Shaft Disassembly

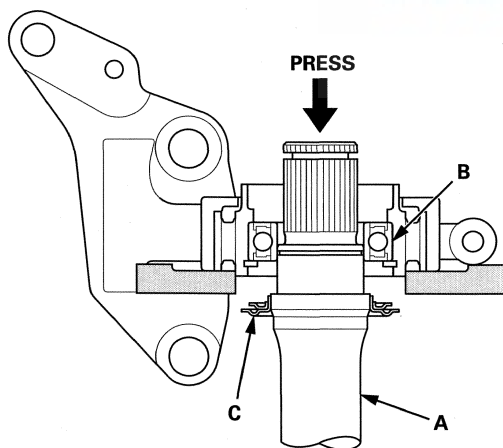
Special Tools Required

- Half Shaft Base 07NAF-SR30101
- Oil Seal Driver, 44.5 mm 07947-SB00100

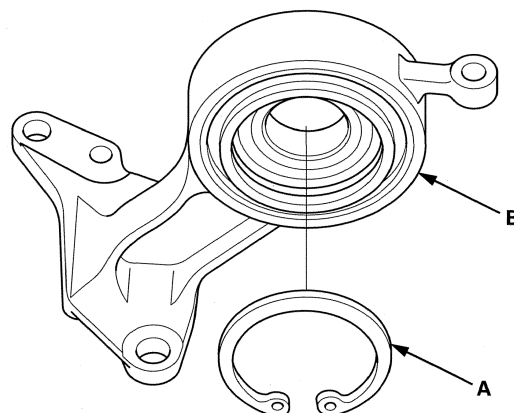
1. Remove the outer seal (A) and the external snap ring (B) from the intermediate shaft (C).



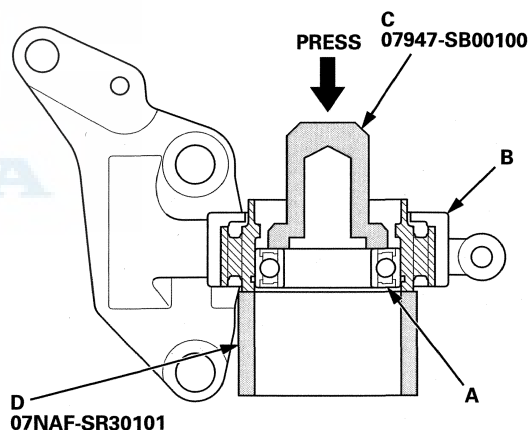
2. Press the intermediate shaft (A) out of the intermediate shaft bearing (B) using a press. Be careful not to damage the bearing support ring (C) on the intermediate shaft during disassembly.



3. Remove the internal snap ring (A) from the bearing support (B).



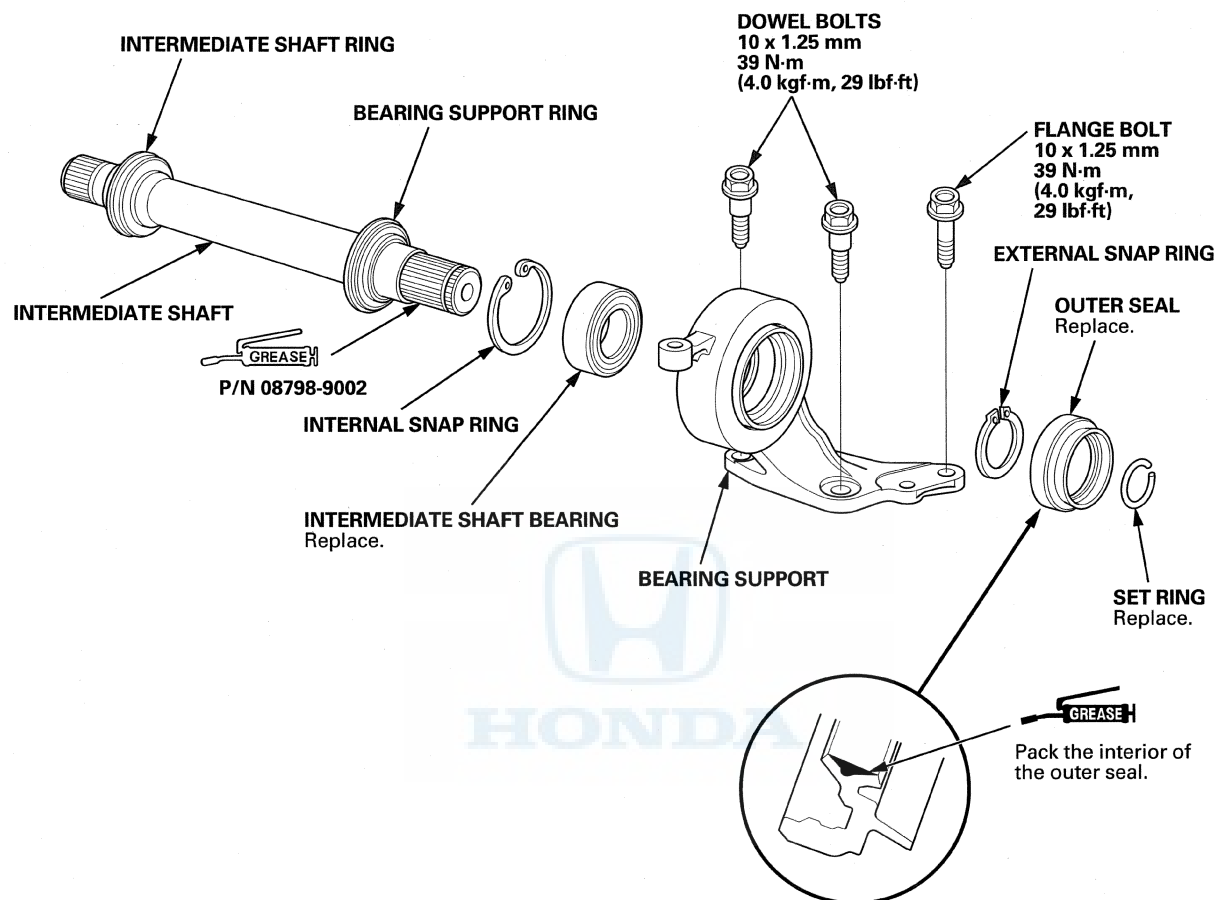
4. Press the intermediate shaft bearing (A) out of the bearing support (B) using the 44.5 mm oil seal driver (C), the half shaft base (D), and a press.

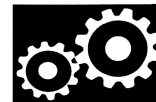


Driveline/Axle

Intermediate Shaft Reassembly

Exploded View





Special Tools Required

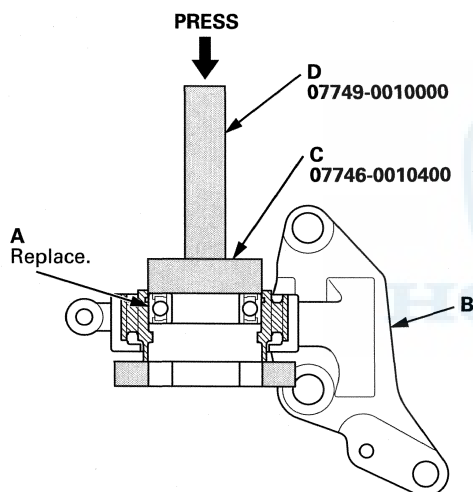
- Oil Seal Driver, 65 07JAD-PL90100
- Attachment, 52 x 55 mm 07746-0010400
- Attachment, 35 mm I.D. 07746-0030400
- Driver Handle, 15 x 135L 07749-0010000

NOTE: Refer to the Exploded View, as needed, during this procedure.

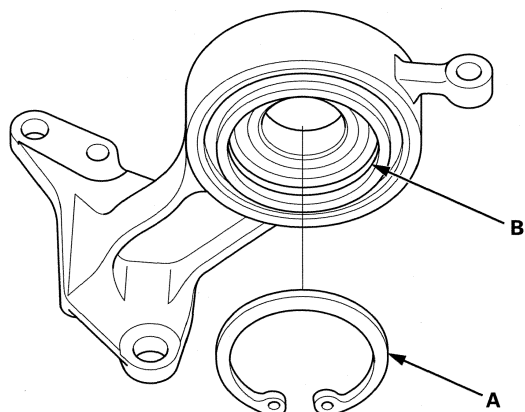
1. Clean the disassembled parts with solvent, and dry them with compressed air.

NOTE: Do not wash the rubber parts with solvent.

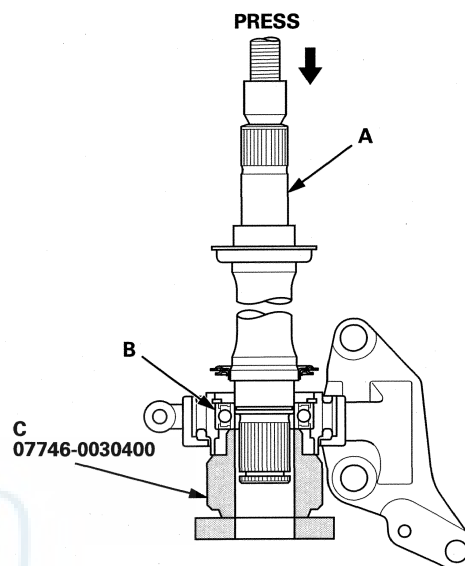
2. Press a new intermediate shaft bearing (A) into the bearing support (B) using the 52 x 55 mm bearing driver attachment (C), the 15 x 135L driver handle (D), and a press.



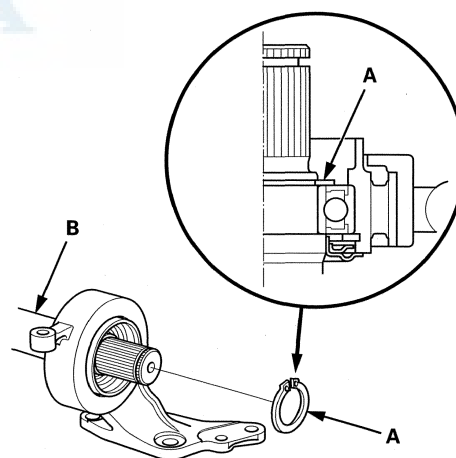
3. Install the internal snap ring (A) into the groove (B) of the bearing support.



4. Press the intermediate shaft (A) into the shaft bearing (B) using the 35 mm inner bearing driver attachment (C) and a press.



5. Install the external snap ring (A) in the groove of the intermediate shaft (B).

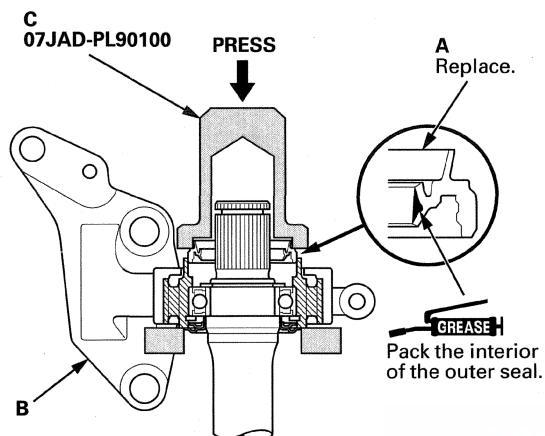


(cont'd)

Driveline/Axle

Intermediate Shaft Reassembly (cont'd)

6. Install a new outer seal (A) into the bearing support (B) using the 65 mm oil seal driver (C) and a press. Press the seal until it is 0 ± 0.2 mm (0 ± 0.008 in) below the surface of the bearing support end.

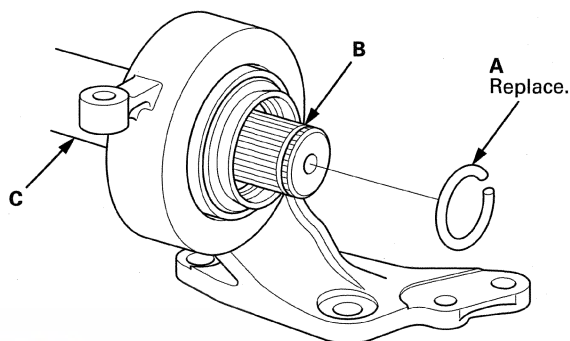


Intermediate Shaft Installation

1. Clean the areas where the intermediate shaft contacts the differential thoroughly with solvent, and dry them with compressed air.

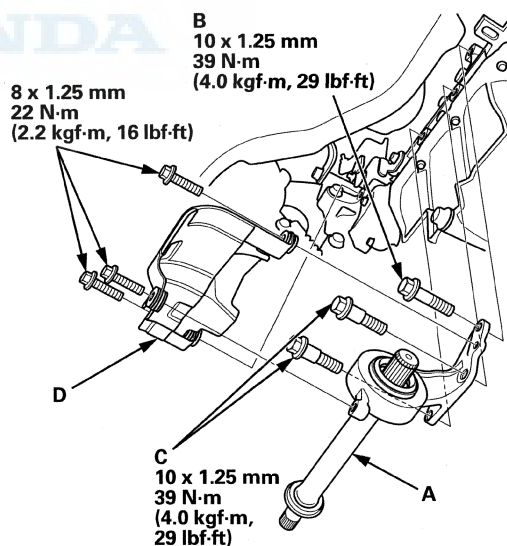
NOTE: Do not wash the rubber parts with solvent.

2. Install a new set ring (A) onto the set ring groove (B) of the intermediate shaft (C).

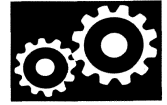


3. Insert the intermediate shaft (A) into the differential correctly.

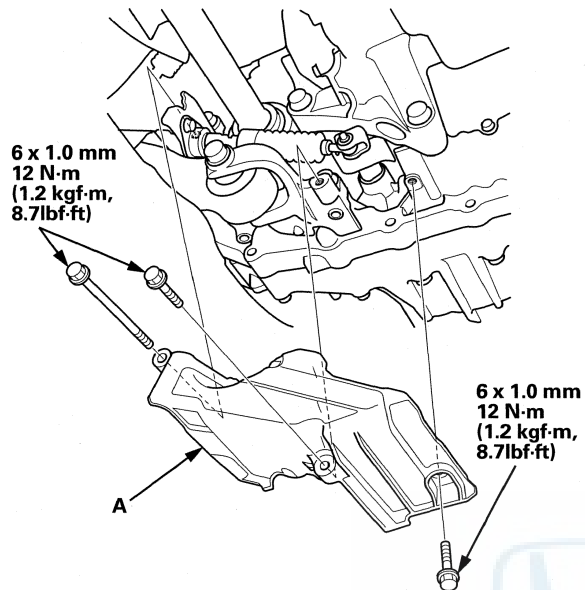
NOTE: Insert the intermediate shaft carefully to prevent damaging the oil seal.



4. Install the flange bolt (B) and the two dowel bolts (C).
5. Install the heat shield (D).



6. Install the shift cable cover (A).



7. Install the right driveshaft (see page 16-20).

8. Refill the transmission with the recommended transmission fluid (see page 14-191).

9. Check the wheel alignment, and adjust it if necessary (see page 18-6).

10. Test-drive the vehicle.

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If steering maintenance is required)

The Fit SRS includes a driver's airbag in the steering wheel hub, a front passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags, side airbags, side curtain airbags, and/or seat belt tensioners.
- Do not bump or impact the SRS unit, front impact sensors, or side impact sensors, especially when the ignition switch is in ON (II), or for at least 3 minutes after the ignition switch is turned to LOCK (0); otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, center console, dashboard, dashboard under cover, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.



Steering

Steering

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EPS Components

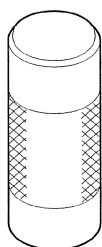
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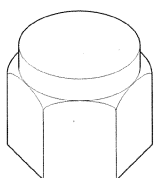
Steering

Special Tools

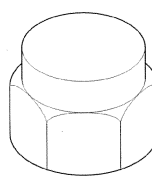
Ref.No.	Tool Number	Description	Qty
①	070AD-SAA0100	Driver, 32.5	1
②	071AF-S3VA000	Ball Joint Thread Protector, 14 mm	1
③	07AAF-SECA120	Ball Joint Thread Protector, 10 mm	1
④	07AAK-SNAA120	Universal Lifting Eyelet	1
⑤	07AAK-SNAA500	1.8 Support Bolt	1
⑥	07MAA-SL00100 or 07916-SA50001	Locknut Wrench, 40 mm	1
⑦	07MAC-SL0A202	Ball Joint Remover, 28 mm	1



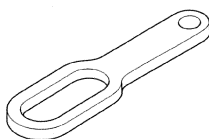
①



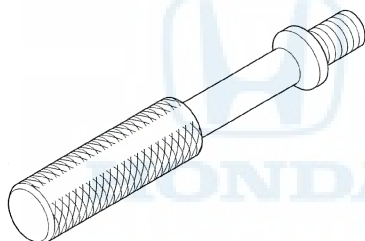
②



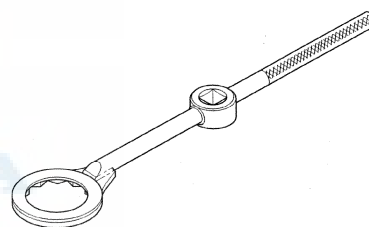
③



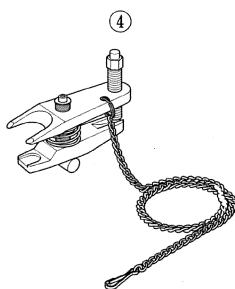
④



⑤



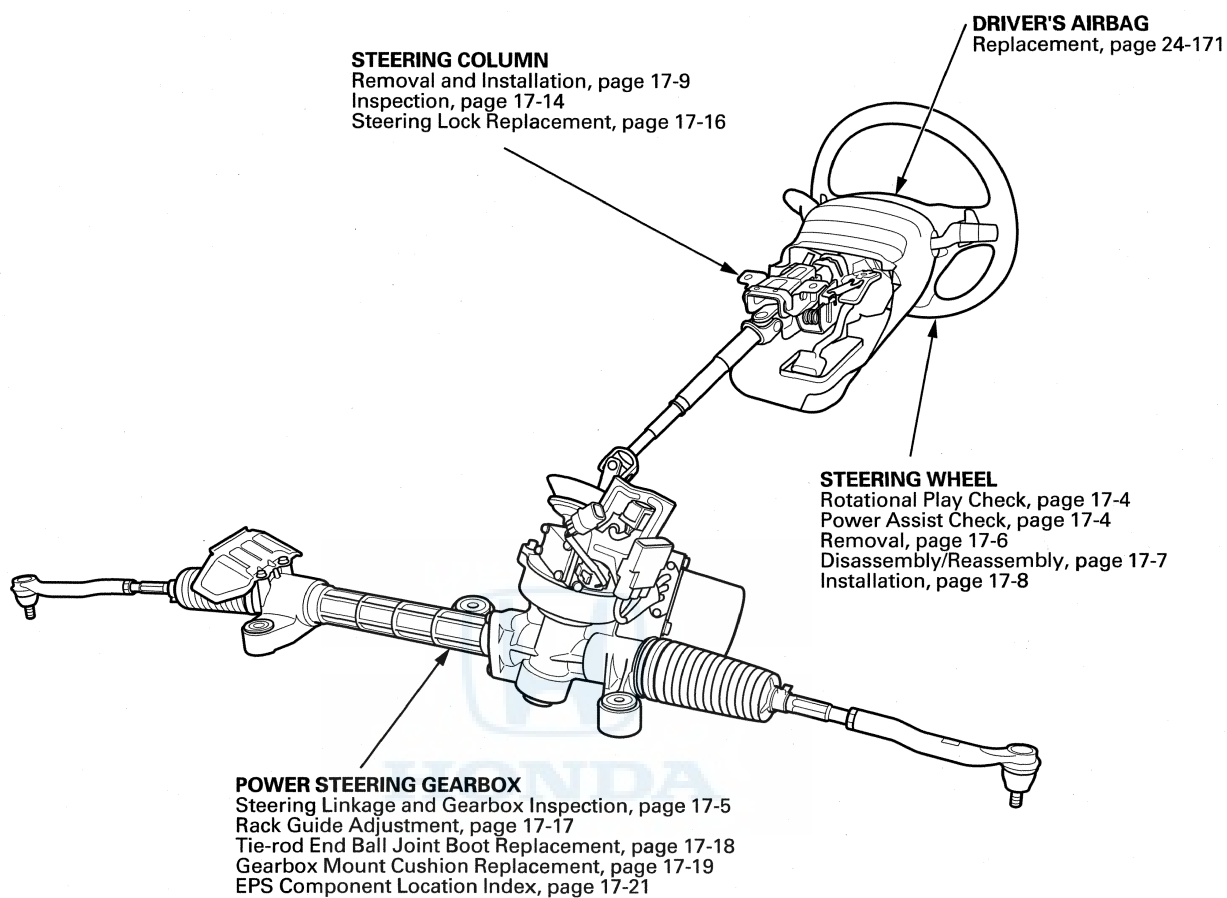
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⑦



Component Location Index

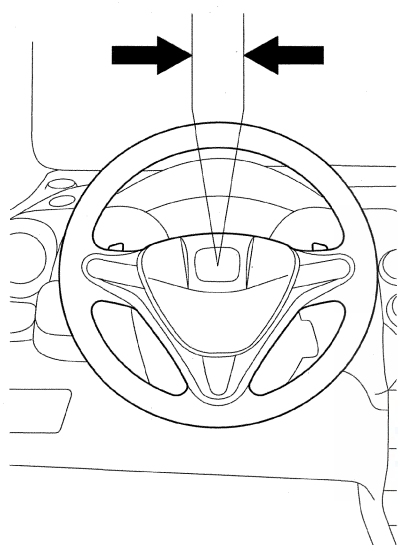


Steering

Steering Wheel Rotational Play Check

1. Set the front wheels in the straight ahead position.
2. Measure how far you can turn the steering wheel left and right without moving the front wheels.
 - If the play is within the limit, the steering gearbox and the steering linkage are OK.
 - If the play exceeds the limit, adjust the rack guide (see page 17-17). If the play is still excessive after rack guide adjustment, do the steering linkage and gearbox inspection (see page 17-5).

Rotational play: 0–10 mm (0–0.39 in)

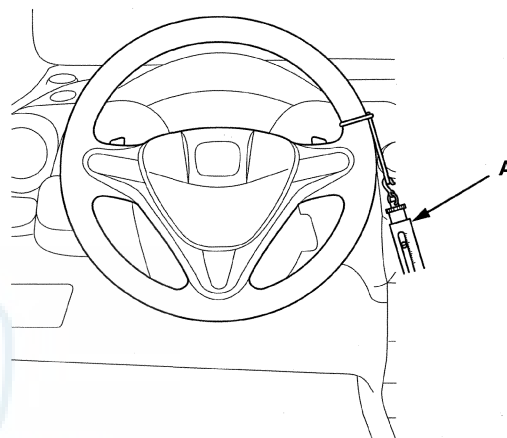


Power Assist Check

NOTE: This test should be done with original equipment tires and wheels at the correct tire pressure.

1. Start the engine, and let it idle.
2. Attach a commercially available spring scale (A) to the steering wheel. With the engine idling and the vehicle on a clean, dry floor, pull the scale as shown, and read it as soon as the tires begin to turn.

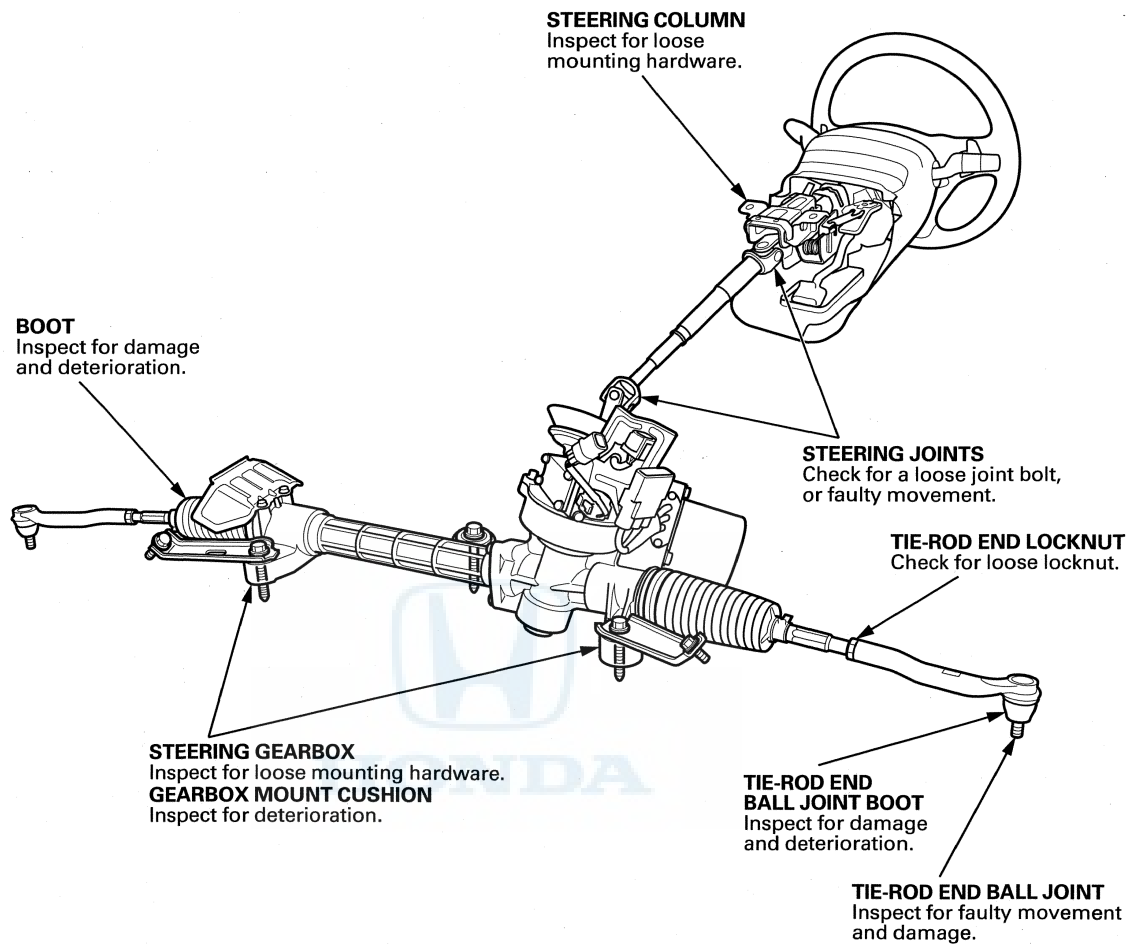
Initial turning load: 29 N (3.0 kgf, 6.6 lbf)



3. If the scale reads no more than the specification the power assist is OK. If it reads more, check these items:
 - Steering linkage (see page 17-5)
 - Rack guide adjustment (see page 17-17)
 - EPS system (see page 17-22)



Steering Linkage and Gearbox Inspection

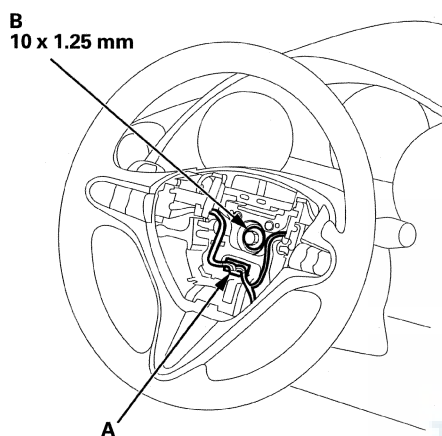


Steering

Steering Wheel Removal

SRS components are located in this area. Review the SRS component locations (see page 24-13), and the precautions and procedures (see page 24-15) before doing repairs or service.

1. Do the battery terminal disconnection procedure (see page 22-69).
2. Set the front wheels in the straight ahead position, then remove the driver's airbag from the steering wheel (see page 24-171).
3. Disconnect the cable reel subharness connector (A).

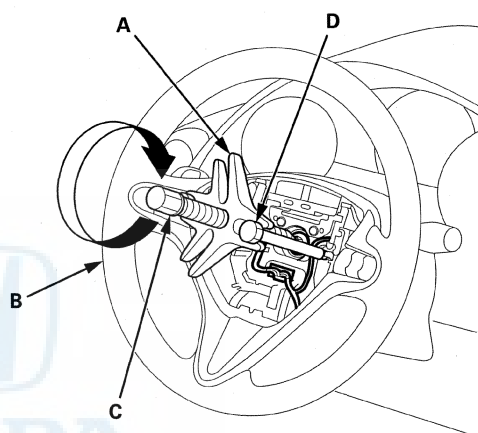


4. Loosen the steering wheel bolt (B) three turns.

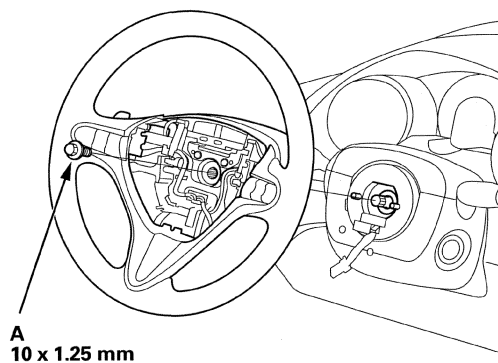
5. Install a commercially available steering wheel puller (A) on the steering wheel (B). Free the steering wheel from the steering column shaft by turning the pressure bolt (C) of the puller.

Note these items when removing the steering wheel:

- Do not tap on the steering wheel or the steering column shaft when removing the steering wheel.
- If you thread the puller bolts (D) into the wheel hub more than five threads, the bolts will hit the cable reel and damage it. To prevent this, install a pair of jam nuts five threads up on each puller bolt.

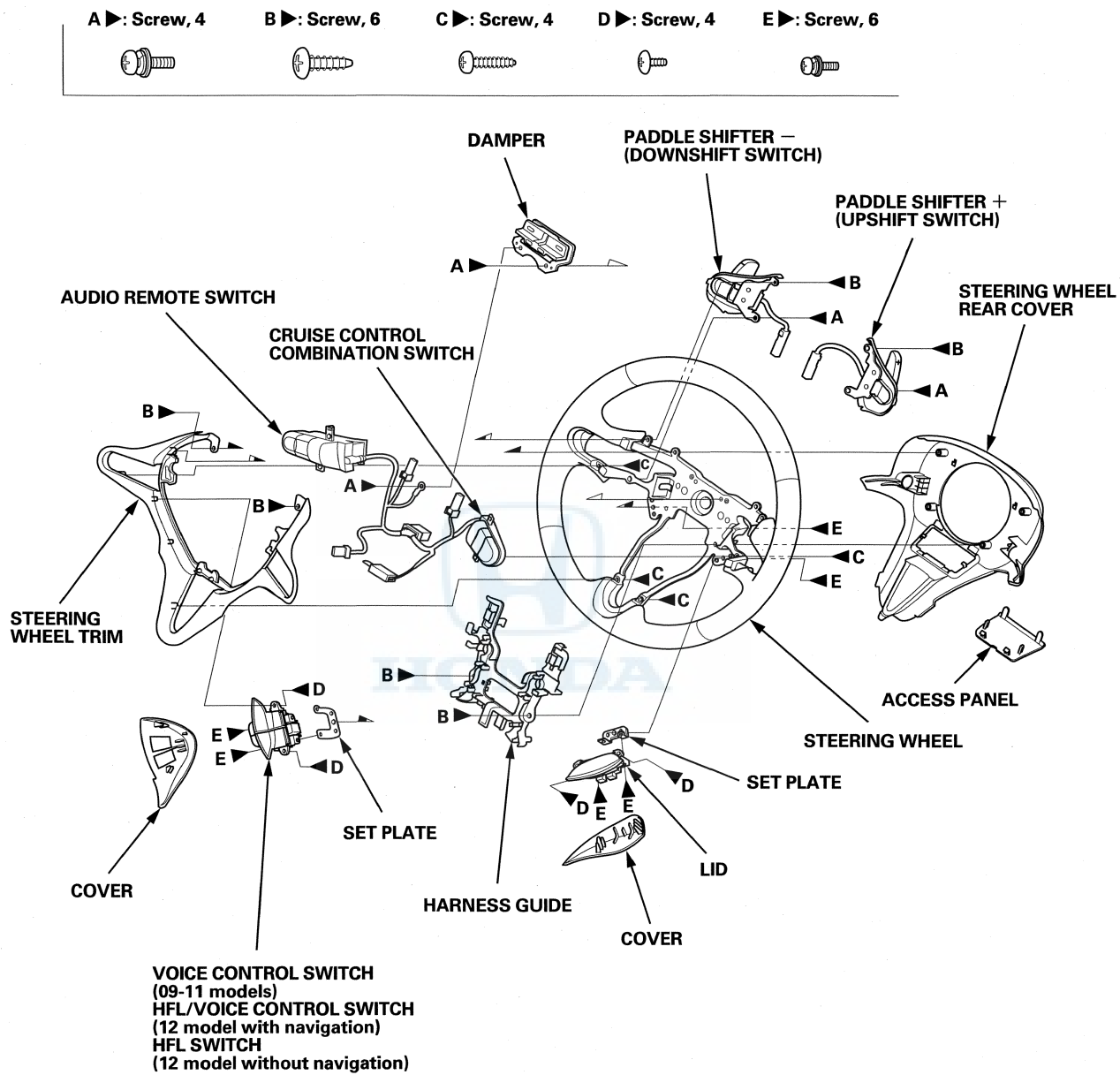


6. Remove the steering wheel puller, then remove the steering wheel bolt (A) and steering wheel from the steering column.





Steering Wheel Disassembly/Reassembly

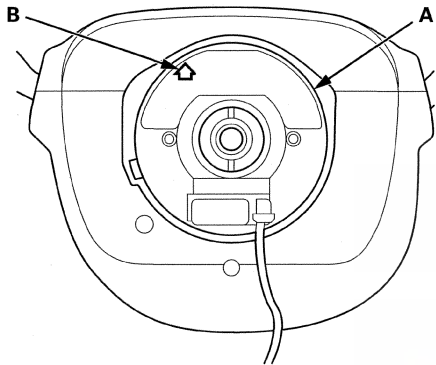


Steering

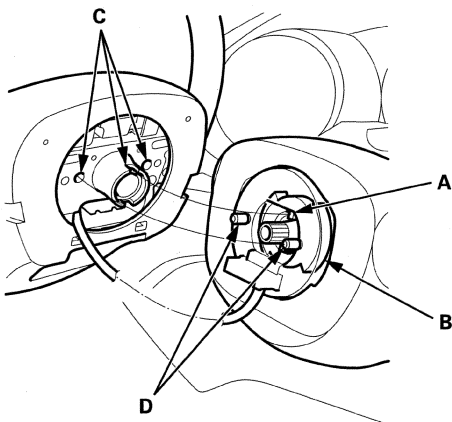
Steering Wheel Installation

SRS components are located in this area. Review the SRS component locations (see page 24-13), and the precautions and procedures (see page 24-15) before doing repairs or service.

1. Before installing the steering wheel, make sure the front wheels are pointing straight ahead, then center the cable reel (A). Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise about three full turns. The arrow mark (B) on the cable reel label should point straight up.

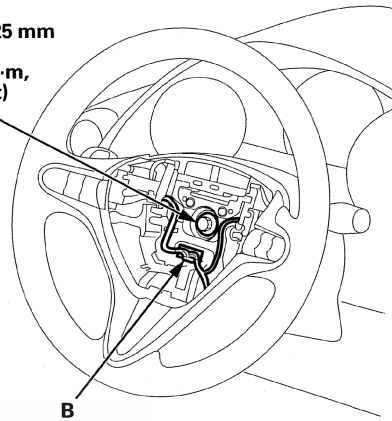


2. Position the two tabs (A) of the turn signal canceling sleeve (B) as shown. Install the steering wheel on to the steering column shaft, making sure the steering wheel hub (C) engages the pins (D) of the cable reel and tabs of the turn signal canceling sleeve. Do not tap on the steering wheel or steering column shaft when installing the steering wheel.



3. Install the steering wheel bolt (A), and tighten it to the specified torque. Connect the cable reel subharness connector (B). Make sure the wire harness is routed and fastened properly.

A
10 x 1.25 mm
39 N·m
(4.0 kgf·m,
29 lbf·ft)



4. Install the driver's airbag (see page 24-171).
5. Do the battery terminal reconnection procedure (see page 22-70), and check these items:
 - Turn the ignition switch to ON (II), and check that the SRS indicator should come on for about 6 seconds and then goes off.
 - Make sure the horn and turn signal switches work properly.
 - Make sure the steering wheel switches work properly.
6. After installation, check the steering wheel spoke angle. If the steering spoke angles to the right and left are not equal (steering wheel is not centered), correct the engagement of the wheel/column shaft splines.



Steering Column Removal and Installation

SRS components are located in this area. Review the SRS component locations (see page 24-13), and the precautions and procedures (see page 24-15) before doing repairs or service.

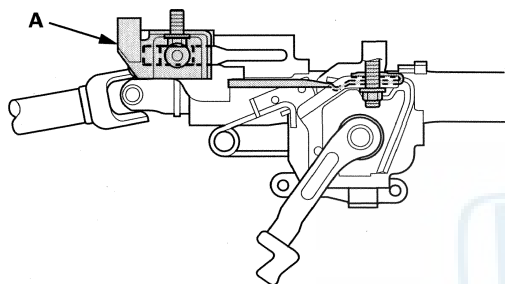
Removal

NOTICE

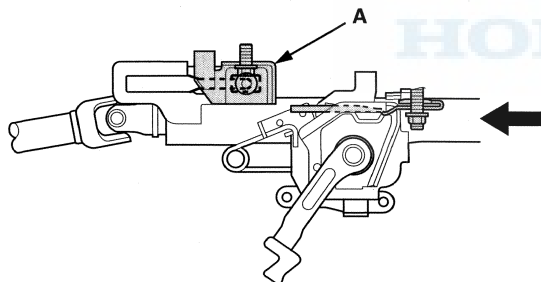
Be careful not to pull the bracket (A) on the front side of the steering column out of its normal position.

If the bracket accidentally comes out, replace the steering column as an assembly.

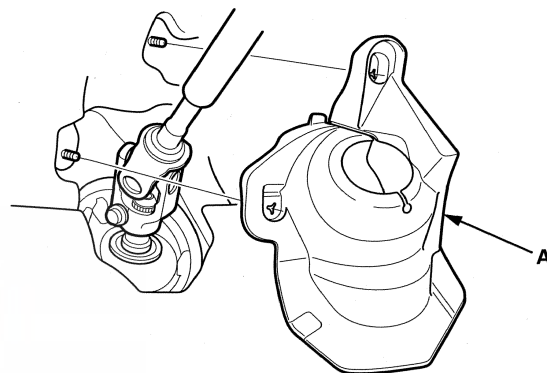
Normal position



Out of position



1. Do the battery terminal disconnection procedure (see page 22-69).
2. Tilt the steering column at the way up, and move it all the way in.
3. Remove the driver's airbag (see page 24-171), and the steering wheel (see page 17-6).
4. Remove the driver's dashboard undercover (see page 20-98).
5. Remove the steering joint cover (A).

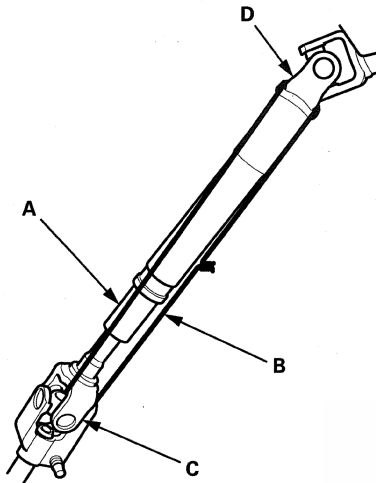


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Steering

Steering Column Removal and Installation (cont'd)

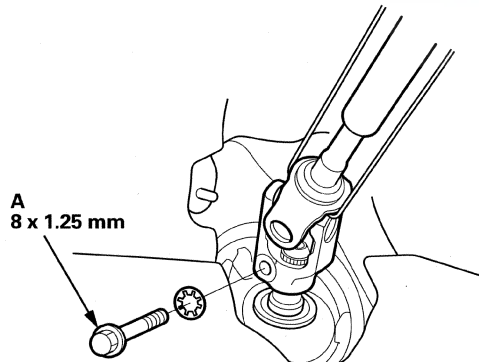
6. Hold the lower slide shaft (A) on the column with a piece of wire (B) between the joint yoke (C) of the lower slide shaft and joint yoke (D) of the upper shaft to prevent the lower slide shaft from pulling out.



7. Release the lock lever, slide it all the way out then tighten the lock lever.

NOTE: Do not release the lock lever when removing the steering column from the frame.

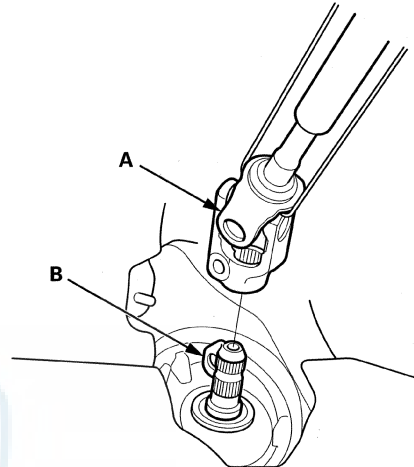
8. Remove the steering joint bolt (A).



9. Disconnect the steering joint (A) by sliding the steering joint into the column.

NOTE:

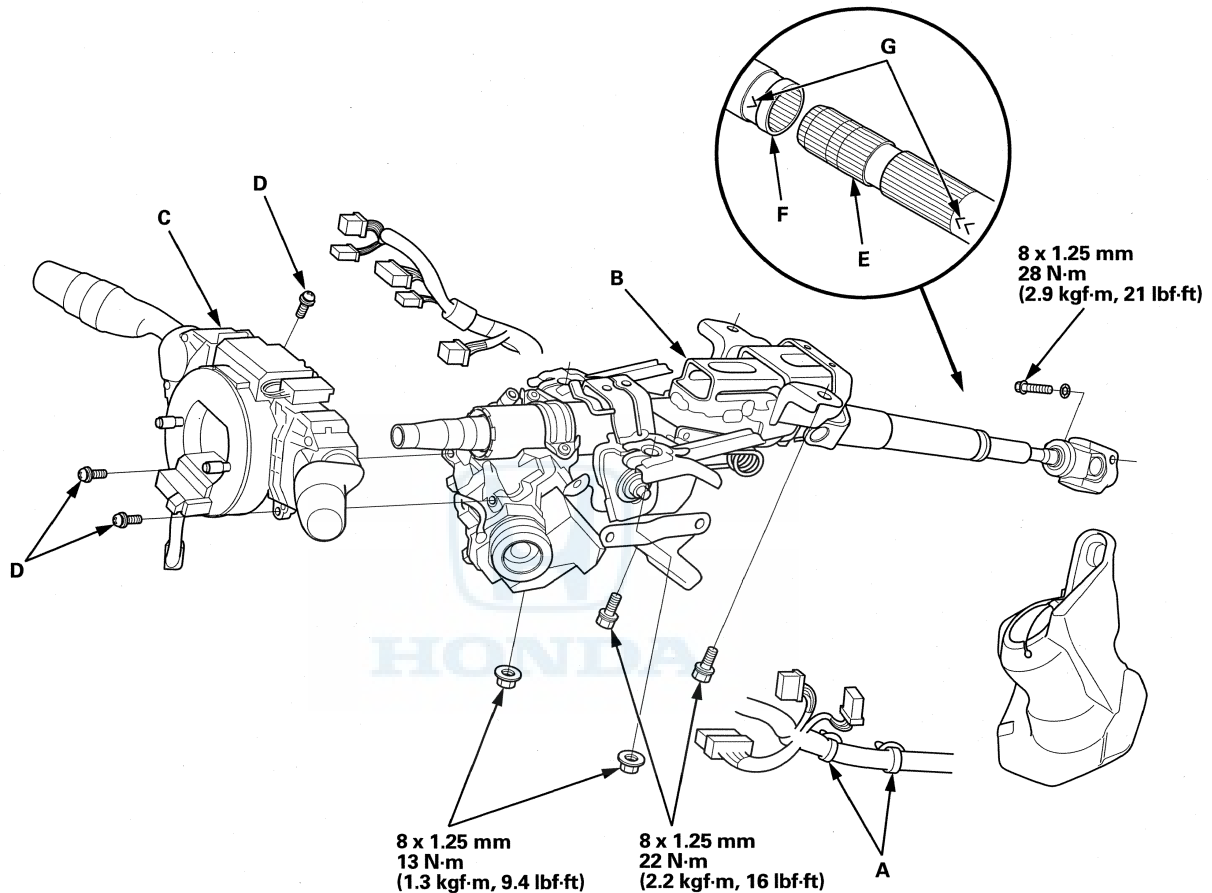
- If the center guide (B) is in place and has not moved, leave it in place.
- If the center guide has come off, discard it.





10. Remove the column covers (see page 20-105).

11. Disconnect the connectors from the ignition switch, and release the wire harness clips (A) from the steering column (B).



12. Disconnect the wire harness connectors from the combination switch assembly/cable reel (C).

13. Remove the combination switch assembly/cable reel from the steering column shaft by removing the three screws (D).

14. Make sure that the lock lever is in the locked position. Remove the steering column by removing the attaching nuts and bolts, and carefully guide it out of the dashboard. If the lower slide shaft (E) is removed, slip it into the upper shaft (F) by aligning the paint or stamped marks (G).

NOTE: Do not release the lock lever until the steering column is installed. If the lock lever is released before installation, adjust the steering column after installation (see step 6 on page 17-15).

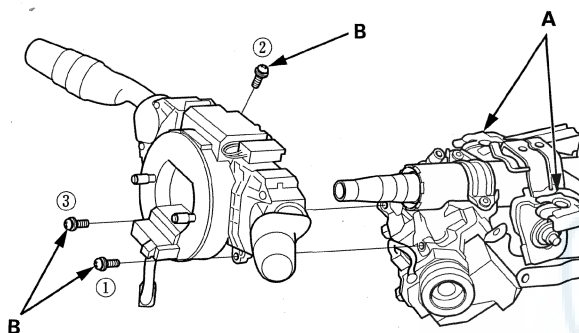
(cont'd)

Steering

Steering Column Removal and Installation (cont'd)

Installation

1. Install the steering column in the reverse order of removal, and note these items:
 - Tighten the steering column mounting bolts to the specified torque, then tighten the nuts.
 - Make sure the wires are not caught or pinched by any parts.
 - Take care not to let the sliding capsules (A) fall out of position during column installation.
 - Tighten the three screws (B) in the sequence shown.

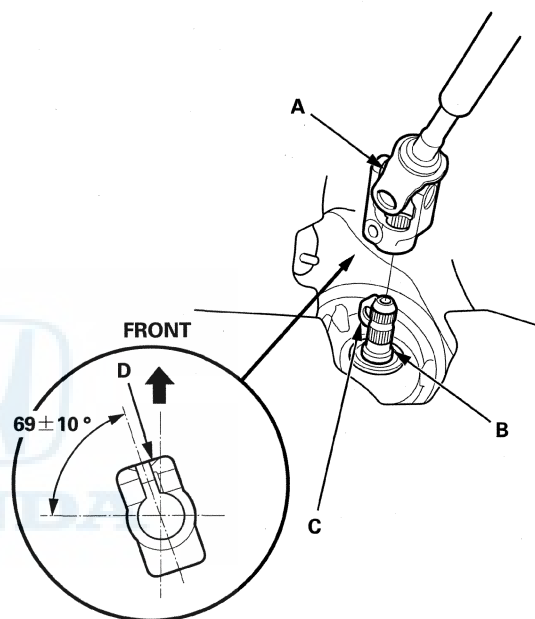


2. Center the steering rack within its stroke.
3. Cut the wire holding the lower slide shaft.

4. Slip the lower end of the steering joint (A) onto the pinion shaft (B).

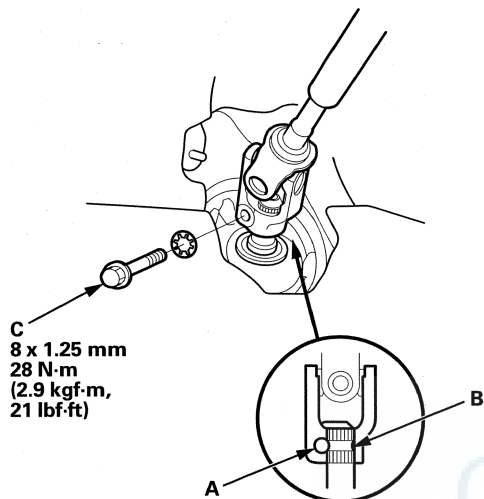
NOTE:

- Pinion shaft with center guide: Install the steering joint by aligning the center guide (C).
- Pinion shaft without center guide: Position the steering column by aligning the gap (D) with the angle.



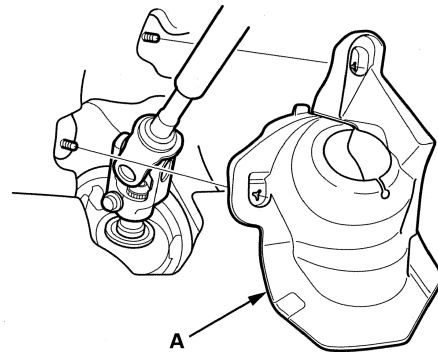


5. Align the bolt hole (A) on the steering joint with the groove (B) around the pinion shaft, then loosely install the lower steering joint bolt (C). Be sure that the joint bolt is securely in the groove in the pinion shaft.



6. Pull on the steering joint to make sure that the steering joint is fully seated, then tighten the lower joint bolt to the specified torque.

7. Install the steering joint cover (A).



8. Install the driver's dashboard undercover (see page 20-98).

9. Install the steering wheel (see page 17-8), and the driver's airbag (see page 24-171).

10. Do the battery terminal reconnection procedure (see page 22-70), and check these items:

- Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.
- Make sure the horn and turn signal switches work properly.
- Make sure the steering wheel switches work properly.

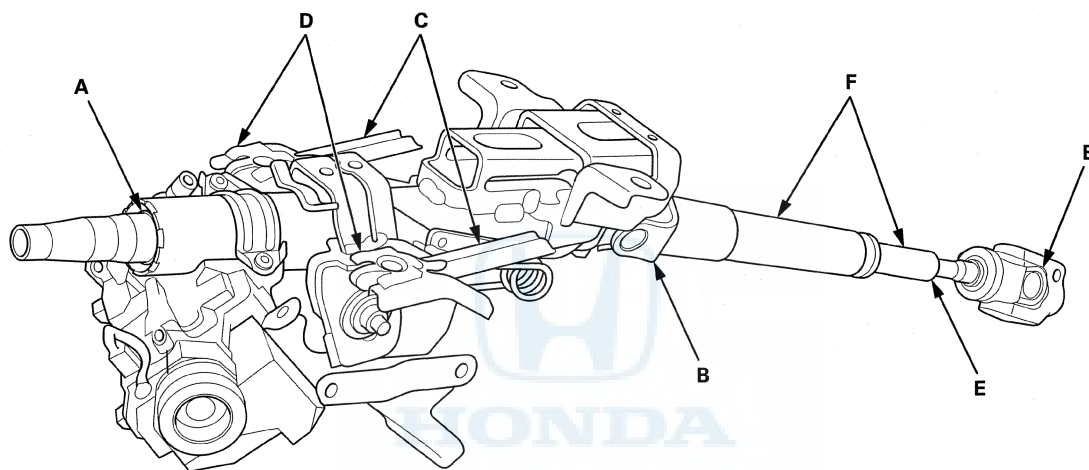
11. After installation, check the steering wheel spoke angle. If the steering spoke angles to the right and left are not equal (steering wheel and rack are not centered), correct the engagement of the joint/pinion shaft splines.

Steering

Steering Column Inspection

Inspection

1. Remove the steering column (see page 17-9).
2. Check these items:
 - Check the steering column ball bearing (A) and the steering joints (B) for play and proper movement. If any bearing is noisy or has excessive play, replace the steering column as an assembly.
 - Check the absorbing plates (C) and sliding capsules (D) for distortion or breakage. If there is distortion or breakage, replace the steering column as an assembly.
 - Check the tilt mechanism and telescopic mechanism for movement and damage.
 - Check the lower slide shaft (E) for smooth movement in and out. If the lower slide shaft is removed, slip it into the upper shaft by aligning the paint or stamped marks (F). If it sticks or binds, replace the steering column as an assembly.

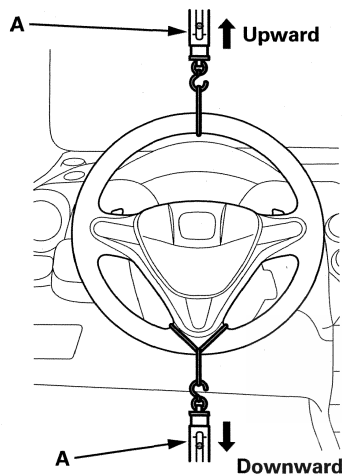


3. Install the steering column (see page 17-12).



Check of Tilting Force

1. Set the steering wheel in the straight ahead driving position, and loosen the lock lever fully.
2. Attach the spring scale (A) to the highest point of the steering wheel, and tilt the steering column to the lowest position.



3. Pull the spring scale straight up, and read the force required to move the steering column.
4. Attach the spring scale to the lowest point of the steering wheel.
5. Pull the spring scale straight down, and read the force required to move the steering column.

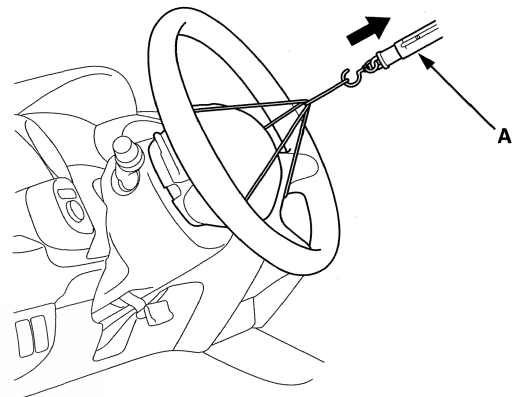
Tilting force (upward/downward):

Standard: 69 N (7.0 kgf, 15.5 lbf) max.

6. If the measurement is higher than specified, or if the tilt function feels rough, do the following:
 - 1. Loosen the steering column mounting nuts and bolts (see step 14 on page 17-11) so they are finger-tight.
 - 2. Release the lock lever, and tilt and telescope the steering column several times.
 - 3. Tilt the column down, then tighten the lock lever.
 - 4. Torque the bolts, then torque the nuts.
7. Test the tilting force again. If the force is still higher than the specification, replace the steering column as an assembly (see page 17-9).

Check of Telescoping Force

1. Set the steering wheel in the straight ahead driving position, and loosen the lock lever fully.
2. Attach the spring scale (A) to the center point of the steering wheel, and push the steering column all the way in.



3. Pull the spring scale, and read the force required to move the steering column during telescoping.

Telescoping force:

Standard: 140 N (14.3 kgf, 31.5 lbf) max.

4. If the measurement is higher than specified, replace the steering column as an assembly (see page 17-9).

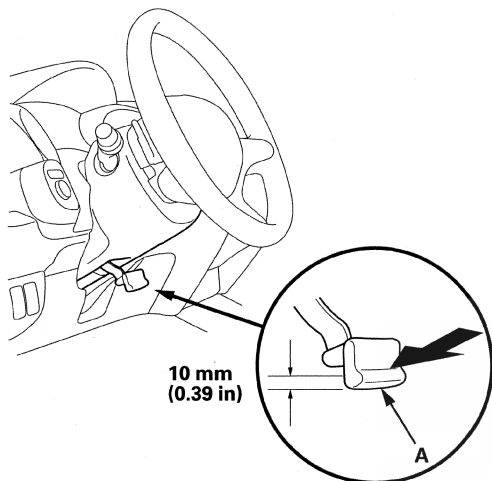
(cont'd)

Steering

Steering Column Inspection (cont'd)

Check of Lock Lever Force

1. Move the lock lever (A) from the loosened position to the locked position three to five times, then release the lock lever. Adjust the steering column to the center tilt position and also to the full telescopic out position, and hold the steering wheel.



2. Using a commercially available push-pull gauge, push the lock lever at 10 mm (0.39 in) in from its end, and measure the force required to move the lock lever.

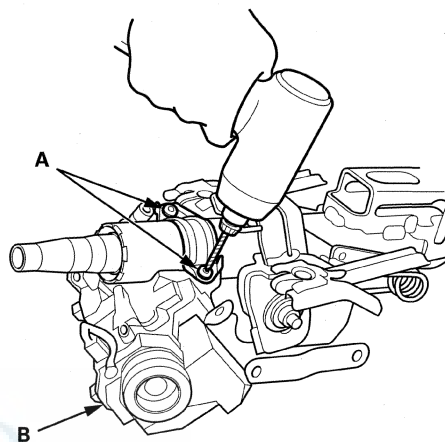
Lock lever force:

82 N (8.4 kgf, 18.5 lbf) max.

3. If the measurement is higher than specified, replace the steering column as an assembly (see page 17-9).

Steering Lock Replacement

1. Remove the steering column (see page 17-9).
2. Center-punch both of the shear bolts (A), and drill their heads off with a 5.0 mm (0.197 in) drill bit. Be careful not to damage the steering lock (B) when removing the shear bolts.

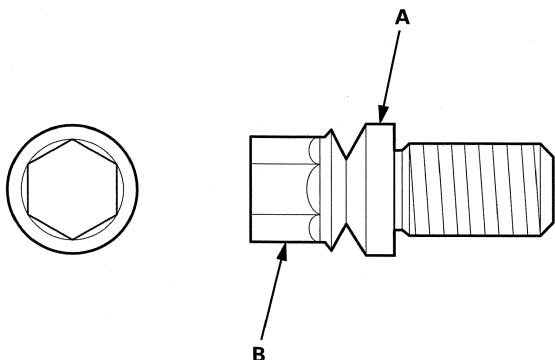


3. Remove the shear bolts from the steering lock, then remove the steering lock.
4. Remove the immobilizer-keyless control unit from the steering lock, then install it to the new steering lock (see page 22-336).
5. Install the steering lock without the key inserted.
6. Loosely tighten the new shear bolts.
7. Insert the ignition key, and check for proper operation of the steering wheel lock and that the ignition key turns freely.



Rack Guide Adjustment

8. Tighten the shear bolts (A) until the hex heads (B) twist off.



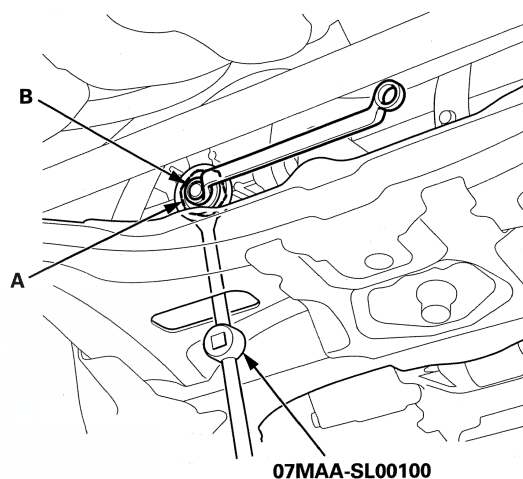
9. Install the steering column (see page 17-12).

10. Rewrite all new keys to the immobilizer-keyless control unit (see page 22-335), and make sure the immobilizer system works properly.

Special Tools Required

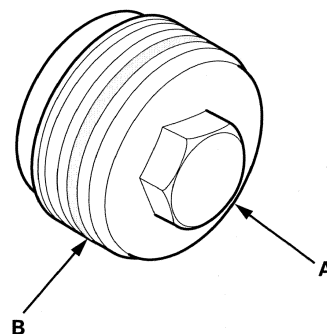
Locknut Wrench, 40 mm 07MAA-SL00100, 07916-SA50001, or 07AAA-TL2A100

1. Set the wheels in the straight ahead position.
2. Loosen the rack guide screw locknut (A) with the locknut wrench, then remove the rack guide screw (B).



3. Remove the old sealant from the rack guide screw (A), and apply new sealant (Three Bond 1215 or Loctite 5699) to the middle of the threads (B). Loosely install the rack guide screw on the steering gearbox.

NOTE: If more than 5 minutes has passed after applying the sealant, remove the old sealant and residue, and reapply new sealant.

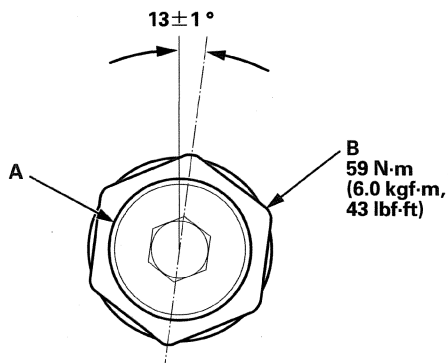


(cont'd)

Steering

Rack Guide Adjustment (cont'd)

4. Tighten the rack guide screw (A) to 25 N·m (2.5 kgf·m, 18 lbf·ft), then loosen it.



5. Retighten the rack guide screw to 3.9 N·m (0.4 kgf·m, 2.9 lbf·ft), then back it off to the specified angle.

Specified return angle: $13 \pm 1^\circ$

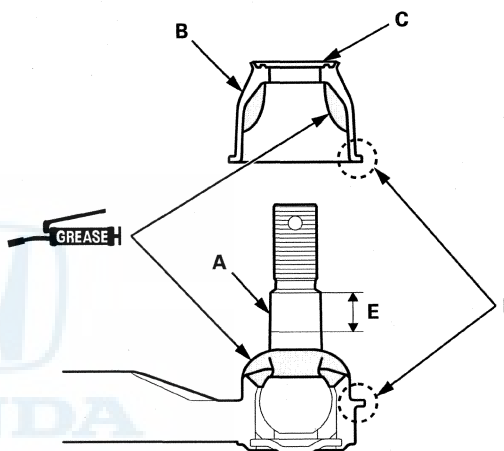
6. Hold the rack guide screw stationary with a wrench, and tighten the locknut (B) by hand until it's fully seated.
7. Install the locknut wrench on the locknut, and hold the rack guide screw stationary with a wrench. Tighten the locknut to the specified torque.
8. Check for unusual steering effort through the complete turning range.
9. Check the steering wheel rotational play (see page 17-4) and the power assist (see page 17-4).

Tie-Rod End Ball Joint Boot Replacement

Special Tools Required

Driver, 32.5 070AD-SAA0100

1. Disconnect the tie-rod end ball joint from the knuckle (see step 11 on page 17-64).
2. Remove the tie-rod end from the rack end (see page 17-74).
3. Remove the ball joint boot from the tie-rod end, and wipe the old grease off the ball pin.
4. Pack the lower area of the ball pin (A) with fresh multipurpose grease.



5. Pack the interior of the new tie-rod ball joint boot (B) and lip (C) with fresh multipurpose grease.

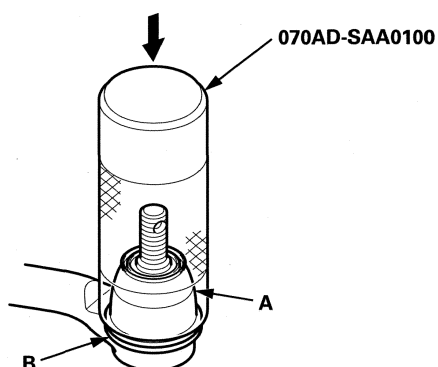
Note these items when installing new grease:

- Keep grease off the boot mounting area (D) and the tapered section (E) of the ball pin.
- Do not allow dust, dirt, or other foreign materials to enter the boot.



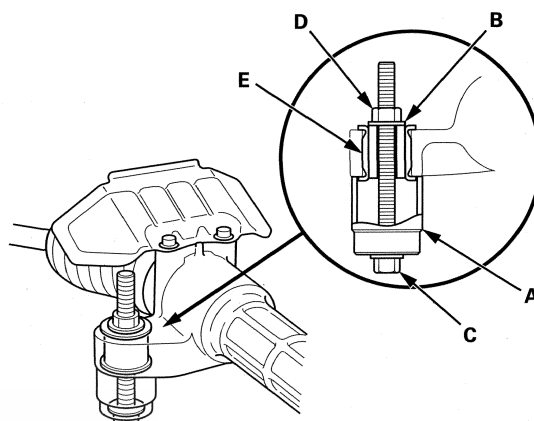
Gearbox Mount Cushion Replacement

6. Install the new tie-rod end ball joint boot (A) using the 32.5 mm driver. The boot must not have a gap at the boot installation sections (B). After installing the boot, check the ball pin tapered section for grease contamination, and wipe it if necessary.

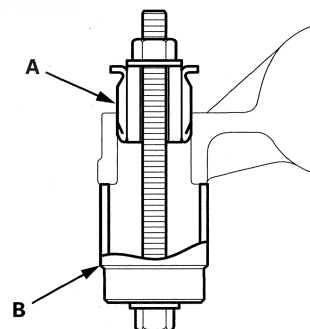


7. Install the tie-rod end to the rack end (see page 17-74).
8. Connect the tie-rod end ball joint to the knuckle (see step 24 on page 17-71).
9. Check the wheel alignment, and adjust it if necessary (see page 18-6).

1. Remove the steering gearbox (see page 17-63).
2. Position a 34 mm socket (A) on the flange part of the gearbox housing with a washer (B), a 10 x 105 mm flange bolt (C), and a 10 mm nut (D) as shown.



3. Hold the flange bolt with a wrench, and tighten the nut with a wrench. Remove the gearbox mount cushion (E).
4. Apply a mild soap and water solution to the new gearbox mount cushion surface (A), then place the mount cushion on the gearbox mounting cushion hole.



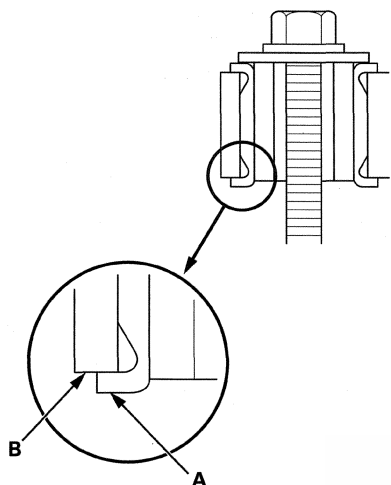
5. Position the 34 mm socket (B) on the flange part of the gearbox housing with a washer, a flange bolt, and a nut as shown.

(cont'd)

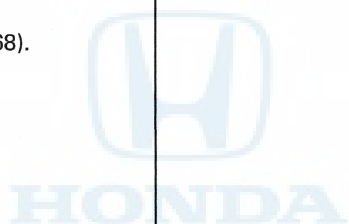
Steering

Gearbox Mount Cushion Replacement (cont'd)

6. Install the gearbox mount cushion by tightening the nut until the mount cushion edge (A) properly fits on the gearbox flange surface (B).



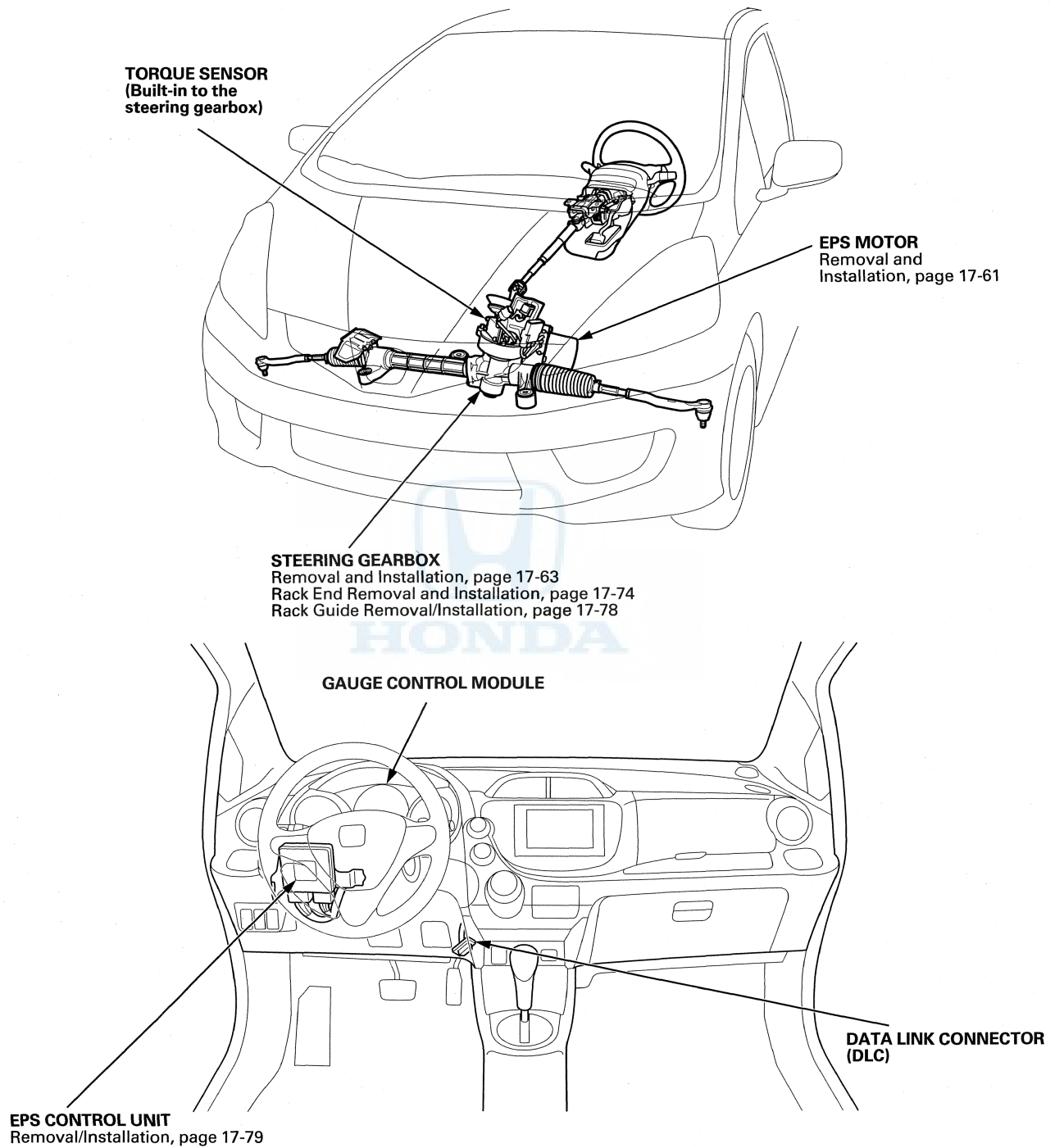
7. Install the steering gearbox (see page 17-68).



EPS Components



Component Location Index



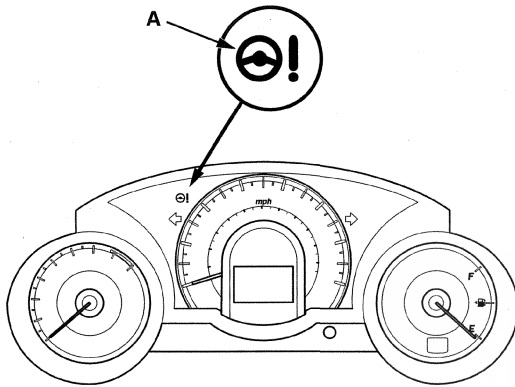
EPS Components

General Troubleshooting Information

EPS Indicator

Under normal conditions, the EPS indicator (A) comes on when the ignition switch is turned to ON (II), then goes off after the engine is started. This indicates that the LED and its circuit are operating correctly.

If there is a failure in the system after the engine is started, the EPS indicator will stay on, and the power assist is turned off or restricted.



When the EPS indicator comes on, the control unit stores the DTC. In this case, the control unit will not activate the EPS system after the engine starts again, but it keeps the EPS indicator on.

When a problem is detected and the EPS indicator comes on, there are cases when the indicator stays on until the ignition switch is turned to LOCK (0), and cases when the indicator goes off automatically when the system returns to normal.

Even though the system is operating normally, the EPS indicator will come on under some conditions with the vehicle stopped and the engine at high rpm with constant input from the steering wheel.

To determine the actual cause of the problem, question the customer about the conditions during which the problem occurred, taking the above conditions into consideration.

Diagnostic Trouble Code (DTC)

- If the CPU cannot be activated, or it fails, the EPS indicator comes on, but the DTC is not stored.
- The memory can hold any number of DTCs. However, when the same DTC is detected more than once, the most recent DTC is written over the prior DTC, therefore only one occurrence is stored.
- The lowest DTC is indicated first. The DTCs are indicated in ascending order, not in the order that they occurred.
- The DTCs are stored in the EEPROM (non-volatile memory) therefore the stored DTCs cannot be erased by disconnecting the battery. Do the specified procedures to clear the DTCs.

Self-diagnosis

Self-diagnosis can be classified into two categories:

- Initial diagnosis: Done right after the engine starts and until the EPS indicator goes off.
- Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned to LOCK (0).

The EPS control unit does the following functions when a problem is detected by self-diagnosis:

1. Turns on the EPS indicator.
2. Stores the DTC.
3. Stops or restricts power assist and manual steering operation resumes.

NOTE: For DTCs 11-02, 12-01, 21-03, 23-02, 23-04, and 38-01 the EPS indicator will go off automatically, and the system returns to normal.



Restriction on Power Assist Operation

Repeated extreme steering force, such as turning the steering wheel continuously back-and-forth with the vehicle stopped, causes an increase in electrical current draw by the EPS motor. The increase of electric current causes the EPS motor to heat up. Because this heat adversely affects the system, the control unit monitors the electric current draw of the EPS motor.

When the control unit detects heat build-up in the EPS motor, it reduces the electric current to the EPS motor gradually to protect the system, and it restricts the power assist operation. The EPS indicator does not come on during this function.

When steering torque is not applied to the steering wheel, or when the ignition is turned to LOCK (0) and the EPS motor cools, the control unit will restore the power assist gradually until it's fully restored (after about 10 minutes).

How to Troubleshoot DTCs

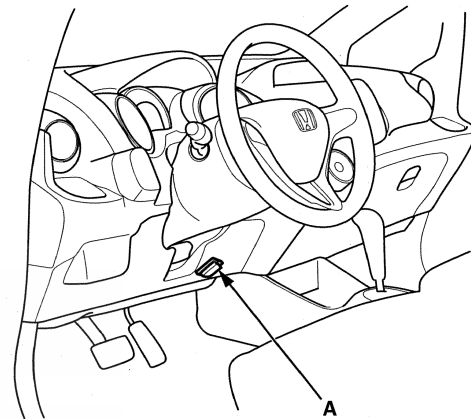
The troubleshooting procedures assume that the cause of the problem is still present and the EPS indicator is still on. Following the procedure when the EPS indicator does not come on can result in incorrect diagnosis.

1. Question the customer about the conditions when the problem occurred, and try to reproduce the same conditions for troubleshooting. Find out when the EPS indicator came on, such as while turning, after turning, when the vehicle was at a certain speed, etc.
2. When the EPS indicator does not come on during the test-drive, but troubleshooting is done based on the DTC, check for loose connectors, poor terminal contact, etc., in the affected circuit before you start troubleshooting.
3. After troubleshooting, clear the DTC and test-drive the vehicle. Be sure the EPS indicator does not come on.

How to Use the HDS (Honda Diagnostic System)

NOTE: Make sure the battery is in good condition and is fully charged.

1. If the system indicators stay on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the EPS control unit. If it does not, go to the DLC circuit troubleshooting (see page 11-193).
4. Check the diagnostic trouble code (DTC) for all systems, and note it. Then refer to the indicated DTC's troubleshooting, and do the appropriate troubleshooting procedure.

NOTE:

- The HDS reads the DTC, the current data, and other system data.
- For specific operations, refer to the Help menu that came with the HDS.

(cont'd)

EPS Components

General Troubleshooting Information (cont'd)

How to Retrieve DTCs

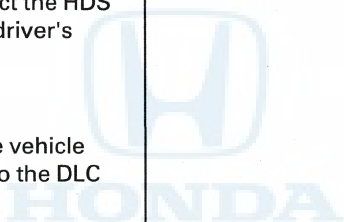
1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the EPS control unit. If it does not, go to the DLC circuit troubleshooting (see page 11-193).
4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC troubleshooting.

Do the all systems DTC check, and troubleshoot any powertrain DTCs first.

5. Turn the ignition switch to LOCK (0).

How to Clear DTCs

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the EPS control unit. If it does not, go to the DLC circuit troubleshooting (see page 11-193).
4. Clear the DTC(s) by following the screen prompts on the HDS.
5. Turn the ignition switch to LOCK (0).





DTC Troubleshooting Index

DTC		Detection Item	Note
11	-02	Low/high IG1-terminal voltage	DTC Troubleshooting (see page 17-37)
12	-01	Motor Power Supply Voltage	DTC Troubleshooting (see page 17-37)
21	-03	CAN Vehicle Speed Stuck ON	DTC Troubleshooting (see page 17-37)
22	-01	Engine Speed Signal	DTC Troubleshooting (see page 17-38)
23	-01	CAN Data Stuck ON	DTC Troubleshooting (see page 17-39)
	-02	CAN Vehicle Speed Data	DTC Troubleshooting (see page 17-40)
	-03	CAN Engine Speed Data	DTC Troubleshooting (see page 17-42)
	-04	CAN Bus-off Malfunction	DTC Troubleshooting (see page 17-43)
32	-09	Motor Current Correlation	DTC Troubleshooting (see page 17-39)
	-0B	Over Current	DTC Troubleshooting (see page 17-44)
	-0C	Battery Current Detect Circuit	DTC Troubleshooting (see page 17-39)
	-0E	Over Current Continuation	DTC Troubleshooting (see page 17-44)
	-0F	Battery Current/Motor Current Correlation	DTC Troubleshooting (see page 17-45)
34	-01	Power Relay	DTC Troubleshooting (see page 17-39)
	-02	Fail-Safe Relay	DTC Troubleshooting (see page 17-44)
35	-01	EPS Control Unit Internal Circuit (CPU)	DTC Troubleshooting (see page 17-39)
	-02	EPS Control Unit Internal Circuit (EEPROM1)	DTC Troubleshooting (see page 17-39)
	-04	EPS Control Unit Internal Circuit (CPU Communication)	DTC Troubleshooting (see page 17-39)
	-05	EPS Control Unit Internal Circuit (A/D Conversion)	DTC Troubleshooting (see page 17-39)
	-08	EPS Control Unit Internal Circuit (EEPROM2)	DTC Troubleshooting (see page 17-39)
	-0A	EPS Control Unit Internal Circuit (CPU Operation)	DTC Troubleshooting (see page 17-39)
36	-02	EPS Control Unit Internal Circuit (INH Output Circuit)	DTC Troubleshooting (see page 17-39)

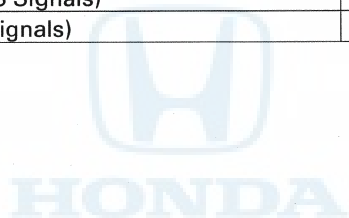
HONDA

(cont'd)

EPS Components

DTC Troubleshooting Index (cont'd)

DTC		Detection Item	Note
37	-01	EPS Control Unit Internal Circuit (Step-up Circuit)	DTC Troubleshooting (see page 17-39)
38	-01	EPS Control Unit Internal Circuit (Temperature Sensor)	DTC Troubleshooting (see page 17-39)
39	-01	EPS Control Unit Internal Circuit (Precharge Circuit)	DTC Troubleshooting (see page 17-46)
	-02	EPS Control Unit Internal Circuit (Outside WDT)	DTC Troubleshooting (see page 17-46)
	-03	EPS Control Unit Internal Circuit (Power Self-holding Circuit)	DTC Troubleshooting (see page 17-46)
52	-01	Torque Sensor Allowable Tolerance (Initial Diagnosis)	DTC Troubleshooting (see page 17-47)
	-02	Torque Sensor Power Supply (Initial Diagnosis)	DTC Troubleshooting (see page 17-48)
	-03	Main Torque Sensor	DTC Troubleshooting (see page 17-47)
	-04	Sub Torque Sensor	DTC Troubleshooting (see page 17-47)
	-05	Torque Sensor Allowable Tolerance	DTC Troubleshooting (see page 17-47)
	-06	Torque Sensor Offset Out of Range	DTC Troubleshooting (see page 17-49)
	-07	Torque Sensor Amplifier Out of Range	DTC Troubleshooting (see page 17-45)
	-08	Torque Sensor Power Supply	DTC Troubleshooting (see page 17-51)
61	-04	Motor Harness Malfunction	DTC Troubleshooting (see page 17-52)
	-05	Motor Harness Short	DTC Troubleshooting (see page 17-53)
	-06	Motor Harness Open	DTC Troubleshooting (see page 17-54)
71	-01	Motor Angle Sensor (SIN/COS Signals)	DTC Troubleshooting (see page 17-56)
	-03	Motor Angle Sensor (SIN/COS Signals)	DTC Troubleshooting (see page 17-56)
	-04	Motor Angle Sensor (Check Signals)	DTC Troubleshooting (see page 17-57)





Symptom Troubleshooting Index

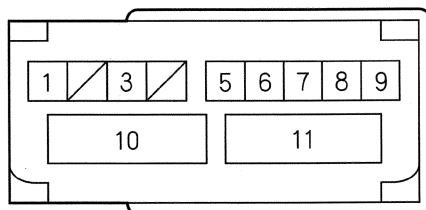
Symptom	Diagnostic procedure
HDS does not communicate with the EPS control unit or the vehicle	Troubleshoot the DLC circuit (see page 11-193)
EPS indicator does not come on	Symptom Troubleshooting (see page 17-59)
EPS indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 17-59)
EPS indicator is not on, no DTCs are stored, but there is no power assist or power assist is reduced	<ol style="list-style-type: none">1. Check the EPS motor power wires between the EPS control unit and the EPS motor for a short to body ground. Repair as needed.2. If the EPS motor power wires are OK, replace the EPS motor (short in the EPS motor) (see page 17-61).3. Check the power and body ground connections at the EPS control unit.



EPS Components

System Description

EPS Control Unit Inputs and Outputs for Connector A (11P)

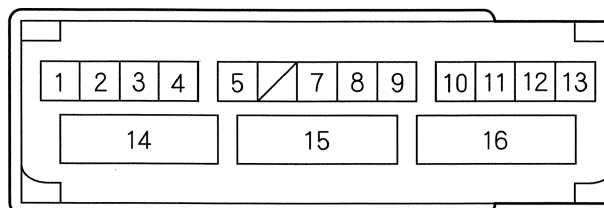


Wire side of female terminals

Terminal Number	Wire color	Terminal sign (Terminal name)	Description	Signal
1	PUR	IG-1 (Ignition 1)	Power source for Activating the system	With ignition switch ON (II): battery voltage
3	RED	F-CAN L (F-CAN LO)	F-CAN communication Circuit	With ignition switch ON(II): Pulses (1.5-2.5 V)
5	WHT	F-CAN H (F-CAN HI)	F-CAN communication Circuit	With ignition switch ON (II): Pulses (2.5-3.5 V)
6	PUR	MG2 (Motor ground)	Ground for the EPS Motor	—
7	BLU	K-LINE (Data link connector)	Communicates with HDS	With service check signal opened: about 9-11 V
8	ORN	MG1 (Motor ground)	Ground for the EPS Motor	—
9	LT BLU	NEP (Engine speed pulse)	Detects engine Speed signal	With engine running: pulses
10	BLK	PG (Power ground)	Ground for the EPS control unit	Continuity to ground
11	WHT	+B (Plus battery)	Power source for the Actuator EPS motor	Battery voltage at all times



EPS Control Unit Inputs and Outputs for Connector B (16P)



Wire side of female terminals

Terminal Number	Wire color	Terminal sign (Terminal name)	Description	Signal
1	YEL	Vcc (Voltage common)	Power source for torque sensor	With engine running: about 10 V
2	BLU	Main (main voltage)	Detects torque sensor signal	Turn to the right: about 2.5—3.3 V (increase) Turn to the left: about 2.5—1.7 V (decrease)
3	WHT	SE (Sensor earth)	Ground for the torque sensor	Continuity to ground
4	RED	Sub (Sub voltage)	Detects torque sensor signal	Turn to the right: about 2.5—1.7 V (decrease) Turn to the left: about 2.5—3.3 V (increase)
5	GRN	Vref (Reference voltage)	Reference voltage for torque sensor	With engine running: about 3.3 V
7	GRN	R1 (Motor angle sensor 1)	Detects EPS motor angle sensor signal	With engine running: pulses (0-5 V)
8	GRY	SG (Sealed ground)	Ground for the sealed line	—
9	PNK	R2 (Motor angle sensor 2)	Detects EPS motor angle sensor signal	With engine running: pulses (0-5 V)
10	LT BLU	S2 (Signal 2)	Detects EPS motor angle sensor signal	With engine running: pulses (0-5 V)
11	GRY	S4 (Signal 4)	Detects EPS motor angle sensor signal	With engine running: pulses (0-5 V)
12	YEL	S1 (Signal 1)	Detects EPS motor angle sensor signal	With engine running: pulses (0-5 V)
13	RED	S3 (Signal 3)	Detects EPS motor angle sensor signal	With engine running: pulses (0-5 V)
14	BLU	MV	Drive the EPS motor	—
15	RED	MU	Drive the EPS motor	—
16	GRN	MW	Drive the EPS motor	—

(cont'd)

EPS Components

System Description (cont'd)

System Outline

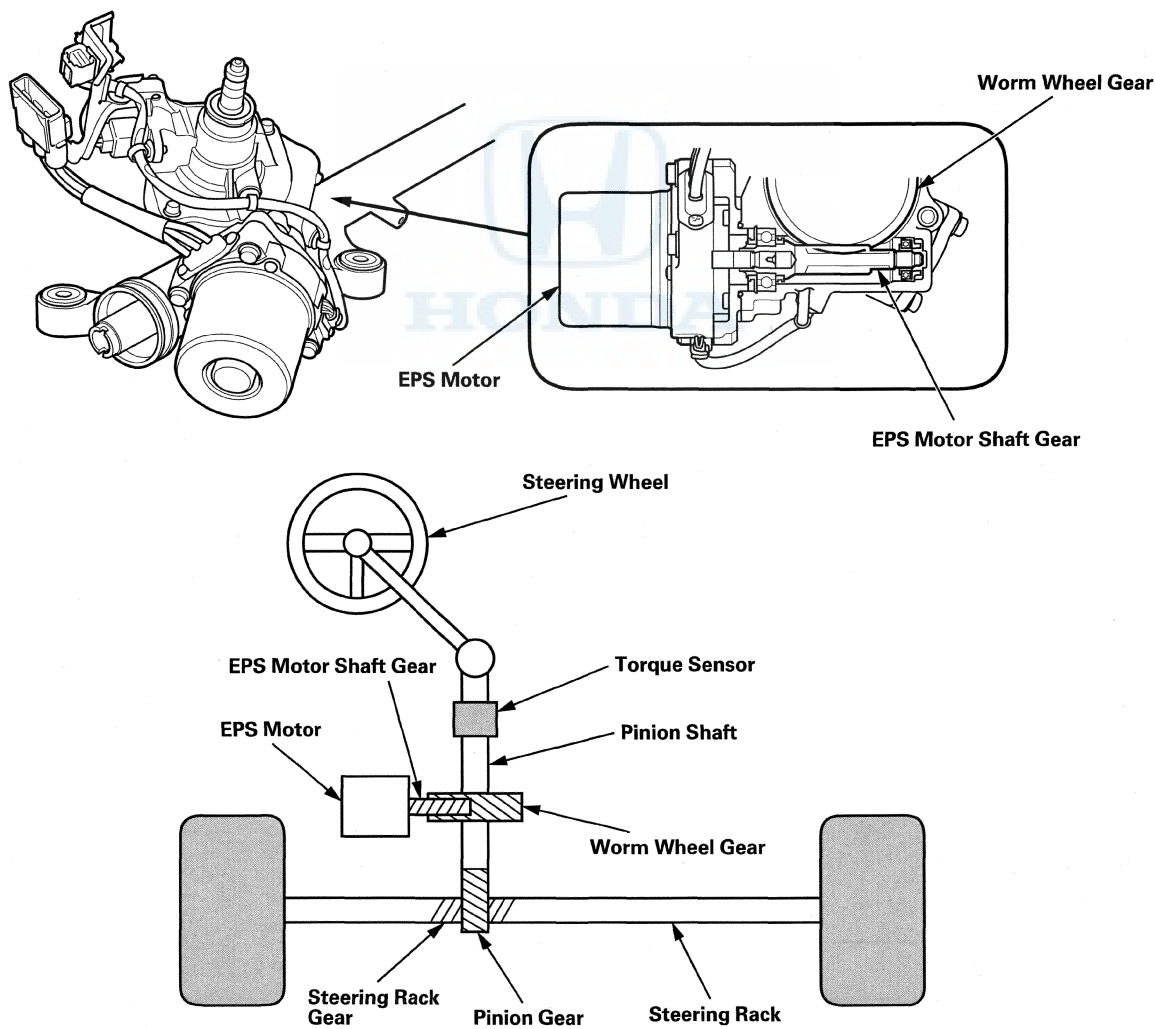
This vehicle is equipped with electrical power steering (EPS). The driver's steering force is assisted by an electric motor at the steering gearbox. Compared to a hydraulic assist power steering system, EPS is more efficient because it does not need an engine driven oil pump to generate hydraulic pressure.

The EPS control unit monitors and controls the EPS motor's assisting force to match driving conditions.

- Low vehicle speeds: High power assist (for easy handling)
- High speed driving: Low power assist (for stable driving)
- Low speed to high speed driving: Change smoothly from high assist to low assist

Steering Gearbox

The steering force from the steering wheel is sent to the pinion shaft. The torque sensor measures the difference between the force applied to the pinion shaft and the resistance to turning the wheels due to road friction, and converts it to a voltage signal which is sent to the EPS control unit. Based on this signal, the EPS control unit controls the current to the EPS motor. The EPS motor shaft gear rotates the worm wheel gear which is part of the pinion shaft. This becomes the assist force in the steering system.





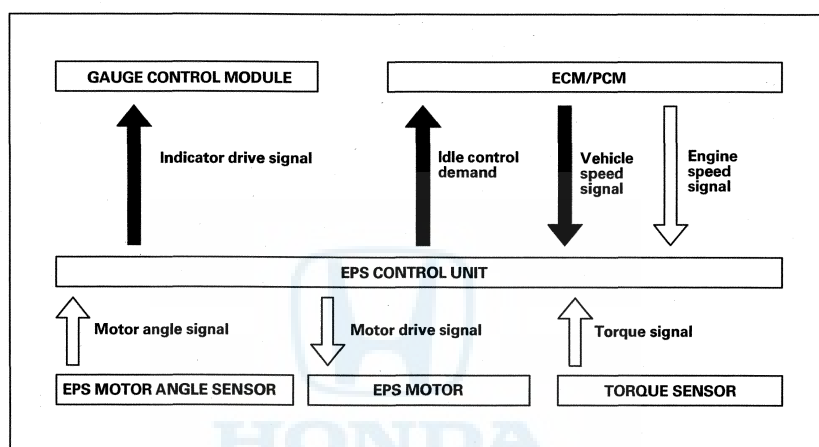
System Operation

The EPS control unit controls the EPS motor by these signals:

- Vehicle speed signal (from ECM/PCM)
- Engine speed signal (from ECM/PCM)
- EPS motor angle sensor signal
- Torque sensor signal

At idle or low vehicle speeds, the EPS control unit sends a signal to the ECM/PCM to increase the engine idle speed to prevent the engine from stalling.

When the EPS control unit detects a failure in the system, it stores a DTC and sends a signal to the gauge control module to turn the EPS indicator on.



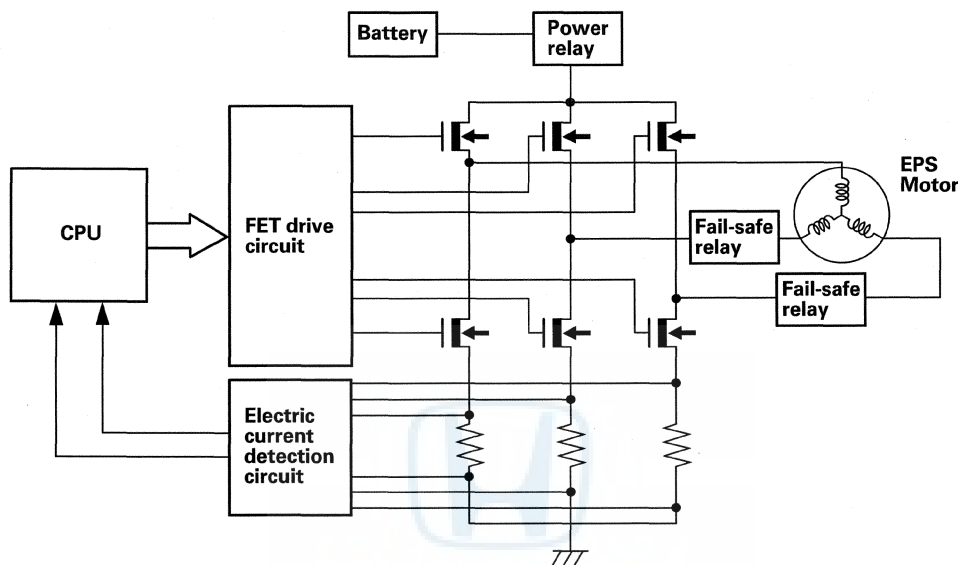
(cont'd)

EPS Components

System Description (cont'd)

EPS motor operation

The EPS uses an efficient brushless DC type motor. The EPS motor control circuit is composed of a system control CPU, the field-effect transistor (FET) drive circuit, the H type FET bridge, the power relay, the fail-safe relay, the electric current sensor, and the EPS motor. From the input sensor signals, the CPU calculates and duty cycles outputs the appropriate three-phase current for the FET drive circuit. This operation is duty controlled.



Power relay (built into the EPS control unit)

When the system is operating normally, the CPU turns the power relay on, and the power is provided to the FET bridge. When the CPU detects a failure in the system which has the demand to shut down the system, the CPU turns the power relay off.

Fail-safe relay (built into the EPS control unit)

When the system is operating normally, the CPU turns the fail-safe relay to on, and the power is provided to the EPS motor. When the CPU detects a failure in the system which has the demand to shut down the system, the CPU turns the fail-safe relay off at the same time it turns the power relay off. This relay is a fail-safe in the event the power relay is faulty and does not turn off.

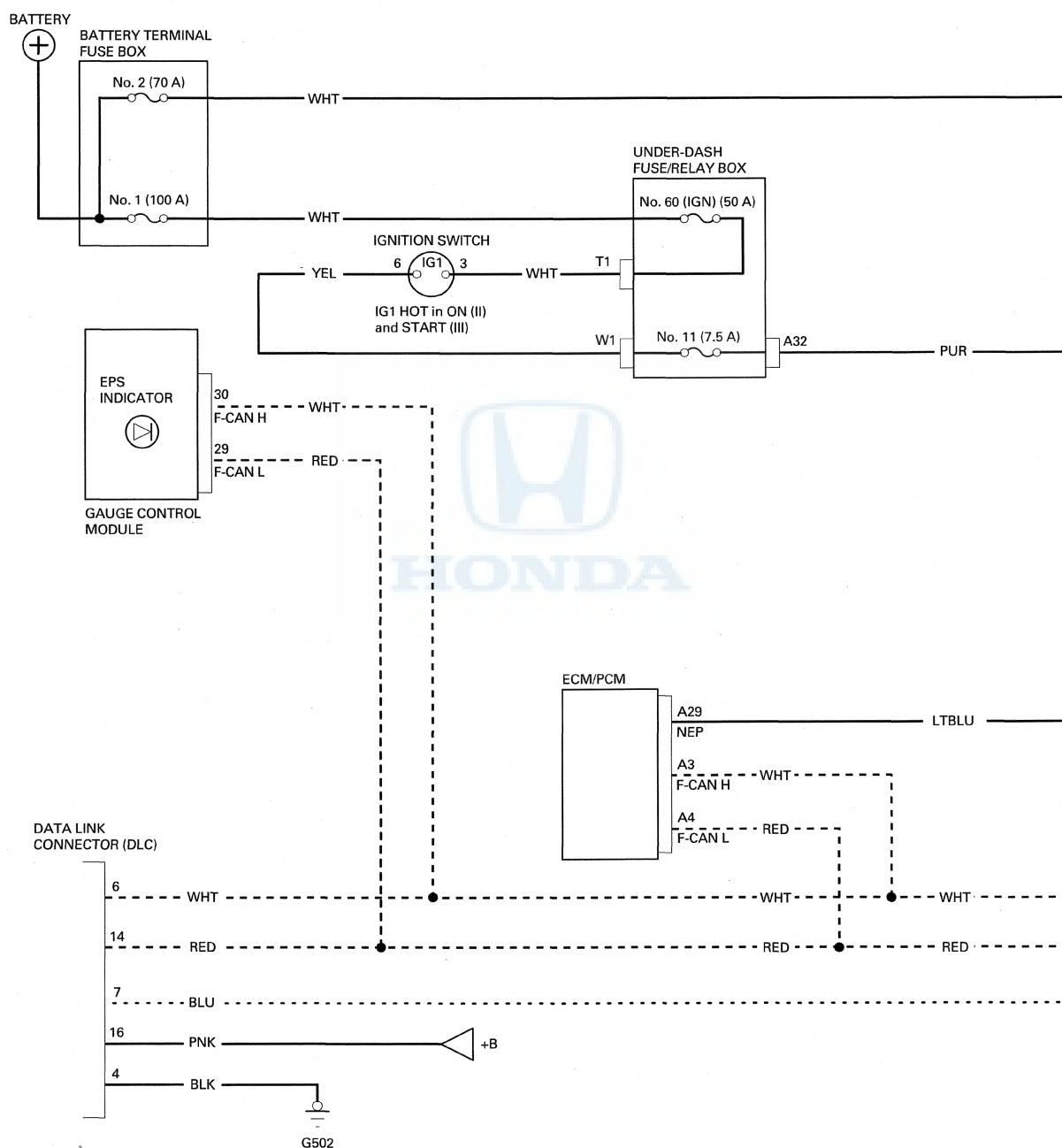
Electric current detection circuit

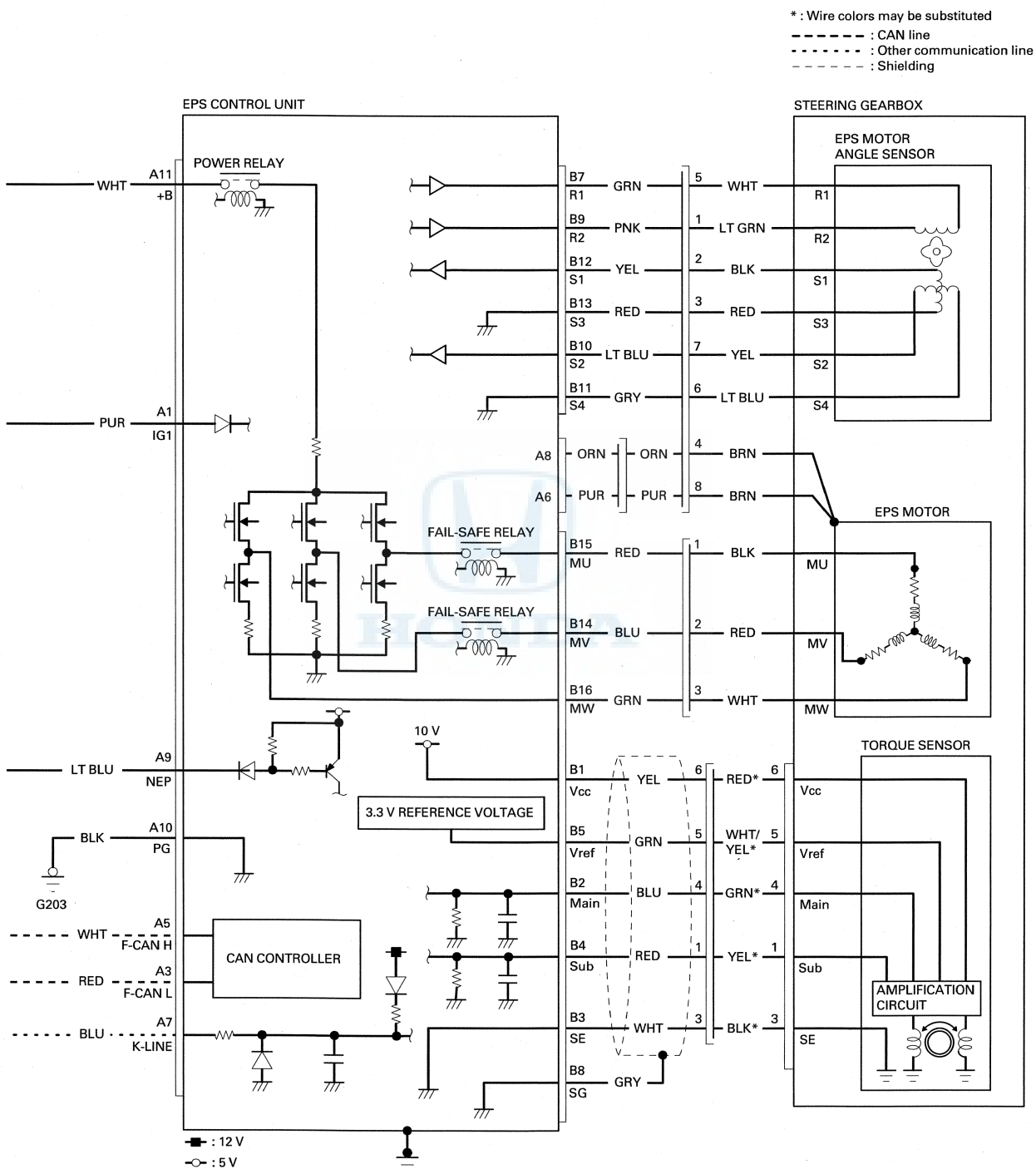
An electric current detection circuit monitors the current of each phase circuit to the motor, and sends a signal to the CPU.



EPS Components

Circuit Diagram



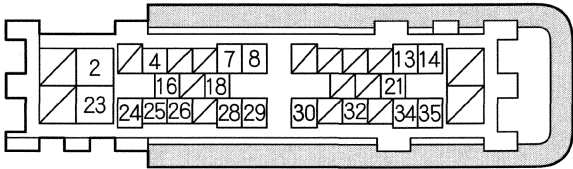


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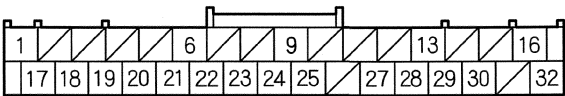
EPS Components

Circuit Diagram (cont'd)

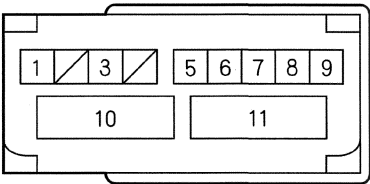
UNDER-DASH FUSE/RELAY BOX CONNECTOR A (36P)



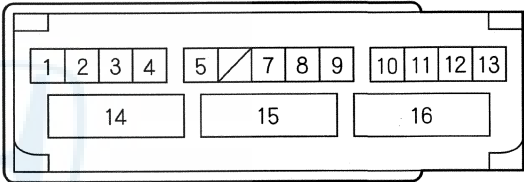
GAUGE CONTROL MODULE 32P CONNECTOR



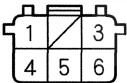
EPS CONTROL UNIT CONNECTOR A (11P)



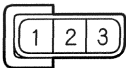
EPS CONTROL UNIT CONNECTOR B (16P)



TORQUE SENSOR 6P CONNECTOR

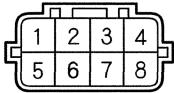


EPS MOTOR 3P CONNECTOR



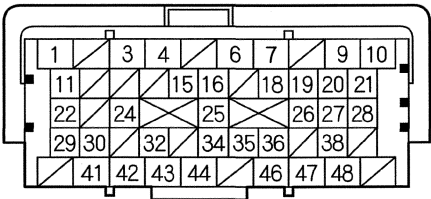
Wire side of female terminals

EPS MOTOR ANGLE SENSOR 8P CONNECTOR



Terminal side of male terminal

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

DATA LINK CONNECTOR (DLC)





DTC Troubleshooting

DTC 11-02: Low/high IG1-terminal voltage

DTC 12-01: Motor Power Supply Voltage

1. Start the engine.
2. Check the BATTERY and IG1 in the EPS DATA LIST with the HDS.

Is there battery voltage?

YES—Intermittent failure, the system is OK at this time. ■

NO—Check the battery (see page 22-68) and charging system indicator circuit troubleshooting (see page 4-25). If they are OK, go to step 3.

3. Check for a poor connection at all IG1 circuit connections between the EPS control unit connector A (11P) terminal No. 1 and the under dash fuse/relay box No. 11 (7.5 A) fuse.

Are the connections OK?

YES—Go to step 4.

NO—Repair the IG1 circuit. ■

4. Check for a poor connection at all + B circuit connections between the EPS control unit connector A (11P) terminal No. 11 and the battery terminal fuse box No. 2 (70 A) fuse.

Are the connections OK?

YES—Substitute a known-good EPS control unit (see page 17-79), and recheck. ■

NO—Repair the + B circuit. ■

DTC 21-03: CAN Vehicle Speed Stuck ON

NOTE:

- Check for any powertrain DTCs and troubleshoot those first.
- Even though the system is operating normally, the EPS indicator will come on caused and set DTC 21-03 when you raise the engine speed with the vehicle stopped. See General Troubleshooting (see page 17-22).
- Clear the DTC related to the ABS or VSA system.

1. Raise and support the vehicle (see page 1-14), and allow all wheels to rotate freely.

2. Start the engine.

3. Turn off the VSA function by using the VSA OFF switch.

4. Run the vehicle in 4th gear (M/T) or D position (A/T).

5. Check the VEHICLE SPEED in the EPS DATA LIST with the HDS.

Is the vehicle speed indicated?

YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 6.

6. Start the engine, and check the tachometer and the speedometer.

Does the tachometer and the speedometer work correctly?

YES—replace the EPS control unit (see page 17-79). ■

NO—Troubleshoot the gauge control module (see page 22-274). ■

(cont'd)

EPS Components

DTC Troubleshooting (cont'd)

DTC 22-01: Engine Speed Signal

NOTE: Check for any powertrain DTCs and troubleshoot those first.

1. Start the engine.
2. Check the ENGINE SPEED in the EPS DATA LIST with the HDS.

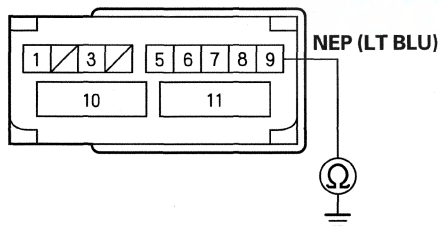
Is 0–300 rpm indicated?

YES—Go to step 3.

NO—Intermittent failure, the system is OK at this time. ■

3. Turn the ignition switch to LOCK (0).
4. Short the SCS line with the HDS.
5. Disconnect ECM/PCM connector A (49P) (see page 11-215).
6. Disconnect EPS control unit connector A (11P) (see page 17-79).
7. Check for continuity between EPS control unit connector A (11P) terminal No. 9 and body ground.

EPS CONTROL UNIT CONNECTOR A (11P)



Wire side of female terminals

Is there continuity?

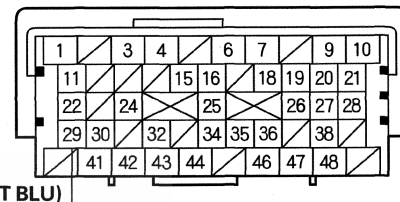
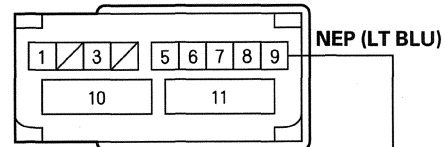
YES—Repair a short to body ground in the wire between the EPS control unit and the ECM/PCM. ■

NO—Go to step 8.

8. Check for continuity between EPS control unit connector A (11P) terminal No. 9 and ECM/PCM connector A (49P) terminal No. 29.

EPS CONTROL UNIT CONNECTOR A (11P)

Wire side of female terminals



NEP (LT BLU)

ECM/PCM CONNECTOR A (49P)

Terminal side of female terminals

Is there continuity?

YES—Go to step 9.

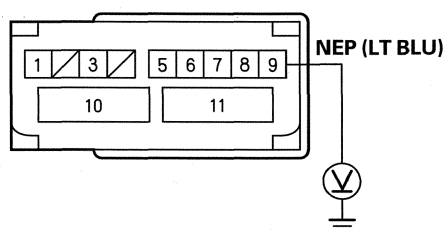
NO—Repair an open in the wire between the EPS control unit and the ECM/PCM. ■

9. Reconnect ECM/PCM connector A (49P).
10. Turn the ignition switch to ON (II).



11. Measure the voltage between EPS control unit connector A (11P) terminal No. 9 and body ground.

EPS CONTROL UNIT CONNECTOR A (11P)



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminals in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit (see page 17-79). ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then go to step 1 and recheck. If the ECM/PCM was updated and DTCs are not indicated, troubleshooting is complete. If the ECM/PCM was substituted and DTCs are not indicated, replace the original ECM/PCM (see page 11-215). ■

DTC 23-01: CAN Data Stuck ON

DTC 32-09: Motor Current Correlation

DTC 32-0C: Battery Current Detect Circuit

DTC 34-01: Power Relay

DTC 35-01: EPS Control Unit Internal Circuit (CPU)

DTC 35-02: EPS Control Unit Internal Circuit (EEPROM1)

DTC 35-04: EPS Control Unit Internal Circuit (CPU Communication)

DTC 35-05: EPS Control Unit Internal Circuit (A/D Conversion)

DTC 35-08: EPS Control Unit Internal Circuit (EEPROM2)

DTC 35-0A: EPS Control Unit Internal Circuit (CPU Operation)

DTC 36-02: EPS Control Unit Internal Circuit (INH Output Circuit)

DTC 37-01: EPS Control Unit Internal Circuit (Step-up Circuit)

DTC 38-01: EPS Control Unit Internal Circuit (Temperature Sensor)

(cont'd)

EPS Components

DTC Troubleshooting (cont'd)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Check for DTCs with the HDS.

Is DTC 23-01, 32-09, 32-0C, 34-01, 35-01, 35-02, 35-04, 35-05, 35-08, 35-0A, 36-02, 37-01, or 38-01 indicated?

YES—Check for loose terminals in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit (see page 17-79). ■

NO—Intermittent failure, the system is OK at this time. ■

DTC 23-02: CAN Vehicle Speed Data

NOTE: Clear the DTC related to the VSA.

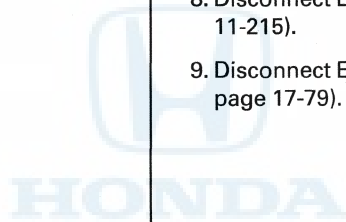
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Check for DTCs with the HDS.

Is DTC 23-02 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. ■

6. Turn the ignition switch to LOCK (0).
7. Short the SCS line with the HDS.
8. Disconnect ECM/PCM connector A (49P) (see page 11-215).
9. Disconnect EPS control unit connector A (11P) (see page 17-79).

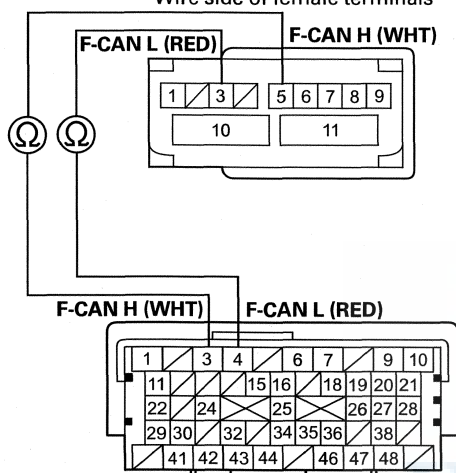




10. Check for continuity between EPS control unit connector A (11P) terminals and ECM/PCM connector A (49P) terminals (see table).

Sign	EPS Control Unit Connector A (11P) Terminal	ECM/PCM Connector A (49P) Terminal
F-CAN L	No. 3	No. 4
F-CAN H	No. 5	No. 3

EPS CONTROL UNIT CONNECTOR A (11P)
Wire side of female terminals



ECM/PCM CONNECTOR A (49P)
Terminal side of female terminals

Is there continuity?

YES—Go to step 11

NO—Repair an open in the wire between the EPS control unit and the ECM/PCM. ■

11. Reconnect ECM/PCM connector A (49P).
12. Reconnect EPS control unit connector A (11P).
13. Raise and support the vehicle (see page 1-14), and allow all wheels to rotate freely.
14. Start the engine.
15. Turn off the VSA function by using the VSA OFF switch (If equipped).
16. Run the vehicle in 4th gear (M/T) or D position (A/T).
17. Check the VEHICLE SPEED in the EPS DATA LIST with the HDS.

Is the vehicle speed indicated?

YES—Check for loose terminals in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit (see page 17-79). ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then go to step 1 and recheck. If the ECM/PCM was updated and DTCs are not indicated, troubleshooting is complete. If the ECM/PCM was substituted and DTCs are not indicated, replace the original ECM/PCM (see page 11-215). ■

(cont'd)

EPS Components

DTC Troubleshooting (cont'd)

DTC 23-03: CAN Engine Speed Data

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Check for DTCs with the HDS.

Is DTC 23-03 indicated?

YES—Go to step 6.

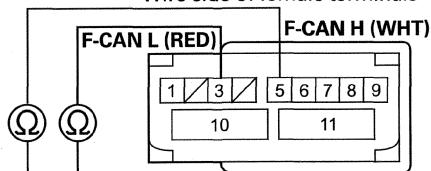
NO—Intermittent failure, the system is OK at this time. ■

6. Turn the ignition switch to LOCK (0).
7. Short the SCS line with the HDS.
8. Disconnect ECM/PCM connector A (49P) (see page 11-215).
9. Disconnect EPS control unit connector A (11P) (see page 17-79).

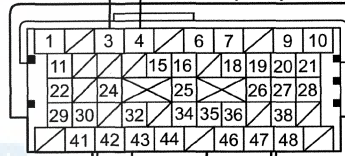
10. Check for continuity between EPS control unit connector A (11P) terminals and ECM/PCM connector A (49P) terminals (see table).

Sign	EPS Control Unit Connector A (11P) Terminal	ECM/PCM Connector A (49P) Terminal
F-CAN L	No. 3	No. 4
F-CAN H	No. 5	No. 3

EPS CONTROL UNIT CONNECTOR A (11P)
Wire side of female terminals



ECM/PCM CONNECTOR A (49P)
Terminal side of female terminals



Is there continuity?

YES—Go to step 11.

NO—Repair an open in the wire between the EPS control unit and the ECM/PCM. ■



11. Reconnect ECM/PCM connector A (49P).
12. Reconnect EPS control unit connector A (11P).
13. Start the engine.
14. Check the ENGINE SPEED in the EPS DATA LIST with the HDS.

Is engine speed indicated?

YES—Check for loose terminals in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit (see page 17-79). ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then go to step 1 and recheck. If the ECM/PCM was updated and DTCs are not indicated, troubleshooting is complete. If the ECM/PCM was substituted and DTCs are not indicated, replace the original ECM/PCM (see page 11-215). ■

DTC 23-04: CAN Bus-off Malfunction

NOTE: Check for any powertrain DTCs and troubleshoot those first.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Check for DTCs with the HDS.

Is DTC 23-04 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. ■

6. Turn the ignition switch to LOCK (0).
7. Short the SCS line with the HDS.
8. Disconnect ECM/PCM connector A (49P) (see page 11-215).
9. Disconnect EPS control unit connector A (11P) (see page 17-79).

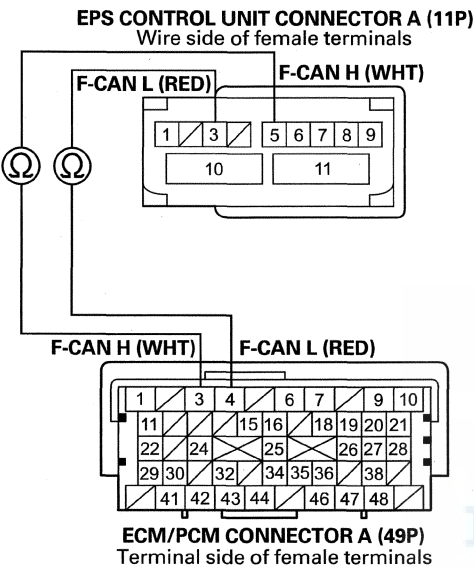
(cont'd)

EPS Components

DTC Troubleshooting (cont'd)

10. Check for continuity between EPS control unit connector A (11P) terminals and ECM/PCM connector A (49P) terminals (see table).

Sign	EPS Control Unit Connector A (11P) Terminal	ECM/PCM Connector A (49P) Terminal
F-CAN L	No. 3	No. 4
F-CAN H	No. 5	No. 3



Is there continuity?

YES—Check for loose terminals in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit (see page 17-79). ■

NO—Repair an open in the wire between the EPS control unit and the ECM/PCM. ■

DTC 32-0B: Over Current

DTC 32-0E: Over Current Continuation

DTC 34-02: Fail-Safe Relay

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Check for DTCs with the HDS.

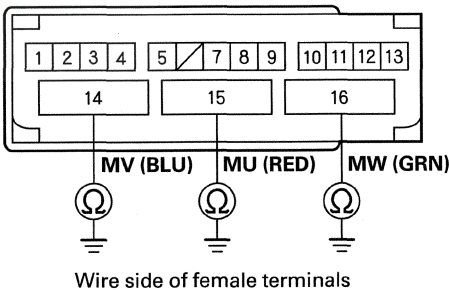
Is DTC 32-0B, 32-0E, or 34-02 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. ■

6. Turn the ignition switch to LOCK (0).
7. Disconnect EPS control unit connector B (16P) (see page 17-79).
8. Check for continuity between body ground and EPS control unit connector B (16P) terminals No. 14, No. 15, and No. 16 individually.

EPS CONTROL UNIT CONNECTOR B (16P)



Is there continuity?

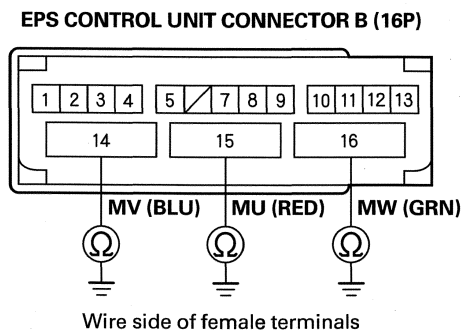
YES—Go to step 9.

NO—Check for loose terminals in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit (see page 17-79). ■

9. Disconnect the EPS motor 3P connector (see step 22 on page 17-66).



10. Check for continuity between body ground and EPS control unit connector B (16P) terminals No. 14, No. 15, and No. 16 individually.



Is there continuity?

YES—Repair a short to body ground in the wire between the EPS control unit and the EPS motor. ■

NO—Replace the EPS motor (see page 17-61). ■

DTC 32-0F: Battery Current/Motor Current Correlation

DTC 52-07: Torque Sensor Amplifier Out of Range

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock to lock several times.
6. Check for DTCs with the HDS.

Is DTC 32-0F or 52-07 indicated?

YES—Replace the EPS control unit (see page 17-79). ■

NO—Intermittent failure, the system is OK at this time. ■

(cont'd)

EPS Components

DTC Troubleshooting (cont'd)

DTC 39-01: EPS Control Unit Internal Circuit (Precharge Circuit)

DTC 39-02: EPS Control Unit Internal Circuit (Outside WDT)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II).
5. Check for DTCs with the HDS.

Is DTC 39-01 or DTC 39-02 indicated?

YES—Replace the EPS control unit (see page 17-79).■

NO—Intermittent failure, the system is OK at this time.■

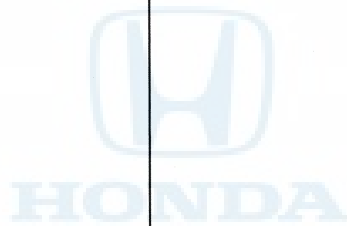
DTC 39-03: EPS Control Unit Internal Circuit (Power Self-holding Circuit)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Wait 30 seconds or more.
5. Turn the ignition switch to ON (II).
6. Check for DTCs with the HDS.

Is DTC 39-03 indicated?

YES—Replace the EPS control unit (see page 17-79).■

NO—Intermittent failure, the system is OK at this time.■





DTC 52-01: Torque Sensor Allowable Tolerance (Initial Diagnosis)

DTC 52-03: Main Torque Sensor

DTC 52-04: Sub Torque Sensor

DTC 52-05: Torque Sensor Allowable Tolerance

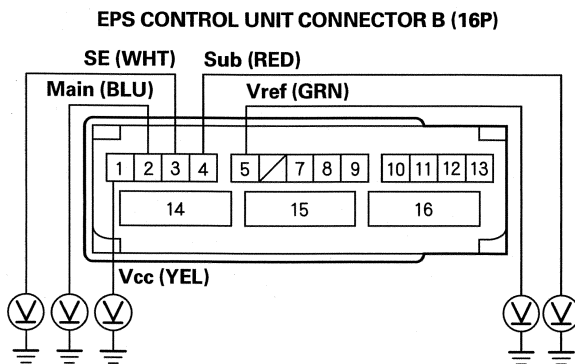
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Check for DTCs with the HDS.

Is DTC 52-01, 52-03, 52-04, or 52-05 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. ■

6. Turn the ignition switch to LOCK (0).
7. Disconnect EPS control unit connector B (16P) (see page 17-79).
8. Turn the ignition switch to ON (II).
9. Measure the voltage between body ground and EPS control unit connector B (16P) terminals No. 1, No. 2, No. 3, No. 4, and No. 5 individually.



Wire side of female terminals

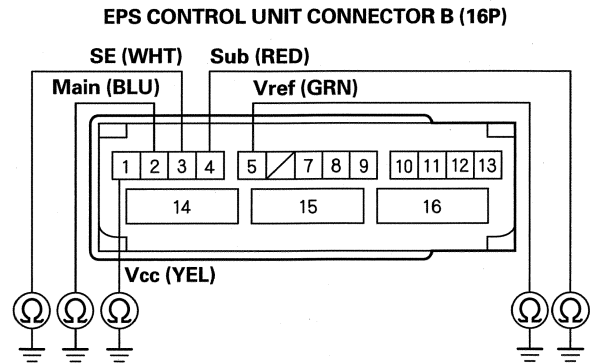
Is there battery voltage?

YES—Repair a short to power in the wire harness between the EPS control unit and the torque sensor. ■

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).

11. Check for continuity between body ground and EPS control unit connector B (16P) terminals No. 1, No. 2, No. 3, No. 4, and No. 5 individually.



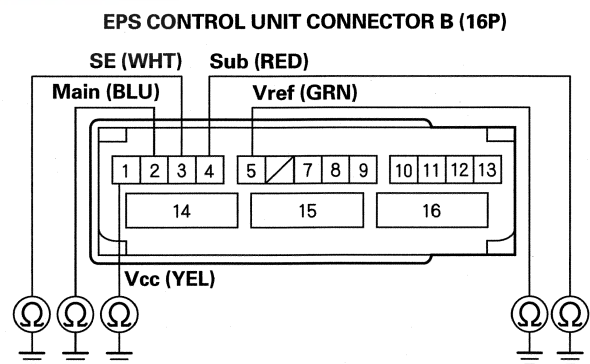
Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Go to step 14.

12. Disconnect the torque sensor 6P connector (see step 21 on page 17-66).
13. Check for continuity between body ground and EPS control unit connector B (16P) terminals No. 1, No. 2, No. 3, No. 4, and No. 5 individually.



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the EPS control unit and the torque sensor. ■

NO—Replace the steering gearbox (see page 17-63). ■

14. Disconnect the torque sensor 6P connector (see step 21 on page 17-66).

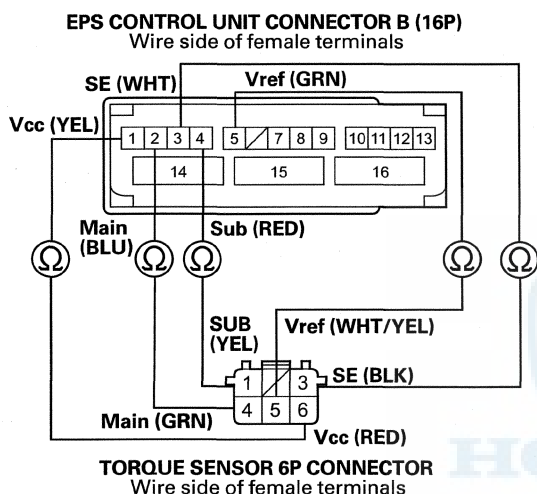
(cont'd)

EPS Components

DTC Troubleshooting (cont'd)

15. Check for continuity between EPS control unit connector B (16P) terminals and torque sensor 6P connector terminals (see table).

Sig	EPS Control Unit Connector B (16P) Terminal	Torque Sensor 6P Connector Terminal
Vref	No. 5	No. 5
Main	No. 2	No. 4
SE	No. 3	No. 3
Sub	No. 4	No. 1
Vcc	No. 1	No. 6



Is there continuity?

YES—Go to step 16.

NO—Repair an open in the wire between the EPS control unit and the torque sensor. ■

16. Substitute a known-good EPS control unit (see page 17-79).
17. Reconnect all the connectors.
18. Start the engine.
19. Check for DTCs with the HDS.

Is DTC 52-01, 52-03, 52-04, or 52-05 indicated?

YES— Replace the steering gearbox (see page 17-63). ■

NO—Replace the original EPS control unit (see page 17-79). ■

DTC 52-02: Torque Sensor Power Supply (Initial Diagnosis)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Check for DTCs with the HDS.

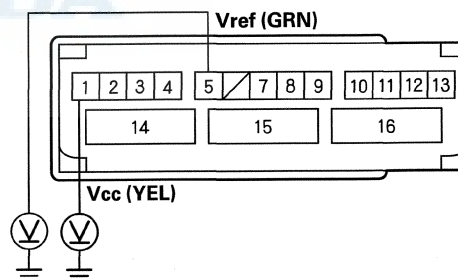
Is DTC 52-02 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. ■

6. Turn the ignition switch to LOCK (0).
7. Disconnect EPS control unit connector B (16P) (see page 17-79).
8. Turn the ignition switch to ON (II).
9. Measure the voltage between body ground and EPS control unit connector B (16P) terminal No.1 and No. 5 individually.

EPS CONTROL UNIT CONNECTOR B (16P)



Is there battery voltage?

YES—Repair a short to power in the wire harness between the EPS control unit and the torque sensor. ■

NO—Go to step 10.



10. Turn the ignition switch to LOCK (0).
11. Substitute a known-good EPS control unit (see page 17-79).
12. Start the engine.
13. Check for DTCs with the HDS.

Is DTC 52-02 indicated?

YES—Replace the steering gearbox (see page 17-63). ■

NO—Replace the original EPS control unit (see page 17-79). ■

DTC 52-06: Torque Sensor Offset Out of Range

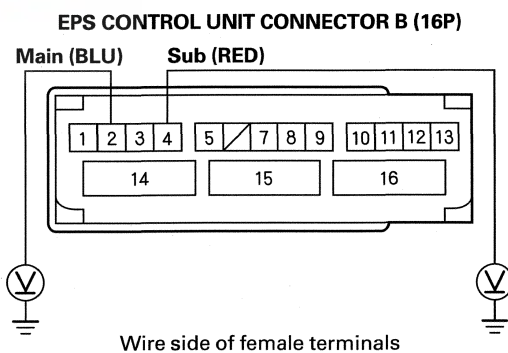
1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock to lock several times.
6. Check for DTCs with the HDS.

Is DTC 52-06 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. ■

7. Turn the ignition switch to LOCK (0).
8. Disconnect EPS control unit connector B (16P) (see page 17-79).
9. Turn the ignition switch to ON (II).
10. Measure the voltage between body ground and EPS control unit connector B (16P) terminal No. 2 and No. 4 individually.



Is there battery voltage?

YES—Repair a short to power in the wire harness between the EPS control unit and the torque sensor. ■

NO—Go to step 11.

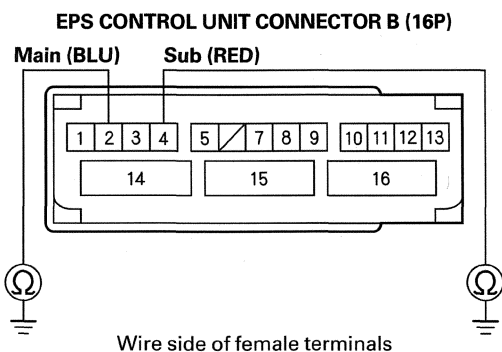
11. Turn the ignition switch to LOCK (0).

(cont'd)

EPS Components

DTC Troubleshooting (cont'd)

12. Check for continuity between body ground and EPS control unit connector B (16P) terminal No. 2 and No. 4 individually.

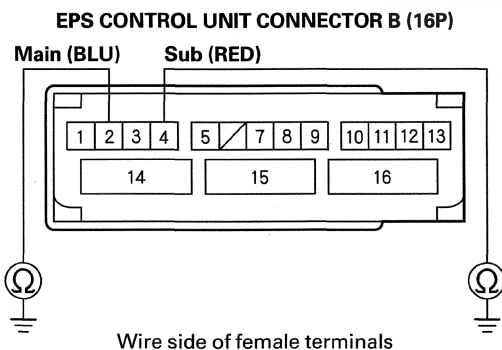


Is there continuity?

YES—Go to step 13.

NO—Go to step 15.

13. Disconnect the torque sensor 6P connector (see step 21 on page 17-66).
14. Check for continuity between body ground and EPS control unit connector B (16P) terminal No. 2 and No. 4 individually.



Is there continuity?

YES—Repair a short to body ground in the wire harness between the EPS control unit and the torque sensor.■

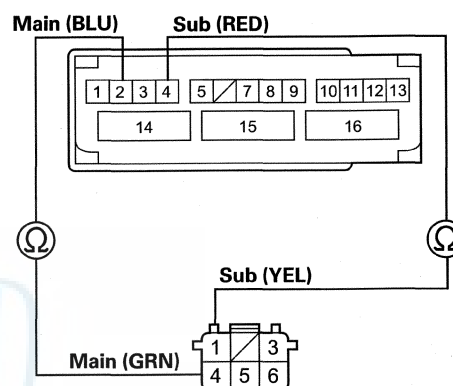
NO—Replace the steering gearbox (see page 17-63).■

15. Disconnect the torque sensor 6P connector (see step 21 on page 17-66).

16. Check for continuity between EPS control unit connector B (16P) terminals and torque sensor 6P connector terminals (see table).

Sign	EPS Control Unit Connector B (16P) Terminal	Torque Sensor 6P Connector Terminal
Main	No. 2	No. 4
Sub	No. 4	No. 1

EPS CONTROL UNIT CONNECTOR B (16P)
Wire side of female terminals



TORQUE SENSOR 6P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 17.

NO—Repair a open in the wire between the EPS control unit and the torque sensor.■

17. Substitute a known-good EPS control unit (see page 17-79).
18. Reconnect all the connectors.
19. Start the engine.
20. Turn the steering wheel from lock to lock several times.
21. Check for DTCs with the HDS.

Is DTC 52-06 indicated?

YES—Replace the steering gearbox (see page 17-63).■

NO—Replace the original EPS control unit (see page 17-79).■



DTC 52-08: Torque Sensor Power Supply

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.

5. Check for DTCs with the HDS.

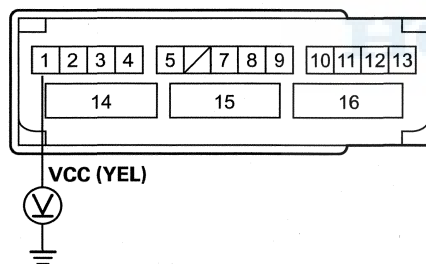
Is DTC 52-08 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. ■

6. Turn the ignition switch to LOCK (0).
7. Disconnect EPS control unit connector B (16P) (see page 17-79).
8. Turn the ignition switch to ON (II).
9. Measure the voltage between EPS control unit connector B (16P) terminal No. 1 and body ground.

EPS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

Is there battery voltage?

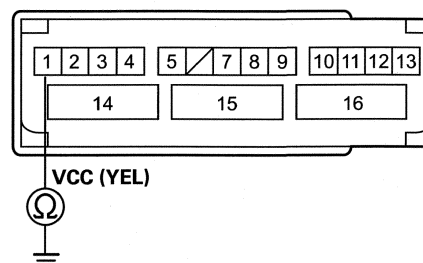
YES—Repair a short to power in the wire harness between the EPS control unit and the torque sensor. ■

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).

11. Check for continuity between EPS control unit connector B (16P) terminal No. 1 and body ground.

EPS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

Is there continuity?

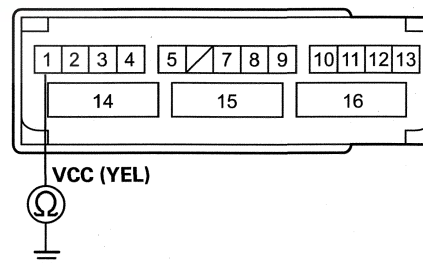
YES—Go to step 12.

NO—Go to step 14.

12. Disconnect the torque sensor 6P connector (see step 21 on page 17-66).

13. Check for continuity between EPS control unit connector B (16P) terminal No. 1 and body ground.

EPS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire harness between the EPS control unit and the torque sensor. ■

NO—Replace the steering gearbox (see page 17-63). ■

(cont'd)

EPS Components

DTC Troubleshooting (cont'd)

14. Substitute a known-good EPS control unit (see page 17-79).

15. Start the engine.

16. Check for DTCs with the HDS.

Is DTC 52-08 indicated?

YES—Replace the steering gearbox (see page 17-63). ■

NO—Replace the original EPS control unit (see page 17-79). ■

DTC61-04: Motor Harness Malfunction

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Turn the ignition switch to LOCK (0).

4. Start the engine.

5. Check for DTCs with the HDS.

Is DTC 61-04 indicated?

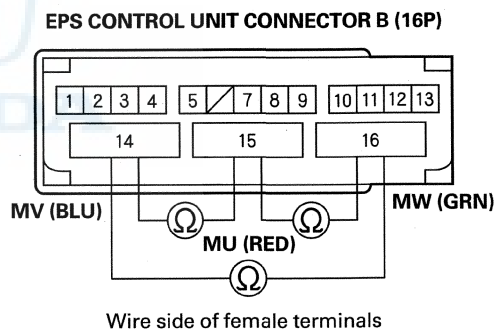
YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. ■

6. Turn the ignition switch to LOCK (0).

7. Disconnect EPS control unit connector B (16P) (see page 17-79).

8. Check for continuity between EPS control unit connector B (16P) terminals No. 14 and No. 15, No. 14 and No. 16, No. 15 and No. 16 individually.



Is there continuity?

YES—Check for loose terminals in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit (see page 17-79).

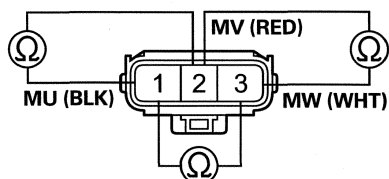
NO—Go to step 9.

9. Disconnect the EPS motor 3P connector (see step 22 on page 17-66).



10. On the EPS motor side, check for continuity between EPS motor 3P connector terminals No. 1 and No. 2, No. 1 and No. 3, and No. 2 and No. 3 individually.

EPS MOTOR 3P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Repair an open in the wire between the EPS control unit and EPS motor. ■

NO—Replace the EPS motor (see page 17-61). ■

DTC 61-05: Motor Harness Short

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Check for DTCs with the HDS.

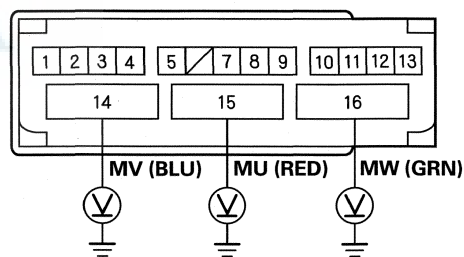
Is DTC 61-05 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. ■

6. Turn the ignition switch to LOCK (0).
7. Disconnect EPS control unit connectors B (16P) (see page 17-79).
8. Turn the ignition switch to ON (II).
9. Measure the voltage between body ground and EPS control unit connector B (16P) terminals No. 14, No. 15, and No. 16 individually.

EPS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

Is there battery voltage?

YES—Repair a short to power in the wire between the EPS control unit and the EPS motor. ■

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).

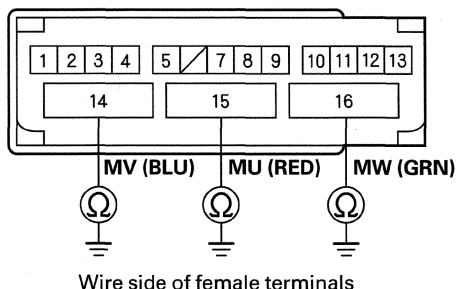
(cont'd)

EPS Components

DTC Troubleshooting (cont'd)

11. Check for continuity between body ground and EPS control unit connector B (16P) terminals No. 14, No. 15, and No. 16 individually.

EPS CONTROL UNIT CONNECTOR B (16P)



Is there continuity?

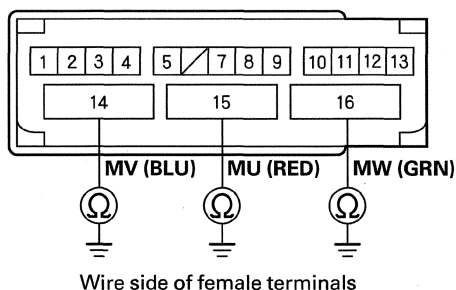
YES—Go to step 12.

NO—Check for loose terminals in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit (see page 17-79). ■

12. Disconnect the EPS motor 3P connector (see step 22 on page 17-66).

13. Check for continuity between body ground and EPS control unit connector B (16P) terminals No. 14, No. 15, and No. 16 individually.

EPS CONTROL UNIT CONNECTOR B (16P)



Is there continuity?

YES—Repair a short to body ground in the wire between the EPS control unit and the EPS motor. ■

NO—Replace the EPS motor (see page 17-61). ■

DTC 61-06: Motor Harness Open

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock to lock several times.
6. Check for DTCs with the HDS.

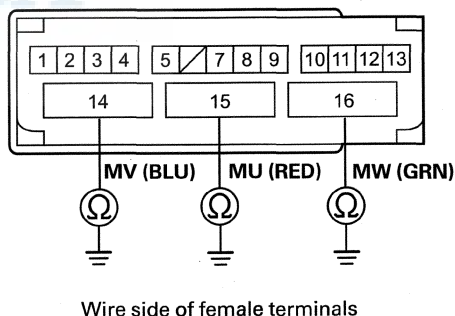
Is DTC 61-06 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. ■

7. Turn the ignition switch to LOCK (0).
8. Disconnect EPS control unit connectors B (16P) (see page 17-79).
9. Check for continuity between body ground and EPS control unit connector B (16P) terminals No. 14, No. 15, and No. 16 individually.

EPS CONTROL UNIT CONNECTOR B (16P)



Is there continuity?

YES—Go to step 10.

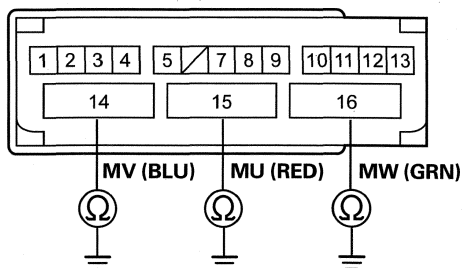
NO—Go to step 12.

10. Disconnect the EPS motor 3P connector (see step 22 on page 17-66).



11. Check for continuity between body ground and EPS control unit connector B (16P) terminals No. 14, No. 15, and No. 16 individually.

EPS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

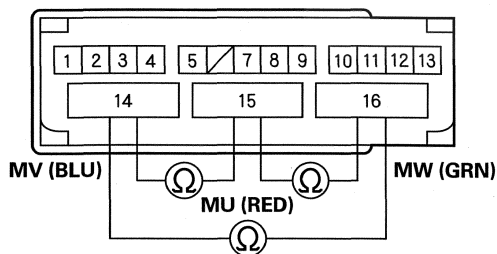
Is there continuity?

YES—Repair a short to body ground in the wire between the EPS control unit and the EPS motor. ■

NO—Replace the EPS motor (see page 17-61). ■

12. Check for continuity between EPS control unit connector B (16P) terminals No. 14 and No. 15, No. 15 and No. 16, and No. 14 and No. 16 individually.

EPS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

Is there continuity?

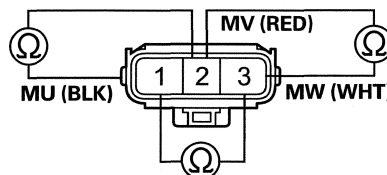
YES—Check for loose terminals in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit (see page 17-79). ■

NO—Go to step 13.

13. Disconnect the EPS motor 3P connector (see step 22 on page 17-66).

14. On the EPS motor side, check for continuity between EPS motor 3P connector terminals No. 1 and No. 2, No. 1 and No. 3, and No. 2 and No. 3 individually.

EPS MOTOR 3P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Repair an open in the wire between the EPS control unit and the EPS motor. ■

NO—Replace the EPS motor (see page 17-61). ■

(cont'd)

EPS Components

DTC Troubleshooting (cont'd)

DTC 71-01: Motor Angle Sensor (SIN/COS Signals)

DTC 71-03: Motor Angle Sensor (SIN/COS Signals)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel to the right or left, and wait 10 seconds or more.
6. Check for DTCs with the HDS.

Is DTC 71-01 or 71-03 indicated?

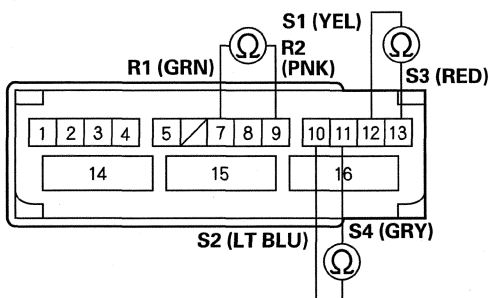
YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. ■

7. Turn the ignition switch to LOCK (0).
8. Disconnect EPS control unit connector B (16P) (see page 17-79).
9. Measure the resistance between the following terminals of EPS control unit connector B (16P).

EPS CONTROL UNIT CONNECTOR B (16P)

No. 7 (R1)	_____	No. 9 (R2)
No. 12 (S1)	_____	No. 13 (S3)
No. 10 (S2)	_____	No. 11 (S4)



Wire side of female terminals

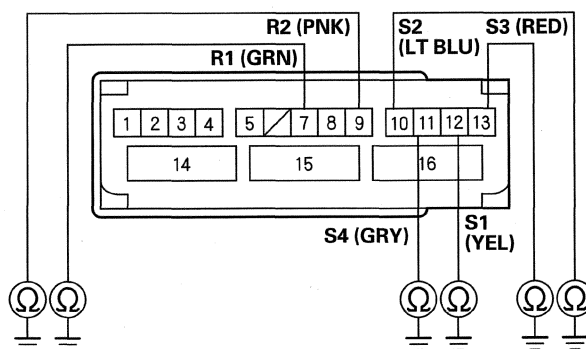
Is the resistance between R1—R2 13.5—17.5 Ω, S1—S3 25—32 Ω, and S2—S4 25—32 Ω?

YES—Go to step 10.

NO—Go to step 13.

10. Check for continuity between body ground and EPS control unit connector B (16P) terminals No. 7, No. 9, No. 10, No. 11, No. 12, and No. 13 individually.

EPS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

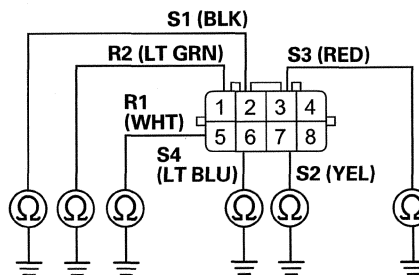
Is there continuity?

YES—Go to step 11.

NO—Check for loose terminals in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit (see page 17-79). ■

11. Disconnect the EPS motor angle sensor 8P connector (see step 21 on page 17-66).
12. On the sensor side, check for continuity between body ground and the EPS motor angle sensor 8P connector terminals No. 1, No. 2, No. 3, No. 5, No. 6, and No. 7 individually.

EPS MOTOR ANGLE SENSOR 8P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the EPS motor (see page 17-61). ■

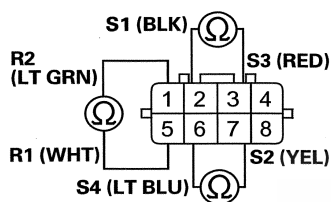
NO—Repair a short to body ground in the wire between the EPS motor angle sensor 8P connector and the EPS control unit. ■



13. Disconnect the EPS motor angle sensor 8P connector (see step 21 on page 17-66).
14. On the sensor side, measure the resistance between the following terminals of the EPS motor angle sensor 8P connector.

EPS MOTOR ANGLE SENSOR 8P CONNECTOR

No. 1 (R2) ————— No. 5 (R1)
 No. 2 (S1) ————— No. 3 (S3)
 No. 6 (S4) ————— No. 7 (S2)



Wire side of female terminals

Is the resistance between R1—R2 13.5—17.5 Ω , S1—S3 25—32 Ω , and S2—S4 25—32 Ω ?

YES—Repair an open or short in the wire between the EPS control unit and the EPS motor angle sensor. ■

NO—Replace the EPS motor (see page 17-61). ■

DTC 71-04: Motor Angle Sensor (Check Signals)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel to the right or left, and wait 10 seconds or more.
6. Check for DTCs with the HDS.

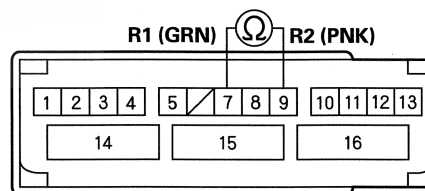
Is DTC 71-04 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. ■

7. Turn the ignition switch to LOCK (0).
8. Disconnect EPS control unit connectors B (16P) (see page 17-79).
9. Measure the resistance between EPS control unit connector B (16P) terminals No. 7 and No. 9.

EPS CONTROL UNIT CONNECTOR B (16P)



Wire side of female terminals

Is the resistance between 13.5—17.5 Ω ?

YES—Go to step 10.

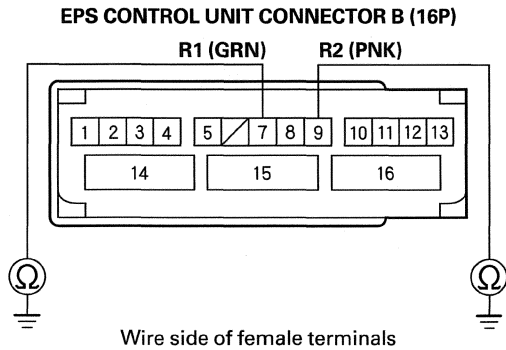
NO—Go to step 13.

(cont'd)

EPS Components

DTC Troubleshooting (cont'd)

10. Check for continuity between body ground and EPS control unit connector B (16P) terminals No. 7 and No. 9 individually.



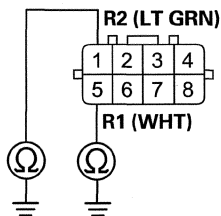
Is there continuity?

YES—Go to step 11.

NO—Check for loose terminals in the EPS control unit connectors, and repair if necessary. If no poor connections are found, replace the EPS control unit (see page 17-79). ■

11. Disconnect the EPS motor angle sensor 8P connector (see step 21 on page 17-66).
12. On the sensor side, check for continuity between body ground and the EPS motor angle sensor 8P connector terminals No. 1 and No. 5 individually.

EPS MOTOR ANGLE SENSOR 8P CONNECTOR



Is there continuity?

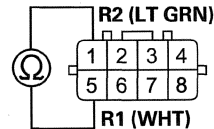
YES—Replace the EPS motor (see page 17-61). ■

NO—Repair a short to body ground in the wire between the EPS motor angle sensor 8P connector and the EPS control unit. ■

13. Disconnect the EPS motor angle sensor 8P connector (see step 21 on page 17-66).

14. On the sensor side, measure the resistance between the EPS motor angle sensor 8P connector terminals No. 1 and No. 5.

EPS MOTOR ANGLE SENSOR 8P CONNECTOR



Is the resistance between 13.5—17.5 Ω ?

YES—Repair an open or short in the wire between the EPS control unit and the EPS motor angle sensor. ■

NO—Replace the EPS motor (see page 17-61). ■



Symptom Troubleshooting

EPS indicator does not come on

1. Turn the ignition switch to ON (II), and watch the EPS indicator.

Does the EPS indicator come on?

YES—Intermittent failure, the system is OK at this time. ■

NO—Troubleshoot the gauge control module (see page 22-274). ■

EPS indicator does not go off, and no DTCs are stored

1. Turn the ignition switch to LOCK (0).
2. Check the No. 11 (7.5 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Replace the fuse. Turn the ignition switch to ON (II), then turn it to LOCK (0) again. If the fuse blows again, repair the short to ground on the No. 11 (7.5 A) fuse circuit. ■

NO—Reinstall the checked fuse, then go to step 3.

3. Check the No. 2 (70 A) fuse in the battery terminal fuse box.

Is the fuse blown?

YES—Replace the fuse. Turn the ignition switch to ON (II), then turn it to LOCK (0) again. If the fuse blows again, repair the short to ground on the No. 2 (70 A) fuse circuit. ■

NO—Reinstall the checked fuse, then go to step 4.

4. Do the gauge control module self-diagnostic function (see page 22-274).

Is the gauge control module OK?

YES—Go to step 5.

NO—Replace the gauge control module (see page 22-294). ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the EPS control unit connector A (11P) (see page 17-79).
7. Turn the ignition switch to ON (II).

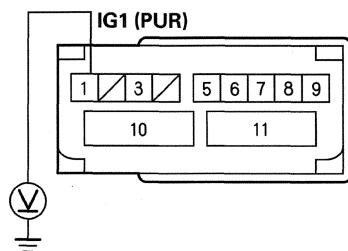
(cont'd)

EPS Components

Symptom Troubleshooting (cont'd)

8. Measure the voltage between EPS control unit connector A (11P) terminal No. 1 and body ground.

EPS CONTROL UNIT CONNECTOR A (11P)



Wire side of female terminals

Is there battery voltage?

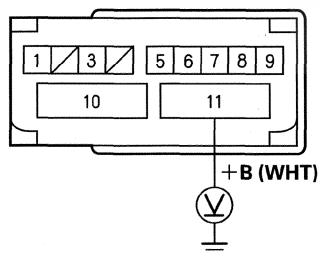
YES—Go to step 9.

NO—Repair an open in the wire between the EPS control unit and No. 11 (7.5 A) fuse in the under-dash fuse/relay box. ■

9. Turn the ignition switch to LOCK (0).

10. Measure the voltage between EPS control unit connector A (11P) terminal No. 11 and body ground.

EPS CONTROL UNIT CONNECTOR A (11P)



Wire side of female terminals

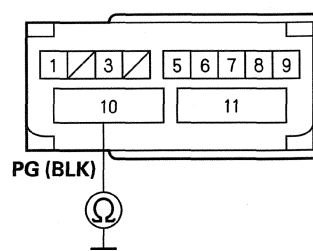
Is there battery voltage?

YES—Go to step 11.

NO—Repair an open in the wire between the EPS control unit and No. 2 (70 A) fuse in the battery terminal fuse box. ■

11. Check for continuity between EPS control unit connector A (11P) terminal No. 10 and body ground.

EPS CONTROL UNIT CONNECTOR A (11P)



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

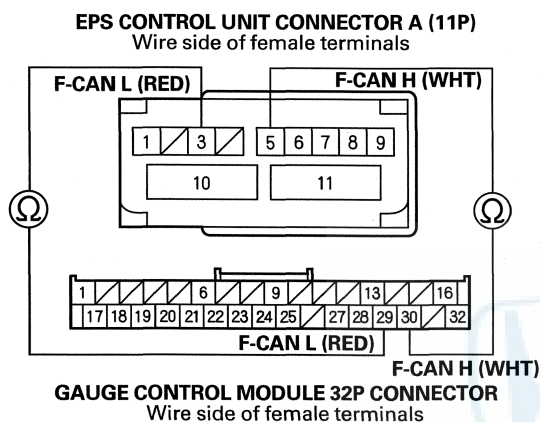
NO—Repair an open in the wire between the EPS control unit and body ground (G203). ■

12. Disconnect the gauge control module 32P connector (see page 22-294).



13. Check for continuity between EPS control unit connector A (11P) terminals and gauge control module 32P connector terminals (see table).

Sign	EPS Control Unit Connector A (11P) Terminal	Gauge Control Module 32P Connector Terminal
F-CAN L	No. 3	No. 29
F-CAN H	No. 5	No. 30



Is there continuity?

YES—Check for loose terminals in the EPS control unit connector, and repair if necessary. If no poor connections are found, replace the EPS control unit (see page 17-79).■

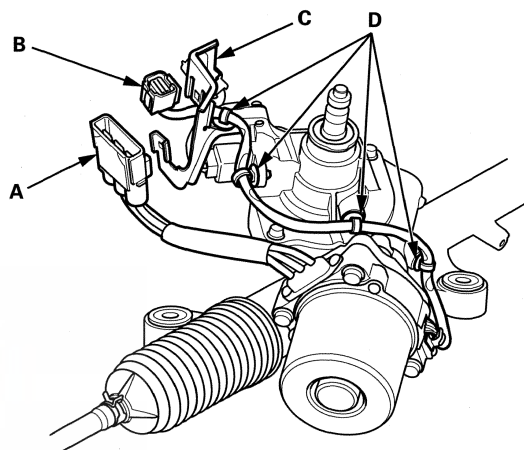
NO—Repair an open in the wire between the EPS control unit and gauge control module.■

EPS Motor Removal and Installation

NOTE: Do not allow dust, dirt, or other foreign materials to enter the steering gearbox.

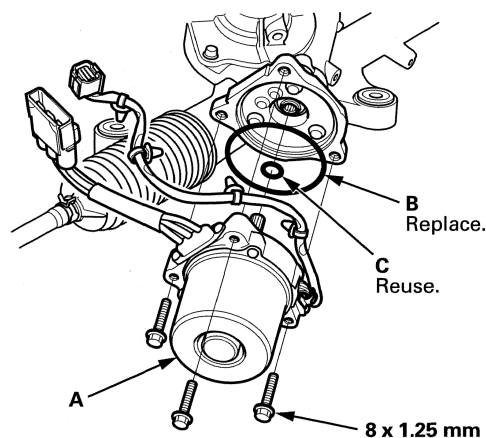
Removal

1. Remove the steering gearbox (see page 17-63).
2. Remove the EPS motor 3P connector (A) and the EPS motor angle sensor 8P connector (B) from the connector bracket (C), then remove the clips (D).



3. Remove the EPS motor (A) from the steering gearbox, then remove the O-rings (B, C).

NOTE: Do not discard the O-ring (C).



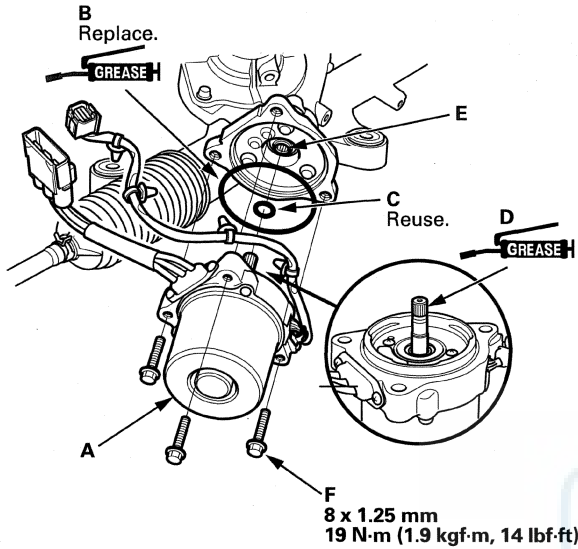
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EPS Components

EPS Motor Removal and Installation (cont'd)

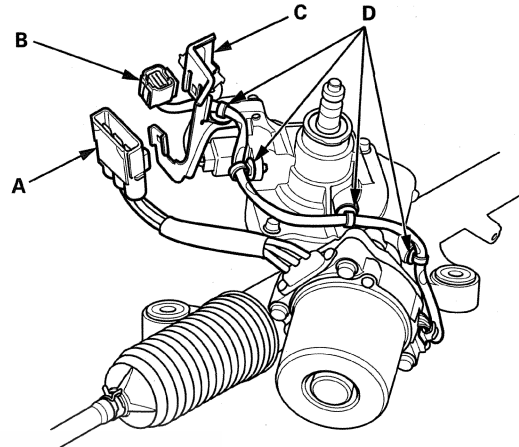
Installation

1. Clean the mating surfaces between the EPS motor (A) and the steering gearbox.



2. Apply steering grease to the new O-ring (B), and carefully fit it on the EPS motor.
3. Install the O-ring (C) to the EPS motor shaft.
4. Apply steering grease to the EPS motor shaft (D).
5. Install the EPS motor on the steering gearbox by engaging the EPS motor shaft and the worm shaft (E).
6. Before tightening the bolts, turn the motor two or three times to the right and left about 45 degrees. Make sure the EPS motor is evenly seated on the steering gearbox, and that the O-ring is not pinched between the mating surfaces.
7. Tighten the EPS motor mounting bolts (F) to the specified torque.

8. Install the EPS motor 3P connector (A) and EPS motor angle sensor 8P connector (B) to the connector bracket (C).



9. Install the wire harness clips (D).
10. Finish the installation, and note these items:
 - Make sure the EPS motor 3P connector and EPS motor angle sensor 8P connector are properly connected.
 - Make sure the EPS motor and the EPS wires are not caught or pinched by any parts.
11. Install the steering gearbox (see page 17-68).



Steering Gearbox Removal and Installation

Special Tools Required

- Ball Joint Thread Protector, 14 mm 071AF-S3VA000
- Ball Joint Thread Protector, 10 mm 07AAF-SECA120
- Universal Lifting Eyelet 07AAK-SNAA120
- 1.8 Support Bolt 07AAK-SNAA500
- Ball Joint Remover, 28 mm 07MAC-SL0A202
- Engine Support Hanger, A and Reds AAR-T1256*

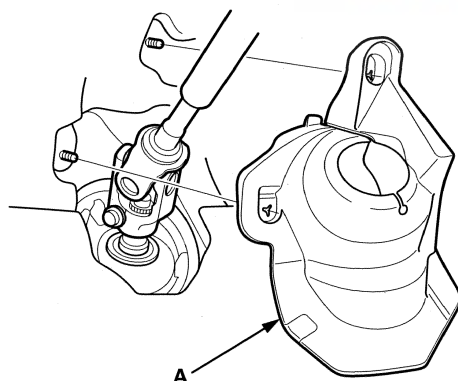
* Available through the Honda Tool and Equipment Program 888-424-6857.

Note these items during removal:

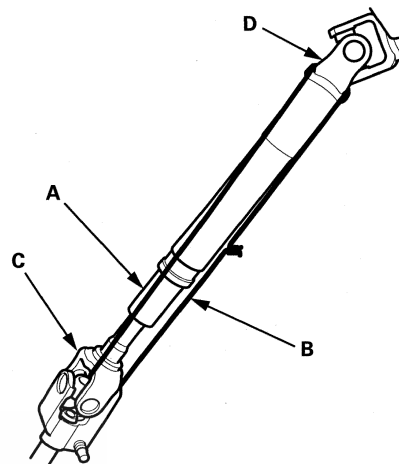
- Use solvent and a brush, wash any oil and dirt off the end of the steering gearbox, but avoid any electrical parts. Blow dry with compressed air.
- Lower the front subframe from the body then remove the steering gearbox.

Removal

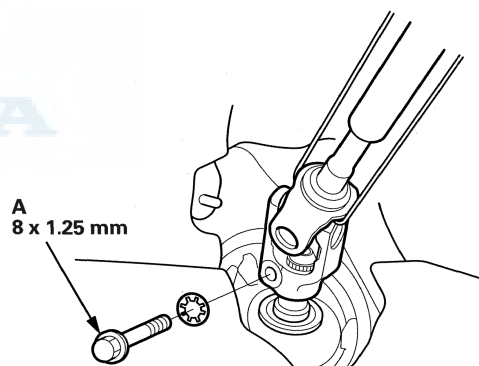
1. Do the battery terminal disconnection procedure (see page 22-69).
2. Raise and support the vehicle (see page 1-14).
3. Remove the front wheels.
4. Tilt the steering column all the way up and move it all the way in.
5. Remove the steering joint cover (A).



6. Hold the lower slide shaft (A) on the column with a piece of wire (B) between the joint yoke (C) of the lower slide shaft and joint yoke (D) of the upper shaft to prevent the lower slide from pulling out.



7. Remove the steering joint bolt (A).

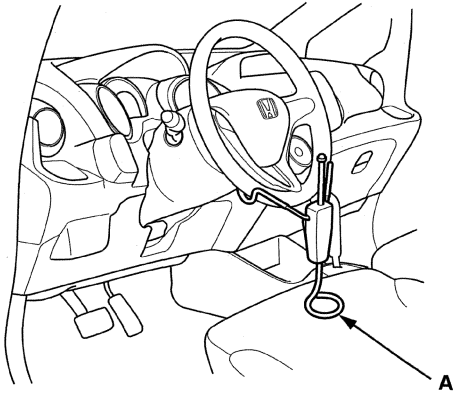


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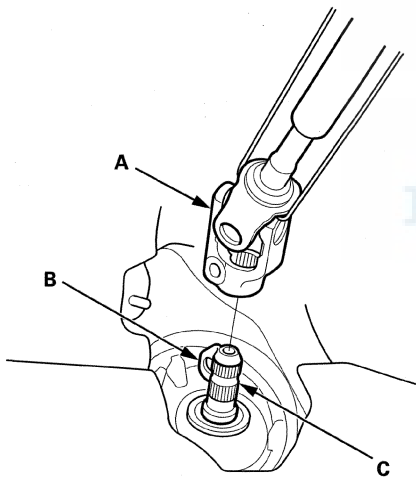
EPS Components

Steering Gearbox Removal and Installation (cont'd)

8. Center the steering wheel spokes, and install a commercially available steering wheel holder tool (A).



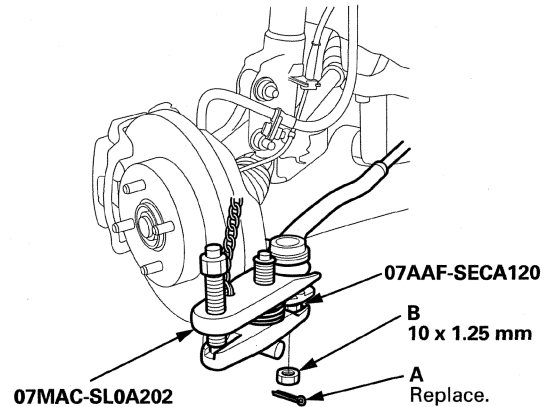
9. Disconnect the steering joint (A) by moving the steering joint toward the column.



10. Remove the center guide (B) (if equipped) from the top of the pinion shaft (C), and discard it.

NOTE: The center guide is for factory assembly use only.

11. Remove the cotter pin (A) from the tie-rod end ball joint, then remove the nut (B) on both sides.

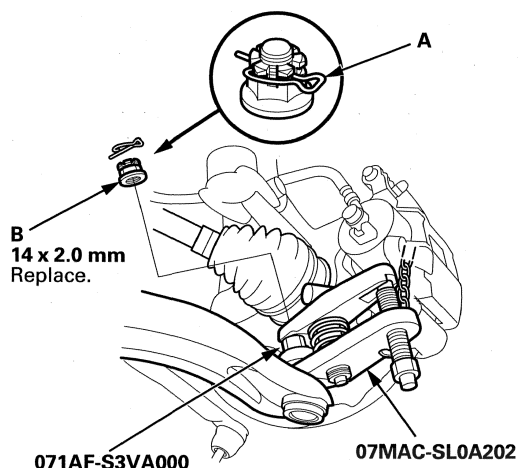


12. Disconnect the tie-rod end ball joint from the knuckle using the ball joint remover and the ball joint thread protector (see page 18-13) on both sides.

NOTE: Be careful not to damage the ball joint boot when installing the remover.



13. Remove the lock pin (A) from the lower arm ball joint castle nut (B), and remove the nut from both sides.

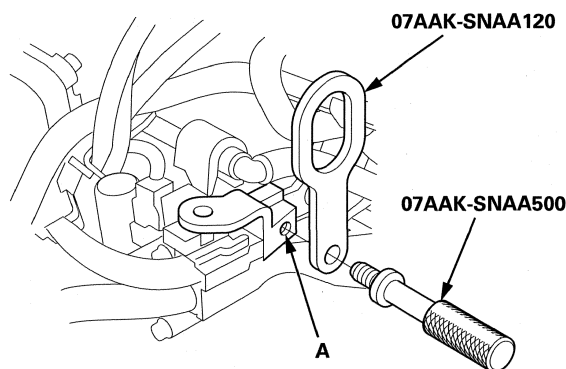


14. Disconnect the lower arm ball joint from the knuckle using the ball joint remover and the ball joint thread protector (see page 18-13) on both sides.

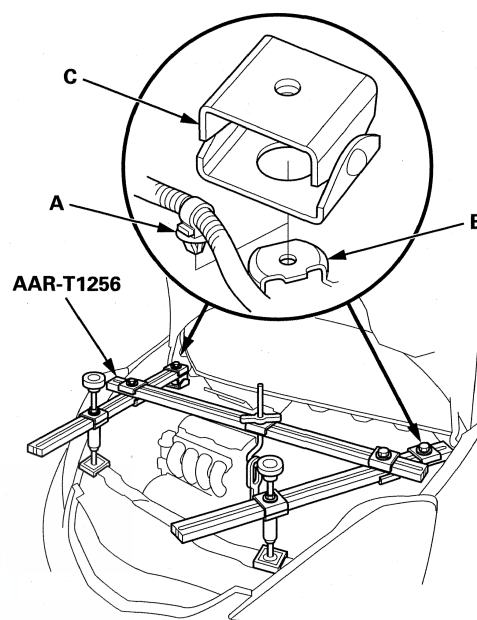
NOTE:

- Be careful not to damage the ball joint boot when installing the remover.
- Do not force or hammer on the lower arm, or pry between the lower arm and the knuckle. You could damage the ball joint.

15. Remove the stabilizer links from the stabilizer bar (see page 18-23) on both sides.
16. Remove the air cleaner housing (see page 11-307).
17. Remove the cowl cover and the under-cowl panel (see page 20-185).
18. Install the universal lifting eyelet (07AAK-SNAA120) to the bolt hole (A) at the air cleaner housing mounting bracket with the 1.8 support bolt (07AAK-SNAA500).



19. Remove the harness clamp (A) from its clamp bracket (B) located in front of the left damper top.



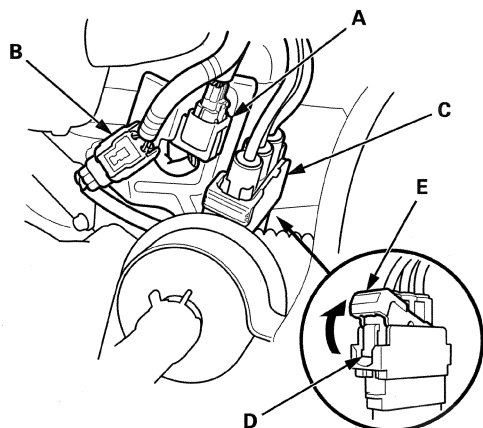
20. Set up the engine support hanger (AAR-T1256). Carefully position the engine support hanger to the vehicle; position both cross-arm foot bases (C) over the harness clamp brackets on both sides, and position both front stands on the front bulkhead. Attach the hook to the universal eyelet, tighten the wing nut by hand, and lift and support the engine.

(cont'd)

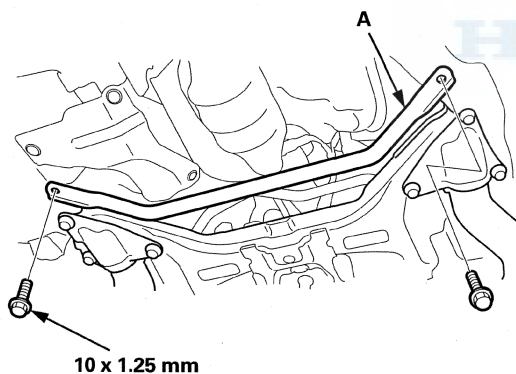
EPS Components

Steering Gearbox Removal and Installation (cont'd)

21. Disconnect the EPS motor angle sensor 8P connector (A) and torque sensor 6P connector (B) from the steering gearbox.

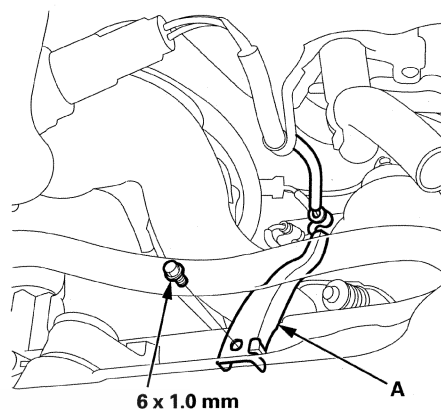


22. Disconnect the EPS motor 3P connector (C) by pushing the lock (D) and pulling up the lever (E).
23. Wrap the connectors with vinyl tape to avoid contamination from grease or water.
24. Remove the front cross-member brace (A).



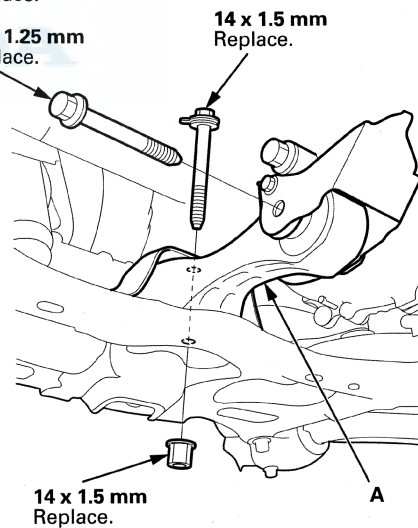
25. Remove the secondary HO2S harness bracket (A) from the steering gearbox.

NOTE: Do not disconnect the secondary HO2S 4P connector and the secondary HO2S.



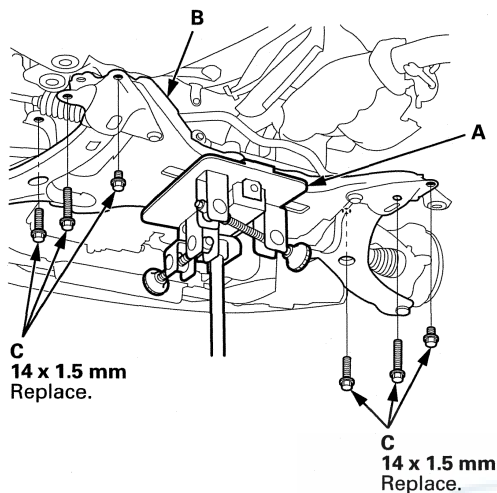
26. Remove the splash shield (see page 20-180).
27. Remove the lower torque rod (A).

M/T
14 x 1.5 mm
Replace.
A/T
12 x 1.25 mm
Replace.

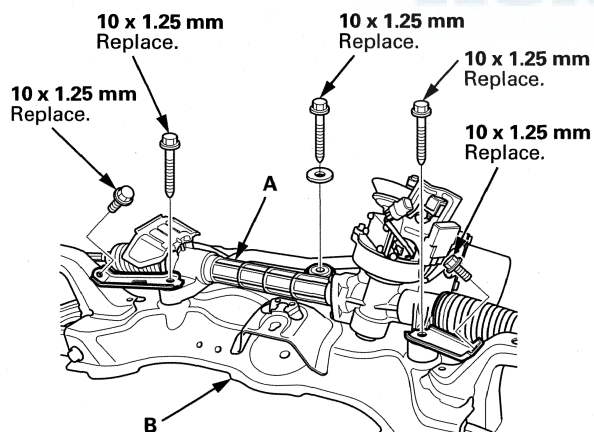




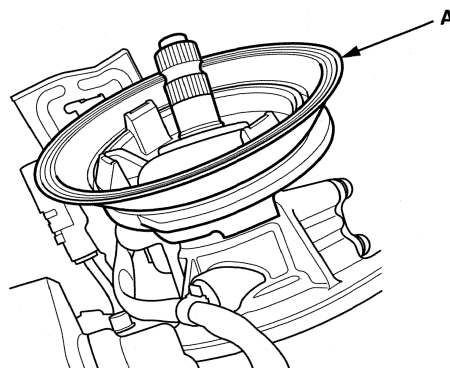
28. Attach a transmission jack (A) to the middle of the front subframe (B), and support the front subframe securely by raising the transmission jack.



29. Remove the front subframe mounting bolts (C).
30. Lower the front subframe and steering gearbox as an assembly by lowering the jack slowly.
31. Remove the steering gearbox (A) from the front subframe (B).



32. Remove the pinion shaft grommet (A).



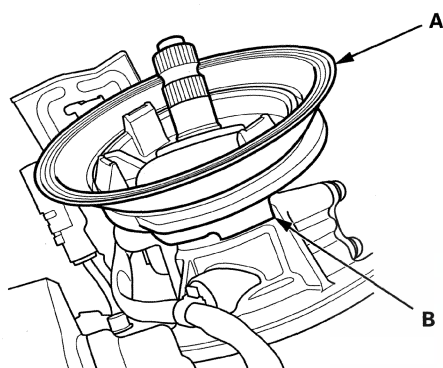
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EPS Components

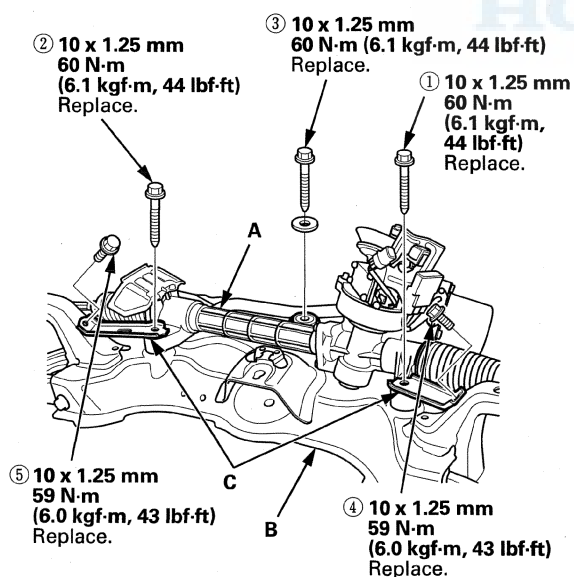
Steering Gearbox Removal and Installation (cont'd)

Installation

1. Before installing the steering gearbox, make sure that no grease is on the mating surface of the steering gearbox and the front subframe. To prevent the gearbox mounting bolts from loosening after the installation, remove any grease from the bolt holes.
2. Install the pinion shaft grommet (A). Align the lug portion (B) in the pinion shaft grommet to the steering gearbox.

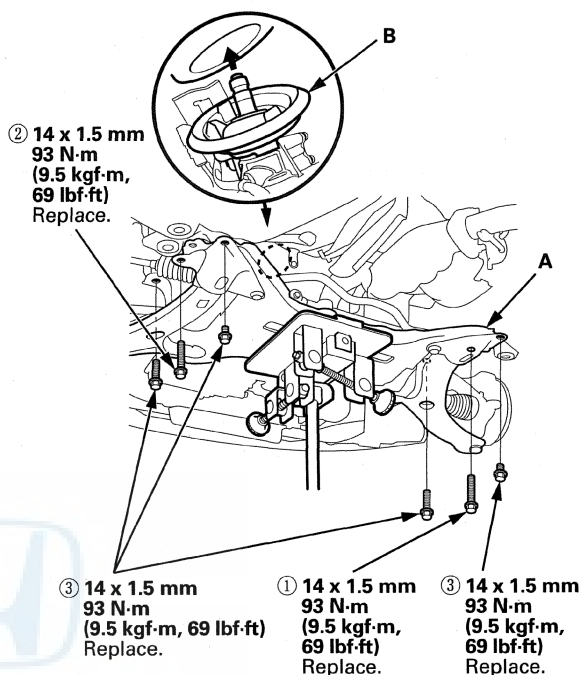


3. Place the steering gearbox (A) on the front subframe (B).



4. Loosely install the stiffener plates (C), and new gearbox mounting bolts, then tighten the bolts to the specified torque in the sequence shown.
5. Turn the lip of the pinion shaft grommet to ease installation.

6. Set the front subframe (A) with the steering gearbox on the transmission jack and support it.



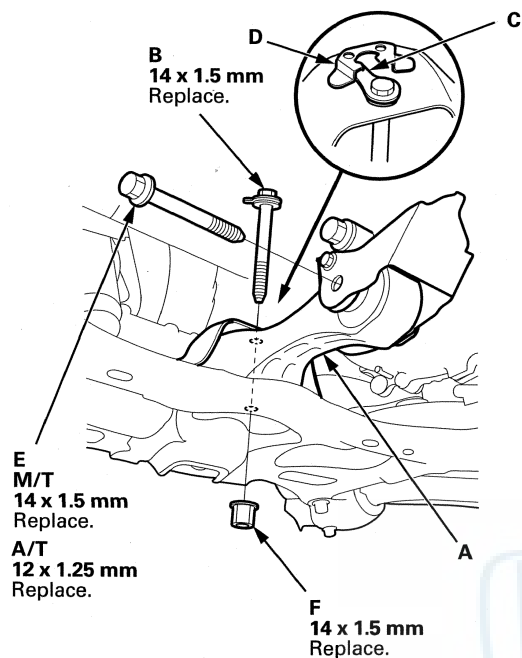
7. Carefully raise the front subframe with the transmission jack, and pass the pinion shaft into the passenger's compartment. Return the lip (B) of the pinion shaft grommet.

NOTE:

- Be sure that the pinion shaft grommet is securely in place. Make sure the lip of the pinion shaft grommet is not turned up. Incorrect installation can cause leakage of water or mud, and noise.
 - Take care not to damage the lower arm ball joint boot with the edge of the knuckle, etc.
8. Loosely install new front subframe mounting bolts, then tighten the bolts to the specified torque in the sequence shown.

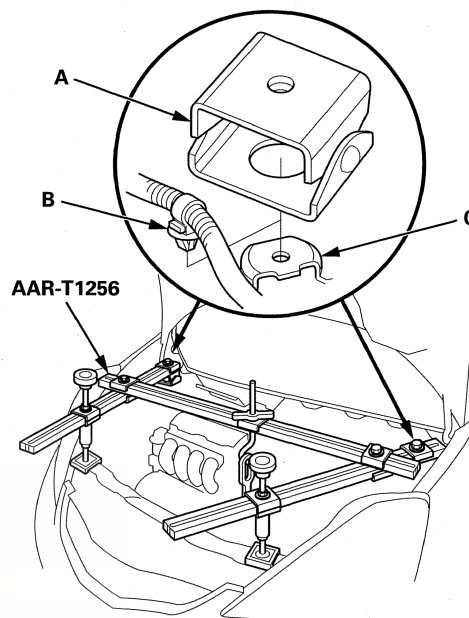


9. Install the lower torque rod (A).



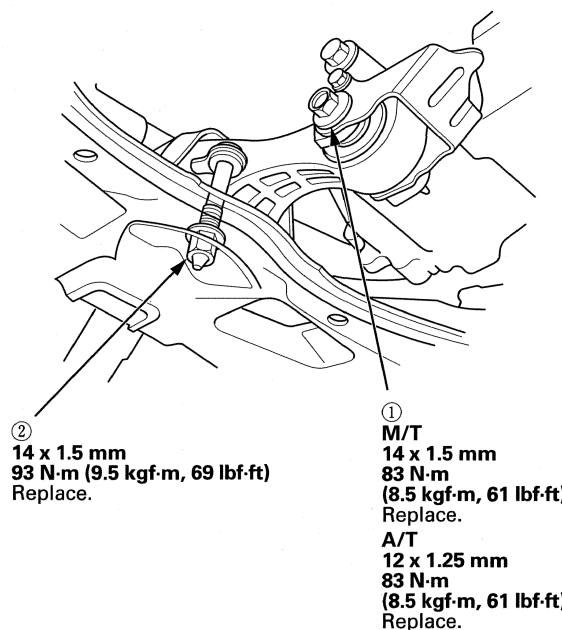
10. Install the bolt (B) with the tab (C) on the bolt head aligned with the guide (D) on the front subframe, then loosely install a new torque rod mounting bolt (E) and nut (F).

11. Remove the engine support hanger (AAR-T1256) from the vehicle.



12. Remove the cross arm foot (A), then install the harness clip (B) to the harness clamp bracket (C) on the left side.

13. Tighten the torque rod mounting bolt and nut in the numbered sequence shown.



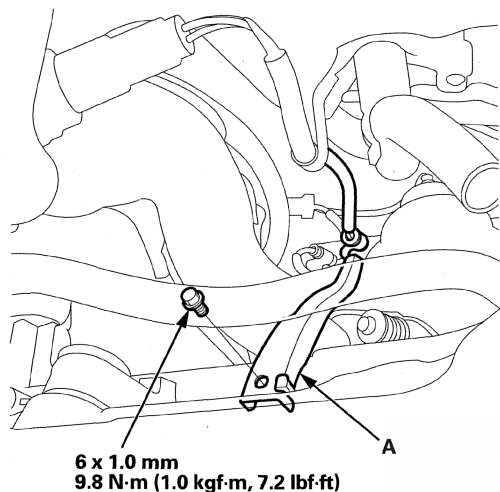
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EPS Components

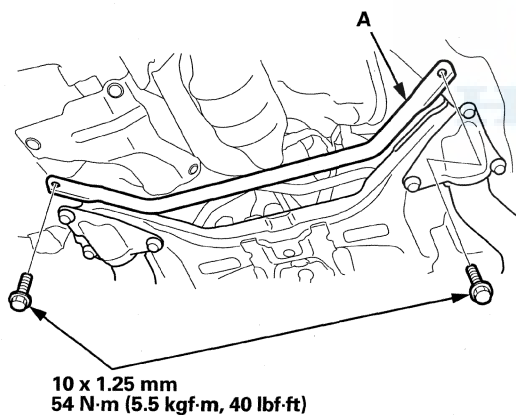
Steering Gearbox Removal and Installation (cont'd)

14. Install the splash shield (see page 20-180).

15. Install the secondary HO2S harness bracket (A) to the steering gearbox.

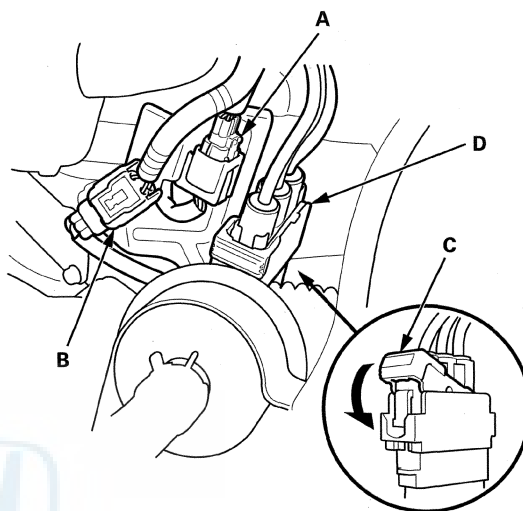


16. Install the front cross-member brace (A).



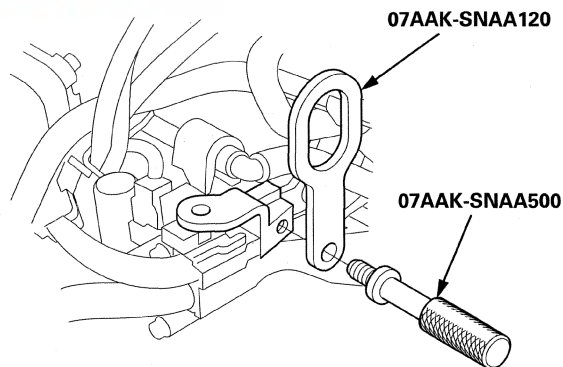
17. Remove the vinyl tape from the connectors.

18. Connect the EPS motor angle sensor 8P connector (A), torque sensor 6P connector (B) to the steering gearbox.



19. Pull down the lever (C) of the EPS motor 3P connector (D), then confirm the connector is fully seated.

20. Remove the universal lifting eyelet (07AAK-SNAA120) and 1.8 support bolt (07AAK-SNAA500).



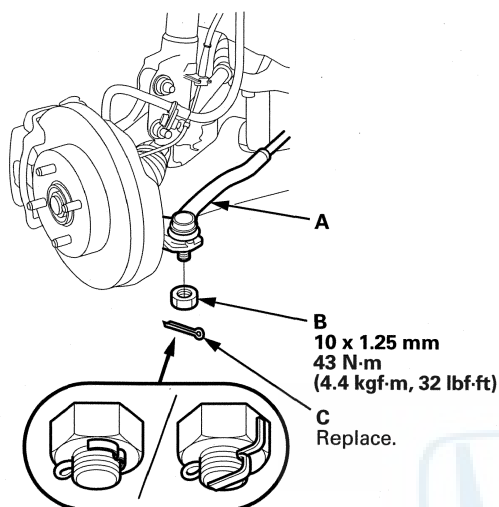
21. Install the air cleaner housing (see page 11-307).

22. Install the under cowl panel and cowl cover (see page 20-185).

23. Connect the stabilizer links to the stabilizer bar (see page 18-23) on both sides.



24. Wipe off any grease contamination from the tapered section and threads of the tie-rod end ball joint. Reconnect the tie-rod end ball joints (A) to the knuckles. Install the nuts (B), and tighten to the specified torque on both sides.

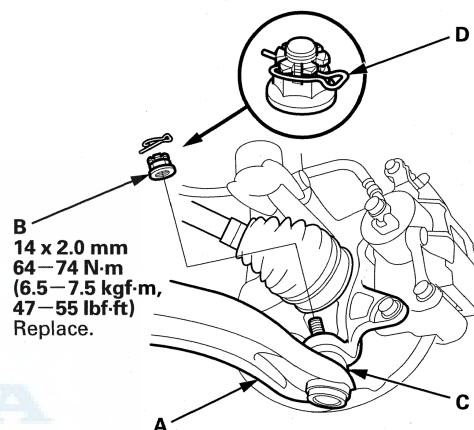


25. Install a new cotter pin (C), and bend it as shown.

26. Wipe off any grease contamination from the lower arm ball joint tapered section and thread. Then reconnect the lower arm (A) to the knuckle. Install the new castle nut (B) and tighten it on both sides.

NOTE:

- Be careful not to damage the lower ball joint boot (C). Check the ball joint boot for deformation before connecting the knuckle.
- Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the joint pin clip hole. Do not align the castle nut by loosening it.



27. Install the lock pin (D) on both sides.

28. Install the front wheels, then set the wheels in the straight ahead position.

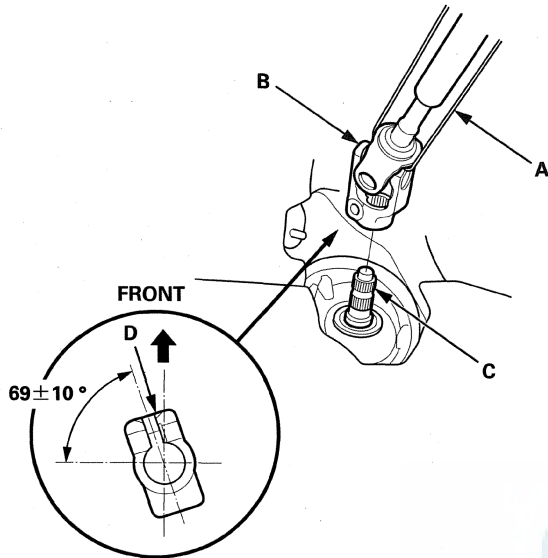
NOTE: Before installing the wheel, clean the mating surfaces between the brake disc and the inside of the wheel.

(cont'd)

EPS Components

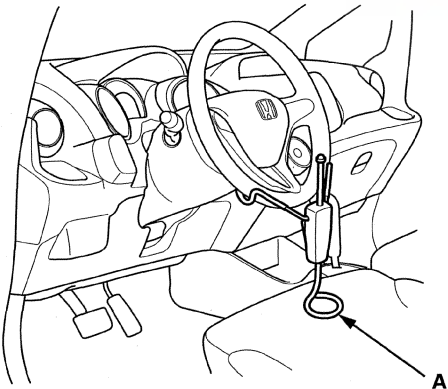
Steering Gearbox Removal and Installation (cont'd)

29. Cut the wire (A), while holding the lower slide shaft on the steering column.

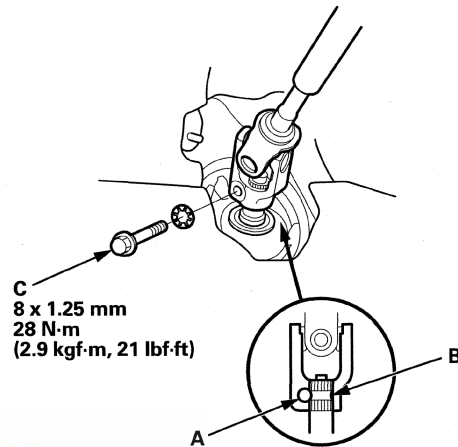


30. Slip the lower end of the steering joint (B) onto the pinion shaft (C) taking care to align the gap (D) within the angle shown.

31. Remove the steering wheel holder tool (A).

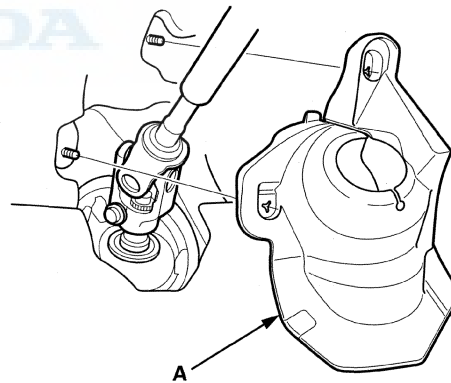


32. Align the bolt hole (A) on the steering joint with the groove (B) around the pinion shaft, then loosely install the lower steering joint bolt (C). Be sure that the joint bolt is securely in the groove in the pinion shaft.



33. Pull on the steering joint to make sure that the steering joint is fully seated, then tighten the lower joint bolt to the specified torque.

34. Install the steering joint cover (A).



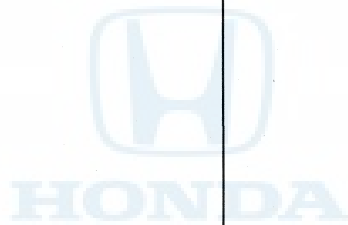


35. Do the battery terminal reconnection procedure (see page 22-70).

36. After installation, check these items:

- Start the engine, allow it to idle, and turn the steering wheel from lock to lock several times.
- Check that the EPS indicator does not come on.
- Check the steering wheel spoke angle. If steering spoke angles to the right and left are not equal (steering wheel and rack are not centered), correct the engagement of the joint/pinion shaft serrations, then adjust the front toe by turning the tie-rod ends, if necessary.

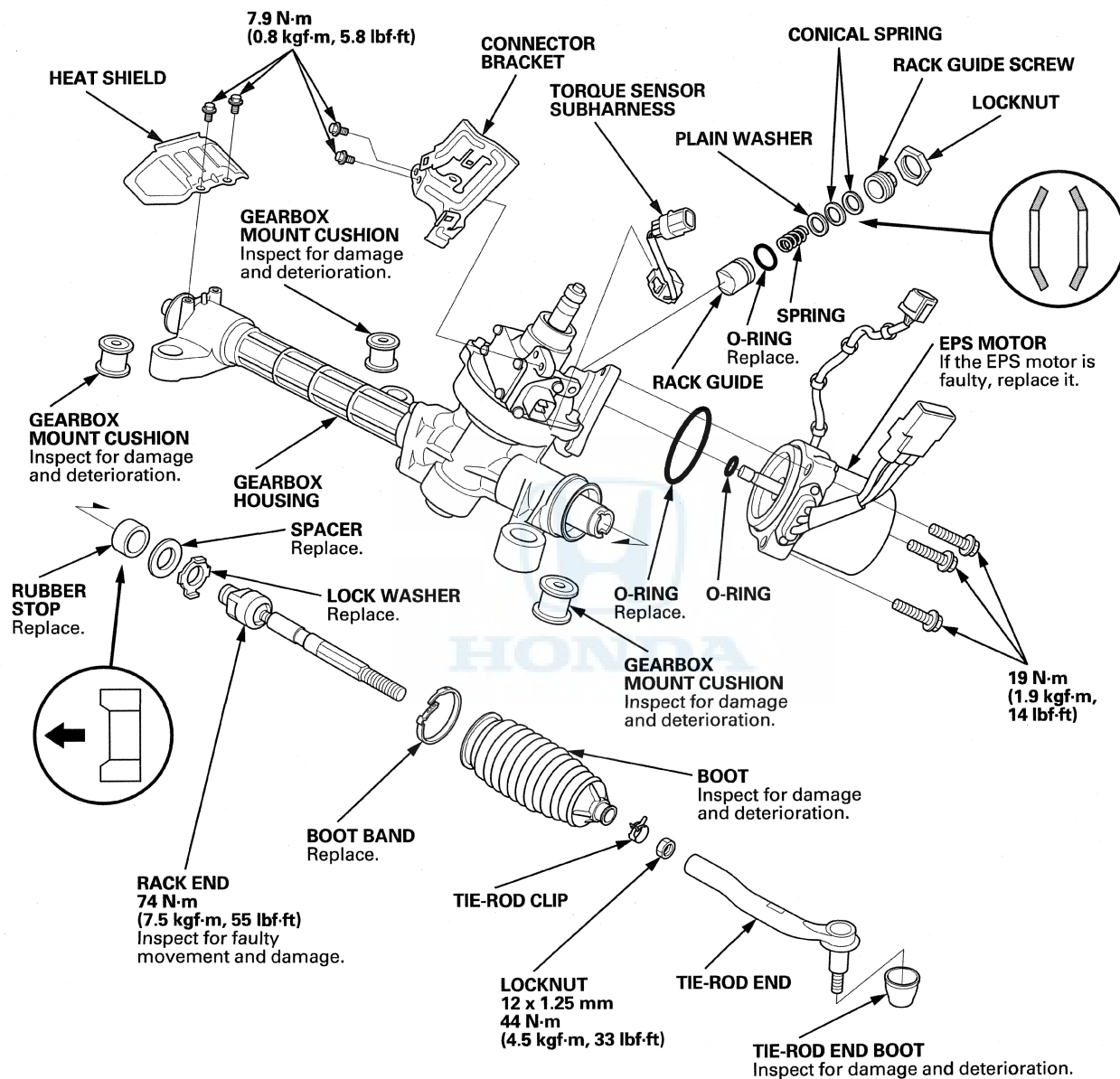
37. Check the wheel alignment, and adjust it if necessary (see page 18-6).



EPS Components

Rack End Removal and Installation

Exploded view

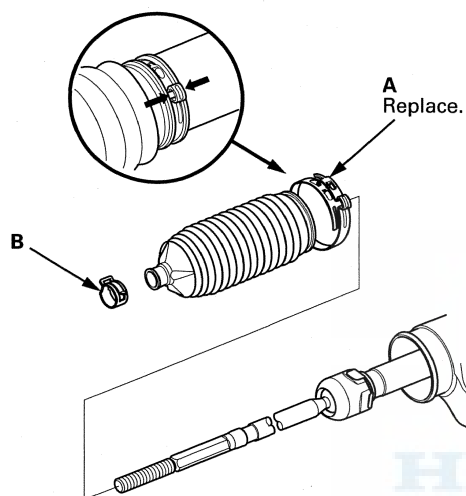




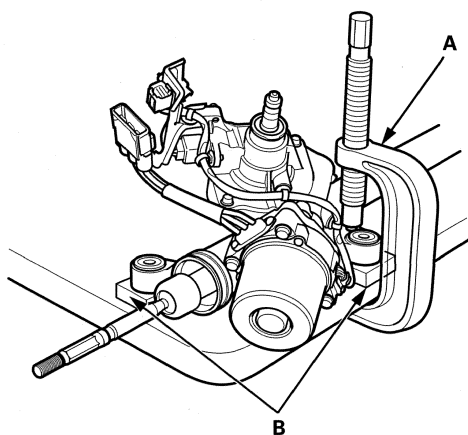
Removal

NOTE: Do not allow dust, dirt, or other foreign materials to enter the steering gearbox.

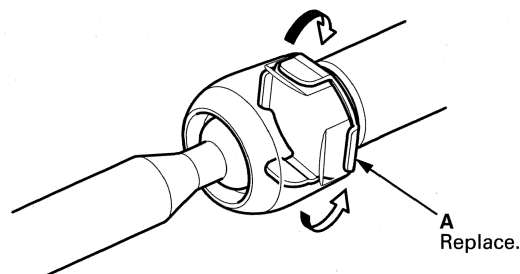
1. Remove the steering gearbox (see page 17-63).
2. Remove both tie-rod ends from the rack ends.
3. Remove the boot bands (A) and tie-rod clips (B). Pull the boot away from the ends of the steering gearbox. Repeat this step for the other side.



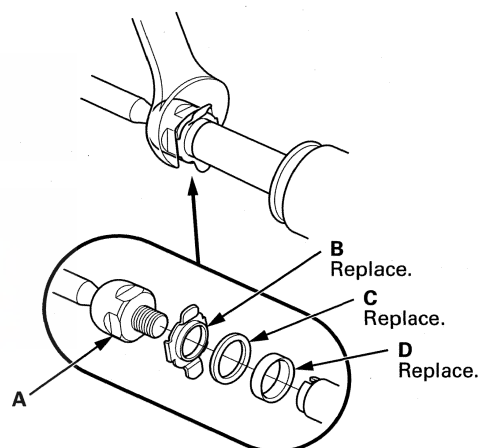
4. Hold the gearbox housing using a C-clamp (A) and wooden blocks (B) to a workbench as shown. Do not clamp the cylinder part of the gearbox housing in a vise.



5. Unbend the lock washer (A).



6. Unscrew both rack ends (A) with a wrench. Be careful not to damage the rack shaft surface with the wrench. Remove the rack end, the lock washer (B), the spacer (C), and the rubber stop (D).



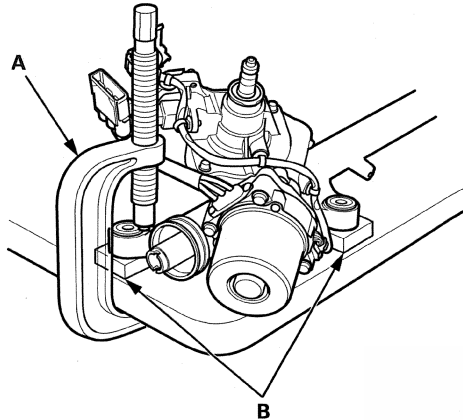
(cont'd)

EPS Components

Rack End Removal and Installation (cont'd)

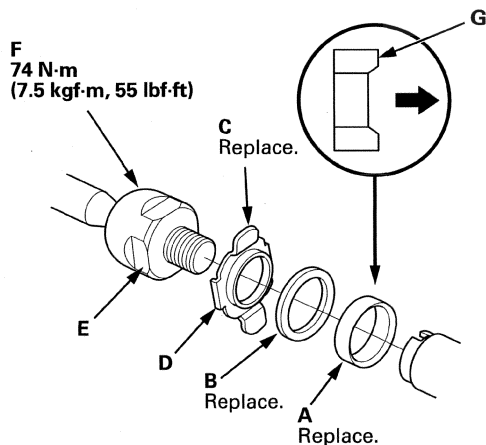
Installation

1. Hold the gearbox housing using a C-clamp (A) and wooden blocks (B) to a workbench as shown. Do not clamp the cylinder part of the gearbox housing in a vise.

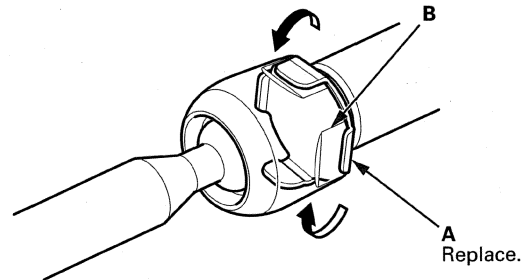


2. Install a new rubber stop (A), spacer (B), and a new lock washer (C). Align the lock washer tabs (D) with the flat spots (E) on the rack end joint housing (F). Install the rack end while holding the lock washer in place. Repeat this step for the other side of the rack.

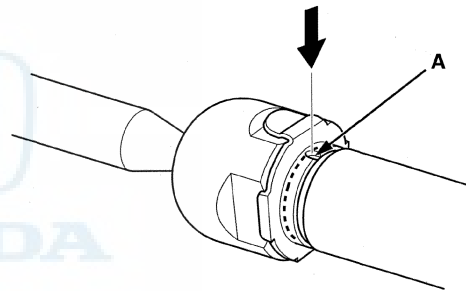
NOTE: Make sure that the tapered side (G) of the rubber stop is facing toward the gearbox.



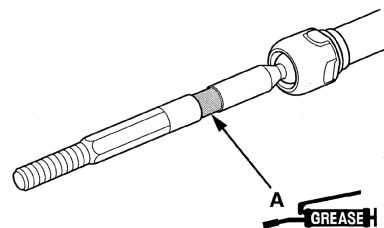
3. Bend the lock washer (A) back against the flat spots (B) on the rack end joint housing.



4. Stake the lock washer at the stake point (A) on the rack.

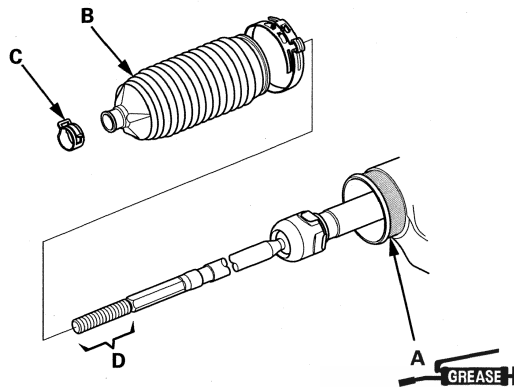


5. Apply a light coat of multipurpose grease to the boot installation grooves (A) on the rack end.

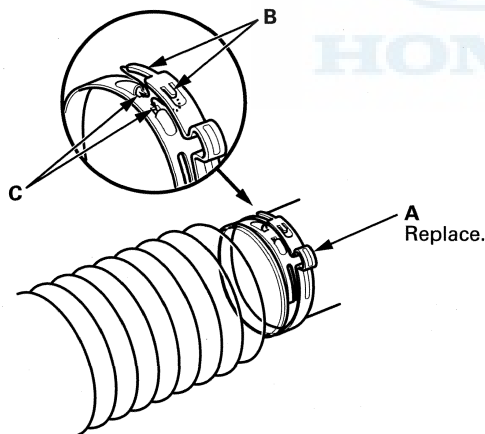




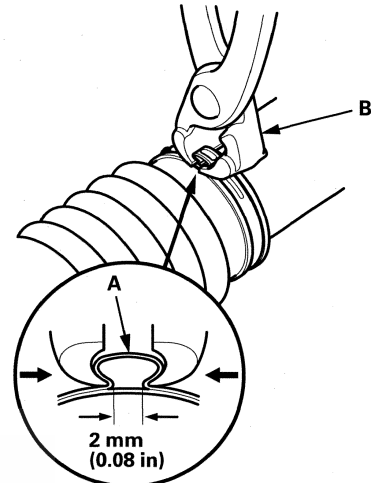
6. Apply a light coat of multipurpose grease to the boot installation grooves (A) around the gearbox housing. Install the boots (B) on the rack ends with the tie-rod clips (C), and fit the boot end in the installation grooves in the housing properly.



7. After installing the boots, wipe the grease off the threaded section (D) of the rack end.
8. Install a new boot bands (A) by aligning the tabs (B) with the holes (C) of the band.



9. Close the ear portion (A) of the boot band with commercially available boot band pliers, Oetiker 1098 or equivalent (B).



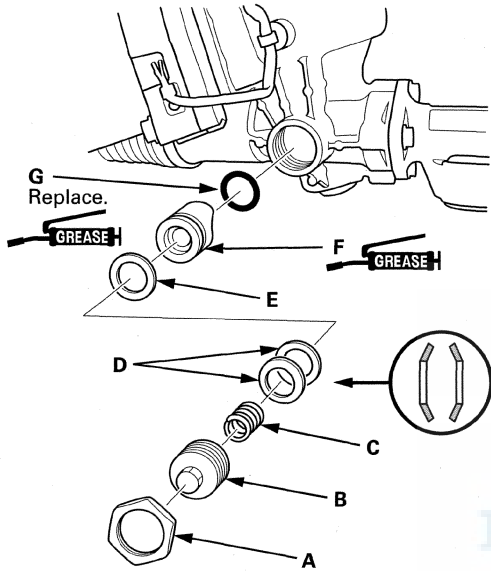
10. Slide the rack right and left to be certain that the boots are not deformed or twisted.
11. Install the tie-rod ends and the locknuts to the rack end.
12. Install the steering gearbox (see page 17-68).

EPS Components

Rack Guide Removal/Installation

NOTE: During removal/installation, do not allow dust, dirt, or other foreign materials to enter the steering gearbox.

1. Remove the steering gearbox (see page 17-63).
2. Loosen the locknut (A), then remove the rack guide screw (B), the spring (C), the conical springs (D), the plain washer (E), and the rack guide (F).



3. Remove the O-ring (G) from the rack guide. Wipe the grease off the sliding surface of the rack guide.

4. Apply steering grease to the new O-ring, then install it to the rack guide.
5. Apply steering grease to the sliding surface and the circumference of the rack guide, and install it onto the gearbox housing. Wipe the grease off the threaded section of the gearbox housing.

6. Install the plain washer onto the gearbox housing.
7. Install the conical springs onto the gearbox housing.

NOTE: Conical springs are directional, install them as shown.

8. Install the spring onto the gearbox housing.
9. Remove the old sealant from the rack guide screw, and apply new sealant (Three Bond 1215 or Loctite 5699) to the middle of the threads. Loosely install the rack guide screw on the steering gearbox.

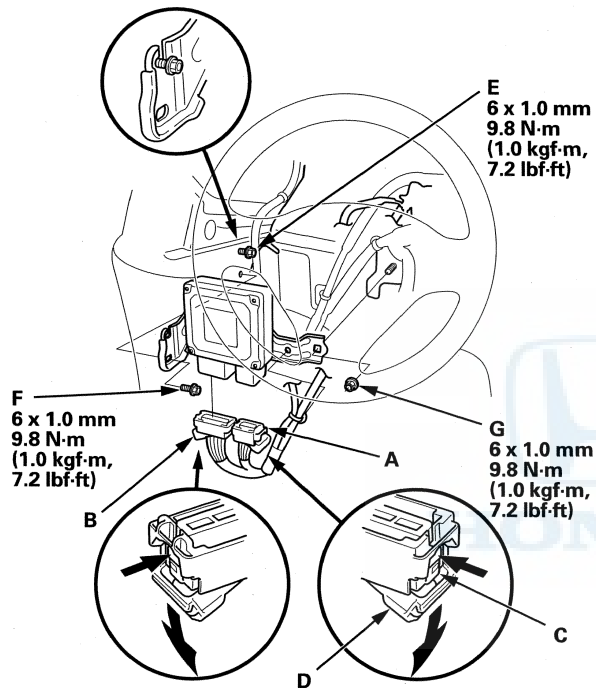
NOTE: If more than 5 minutes have passed after applying the sealant, remove the old sealant and residue, and reapply new sealant.

10. Loosely install the locknut.
11. Adjust the rack guide screw (see page 17-17). After adjusting, check that the rack moves smoothly by sliding the rack right and left.



EPS Control Unit Removal/Installation

1. Do the battery terminal disconnection procedure (see page 22-69).
2. Remove the under-dash fuse/relay box (see page 22-65).
3. Disconnect EPS control unit connector A (11P) and connector B (16P) by pushing the lock (C) and pulling down the lever (D) from the EPS control unit.



4. Loosen the bolt (E).
5. Remove the bolt (F) and nut (G) from the EPS control unit bracket.
6. Remove the EPS control unit with the bracket from the body.

7. Install the EPS control unit in the reverse order of removal.

NOTE:

- Install the bracket with the EPS control unit as shown in position.
- Connect EPS control unit connector A (11P) and connector B (16P), then confirm the connectors are fully seated.

8. Do the battery terminal reconnection procedure (see page 22-70).
9. After installation, start the engine, allow it to idle, and turn the steering wheel from lock to lock several times. Make sure that the EPS indicator does not come on.

Suspension

Suspension18-1

TPMS18-45



Suspension

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Rear Suspension

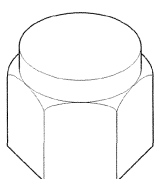
Hub Bearing Unit Replacement	18-32
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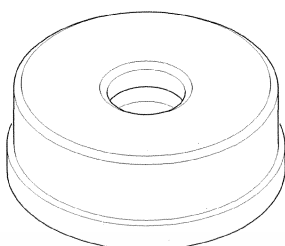
Front and Rear Suspension

Special Tools

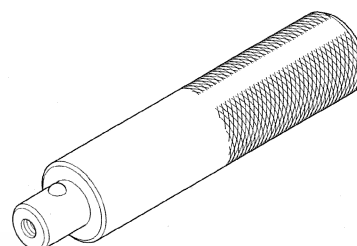
Ref.No.	Tool Number	Description	Qty
①	071AF-S3VA000	Ball Joint Thread Protector, 14 mm	1
②	07746-0010400	Attachment, 52 x 55 mm	1
③	07749-0010000	Driver Handle, 15 x 135L	1
④	07965-SD90100	Support Base	1
⑤	07AAF-SECA120	Ball Joint Thread Protector, 10 mm	1
⑥	07GAF-SE00100	Hub Dis/Assembly Tool	1
⑦	07GAF-SE00200	Ball Joint Boot Clip Guide	1
⑧	07MAC-SL0A202	Ball Joint Remover, 28 mm	1



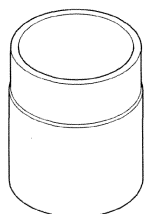
①



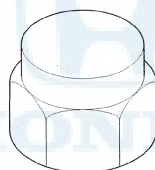
②



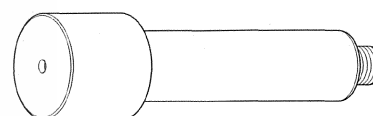
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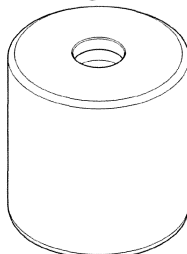
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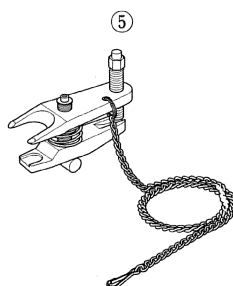
⑤



⑥



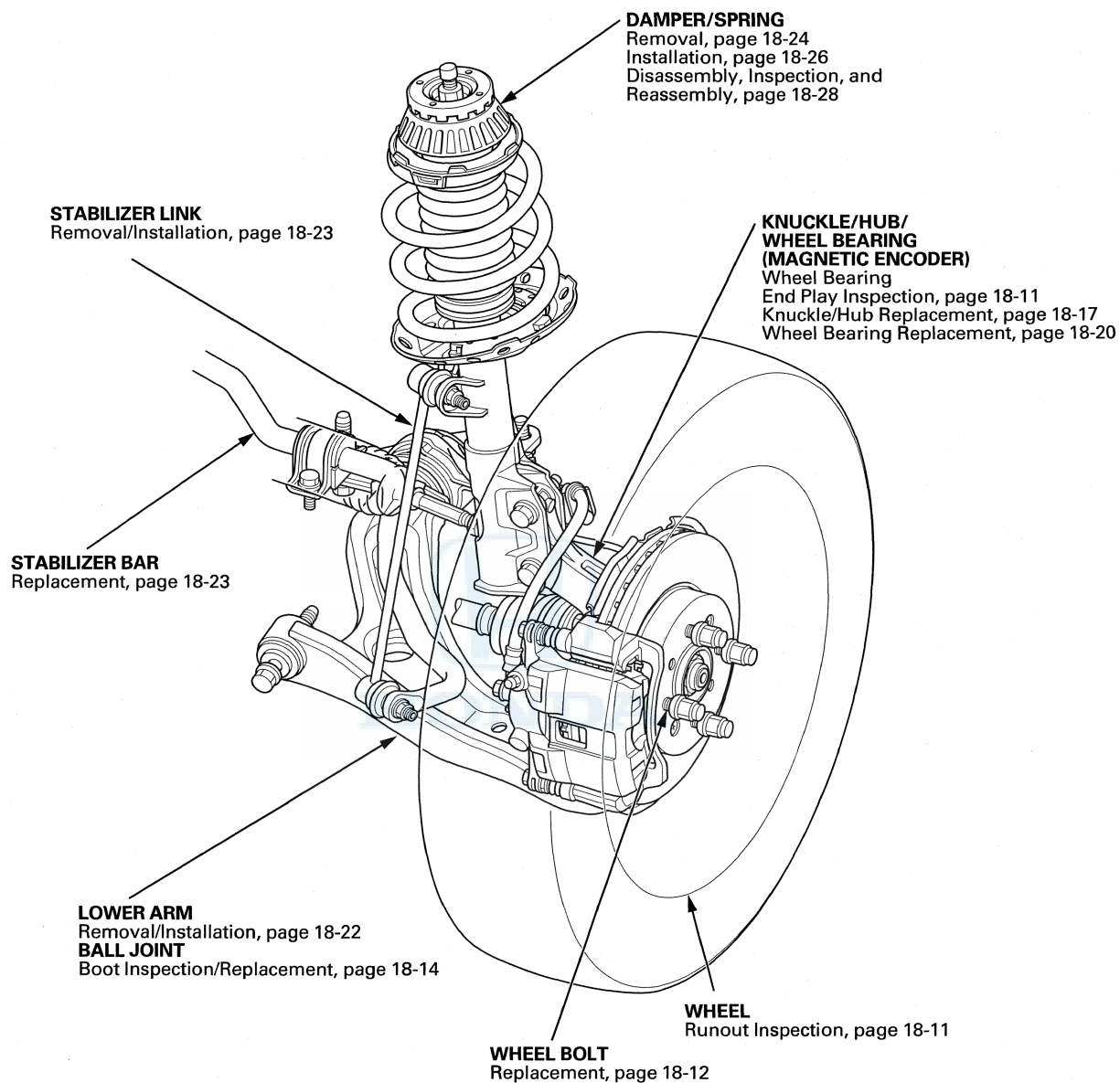
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⑧

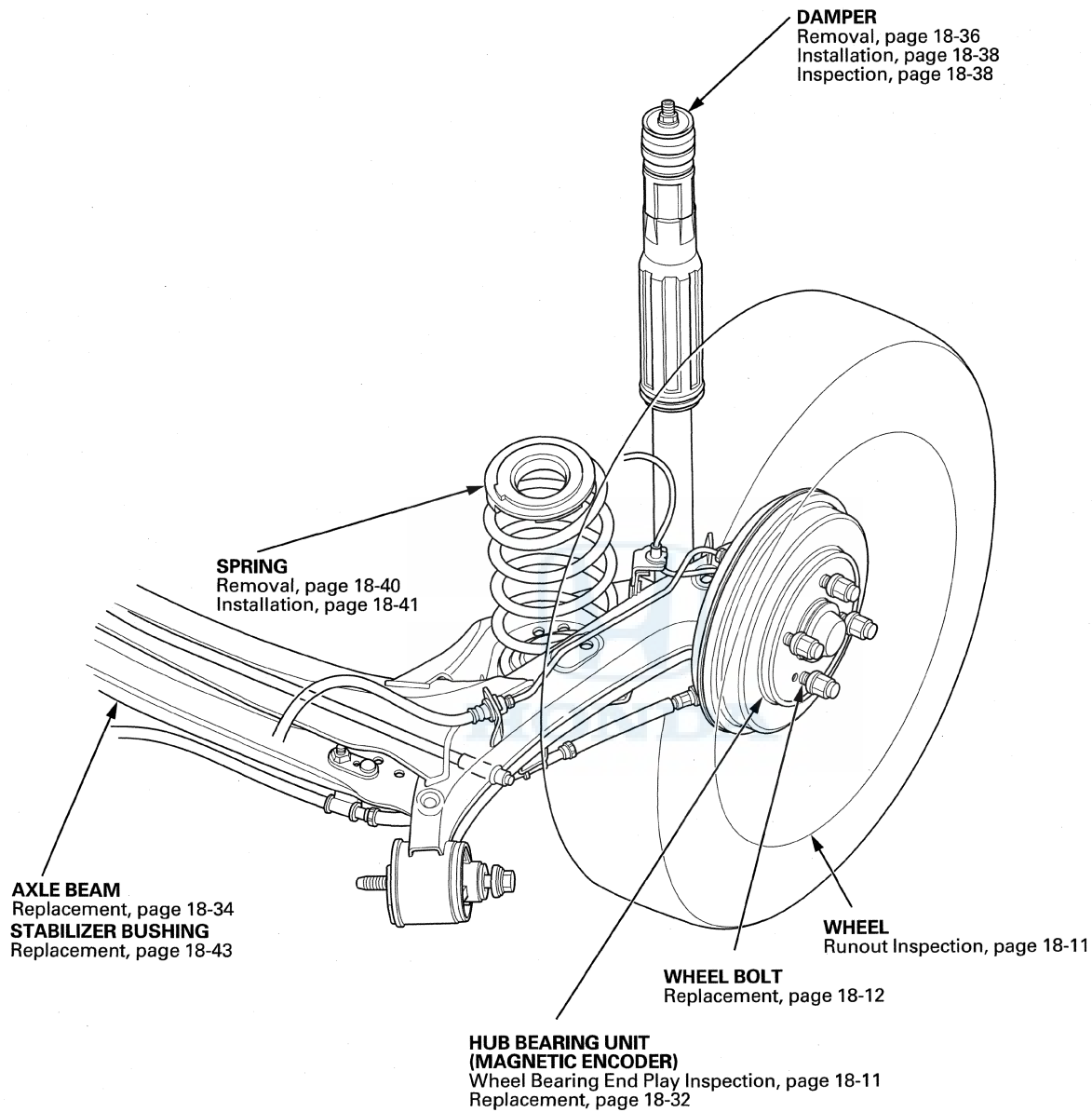


Component Location Index - Front Suspension



Front and Rear Suspension

Component Location Index - Rear Suspension





Tire Sealant Removal

Canada models with 5-speed A/T

NOTE:

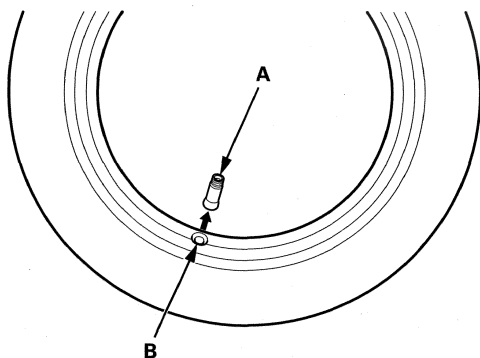
- This procedure is only to be used with the temporary tire repair kit.
- The tire inflator and temporary repair sealant are used on vehicles without a spare tire.
- The temporary repair sealant used to repair the tire must be removed before the tire is permanently repaired.
- The temporary repair sealant (once used or past the expiration date) is considered hazardous waste, and must be disposed of in an environmentally safe manner (such as used engine oil and coolant). Check with your local regulations for proper disposal.
- The expiration date of the temporary repair sealant is printed on the container.

NOTICE

Do not dispose of the tire still filled with sealant.

1. Raise the vehicle on a lift (see page 1-14).
2. Deflate the tire.
3. Cut off the valve stem (A) at its base, and push the remaining rubber portion of the valve into the tire.

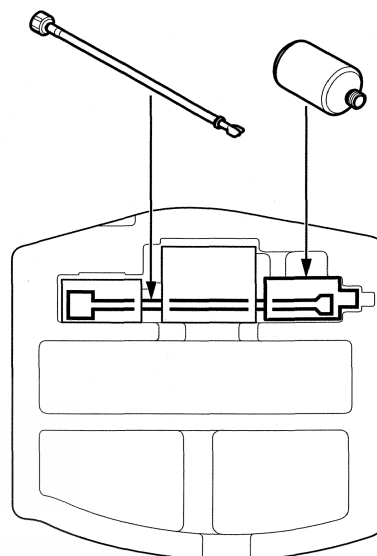
NOTE: Replace the valve with a new one when reassembling the tire.



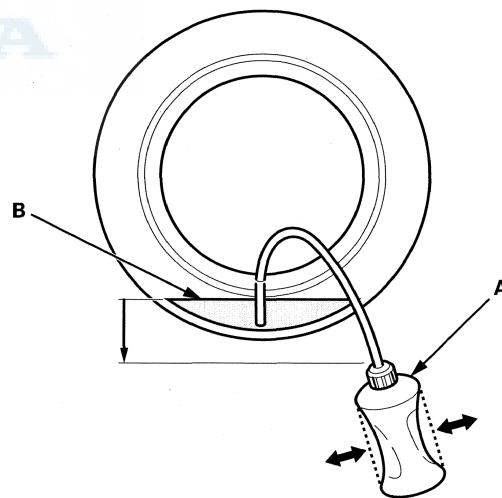
4. Place the tire on a work bench with the valve stem near the bottom.

NOTE: Be careful not to spill the sealant from the valve hole (B).

5. Use the extraction bottle (A) and the tube to extract the sealant. Insert the tube into the tire through the valve hole, and stick it down until the end of the tube is immersed in the sealant (B).



Located in the cargo floor



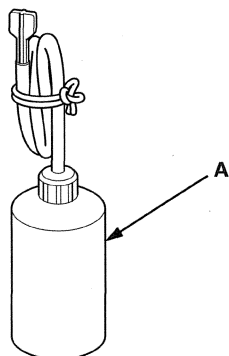
6. Hold the extraction bottle in a lower position than the tire, and pump the fluid sealant into the bottle. To empty the tire, pump the remaining fluid out by shaking the tire.

(cont'd)

Front and Rear Suspension

Tire Sealant Removal (cont'd)

7. Bend and bind up the tube of the bottle (A) filled with the fluid sealant as shown.



8. If you reuse the tire, completely wipe up the fluid sealant around the valve hole, repair the tire, and replace the valve.

NOTE:

- Wipe the fluid sealant completely so that the beaded edge of the tire and the mating portion of the wheel rim and the bead are clean.
- Damage such as punctures, may be filled with the fluid sealant, and may not be found depending on the extent of the damage.

Wheel Alignment

The suspension can be adjusted for front camber and front toe. However, each of these adjustments are related to each other. For example, when you adjust the camber, the toe will change. Therefore, you must adjust the front wheel alignment whenever you adjust camber or toe.

Pre-Alignment Checks

For proper inspection and adjustment of the wheel alignment, do these checks:

1. Release the parking brake to avoid an incorrect measurement.
2. Make sure the suspension is not modified.
3. Make sure the fuel tank is full, and that the spare tire, or the tire repair kit, the jack, and the tools are in place on the vehicle.
4. Check the tire size and tire pressure.

Tire size:

USA models:

Fit (base) model:

Front/Rear: 175/65R15 84S

Fit Sport and Sport Navi models:

Front/Rear: 185/55R16 83H

Canada models:

DX, DX-A, and LX models:

Front/Rear: 175/65R15 84S

Sport model:

Front/Rear: 185/55R16 83H

Tire pressure (at cold):

USA models:

Fit (base) model:

Front/Rear: 220 kPa (2.2 kgf/cm², 32 psi)

Fit Sport and Sport Navi models:

Front/Rear: 230 kPa (2.3 kgf/cm², 33 psi)

Canada models:

DX, DX-A, and LX models:

Front/Rear: 220 kPa (2.2 kgf/cm², 32 psi)

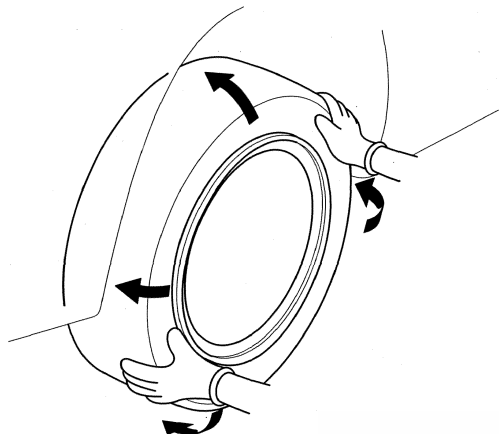
Sport model:

Front/Rear: 230 kPa (2.3 kgf/cm², 33 psi)

5. Check the runout of the wheels and tires (see page 18-11).



6. Check the suspension ball joints (Raise and support the vehicle (see page 1-14). Hold a tire with your hands, and move it up and down and right and left to check for movement).



7. Before doing alignment inspections, be sure to remove all extra weight from the vehicle, and no one should be inside the vehicle (driver or passengers).
8. Lower the vehicle to the ground. Bounce the vehicle up and down several times to stabilize the suspension.
9. Check that the steering column is set at the center tilt position and the center telescopic position.

Caster Inspection

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Check the caster angle.

Caster angle: $3^{\circ} 20' \pm 1^{\circ}$

- If the measurement is within the specifications, go to camber inspection.
- If the measurement is not within specifications, check for bent or damaged suspension components.

(cont'd)

Front and Rear Suspension

Wheel Alignment (cont'd)

Camber Inspection

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Check the camber angle.

Camber angle:

Front: $0^{\circ} 00' \pm 1^{\circ}$

(Maximum difference between the right and left side: $0^{\circ} 45'$)

Rear: $-1^{\circ} 00' \pm 1^{\circ}$

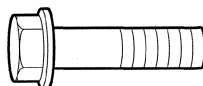
- If the measurement is within the specifications, go to rear toe inspection.
- If the measurement for the front camber is not within the specification, go to front camber adjustment.
- If the measurement for the rear camber is not within the specification, check for bent or damaged suspension components.

Front Camber Adjustment

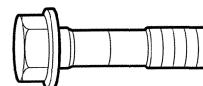
The front camber can be adjusted by exchanging one or both of the damper pinch bolts with the smaller diameter adjusting bolt(s). The difference between the adjusting bolt diameter and the pinch bolt hole diameter allows for a small range of adjustment.

NOTE: If you need to use an adjusting bolt, refer to the Parts Catalog.

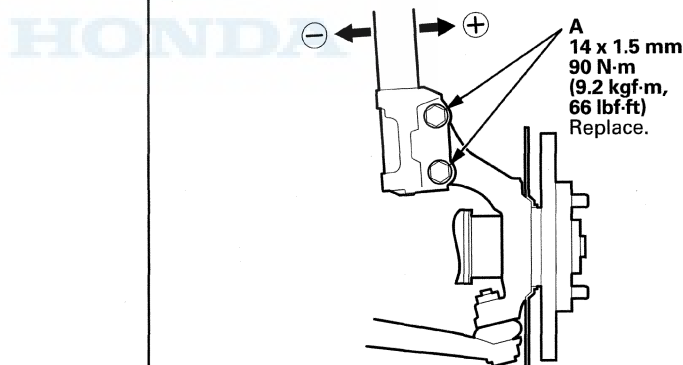
Damper pinch bolt



Adjusting bolt



1. Raise and support the vehicle (see page 1-14).
2. Remove the front wheels.
3. Loosen the damper pinch bolts (A), and adjust the camber angle by moving the bottom of the damper within the range of the damper pinch bolt free play.



4. Tighten the damper pinch bolts while holding the self-locking nut to the specified torque.
5. Clean the mating surfaces between the brake disc and the inside of the wheel, then install the front wheels.
6. Lower the vehicle to the ground, and bounce the front of the vehicle up and down several times to settle the suspension.



7. Measure the camber angle.

- If the measurement is within the specifications, go to rear toe inspection.
- If the measurement is not within specification, go to step 8.

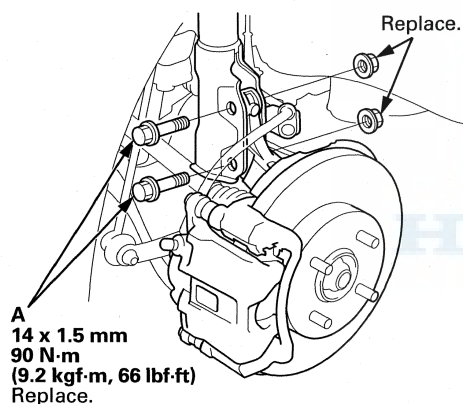
8. Raise and support the vehicle (see page 1-14).

9. Remove the front wheels.

10. Replace the damper pinch bolts with the adjusting bolts (A), and adjust the camber angle.

NOTE:

- The camber angle can be adjusted up to $\pm 20'$ (center of tolerance) by replacing one damper pinch bolt with the adjusting bolt.
- The camber angle can be adjusted up to $\pm 40'$ by replacing both damper pinch bolts with the adjusting bolts.



11. Tighten the adjusting bolts while holding the self-locking nut to the specified torque.

12. Clean the mating surfaces between the brake disc and the inside of the wheel, then install the front wheels.

13. Lower the vehicle to the ground, and bounce the front of the vehicle up and down several times to settle the suspension.

14. Measure the camber angle.

- If the camber measurement is correct, measure the toe-in, and adjust it if necessary.
- If the camber angle is not within the specifications, repeat steps 8 through 13 to readjust the camber angle.

Rear Toe Inspection

Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

NOTE: Do the rear toe inspection/adjustment before the front toe inspection/adjustment.

1. Release the parking brake to avoid an incorrect measurement.

2. Check the toe.

Rear toe-in: 2.5 ± 2.5 mm (0.098 ± 0.098 in)

- If the measurement is within the specifications, go to front toe inspection.
- If the measurement is not within the specifications, check for bent or damaged suspension components.

(cont'd)

Front and Rear Suspension

Wheel Alignment (cont'd)

Front Toe Inspection/Adjustment

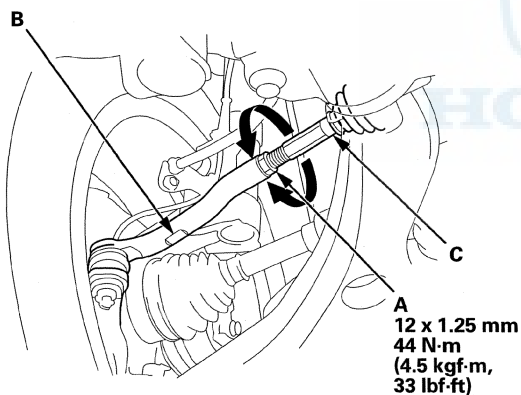
Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

NOTE: Do the rear toe inspection/adjustment before the front toe inspection/adjustment.

1. Set the steering column to the center tilt/telescopic positions. Center the steering wheel spokes, and install a steering wheel holder tool.
2. Check the toe with the wheels pointed straight ahead.

Front toe-in: 0 ± 3 mm (0 ± 0.12 in)

- If adjustment is required, go to step 3.
 - If no adjustment is required, go to turning angle inspection.
3. Loosen the tie-rod locknuts (A) while holding the flat surface sections (B) of the tie-rod end with a wrench, and turn both tie-rods (C) until the front toe is within specifications.



4. After adjusting, tighten the tie-rod locknuts to the specified torque. Reposition the rack-end boot if it is twisted or damaged.
5. Go to turning angle inspection.

Turning Angle Inspection

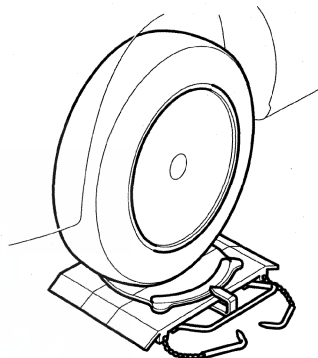
Use commercially available computerized four wheel alignment equipment to measure wheel alignment (caster, camber, toe, and turning angle). Follow the equipment manufacturer's instructions.

1. Turn the steering wheel right and left while applying the brake, and measure the turning angle of both wheels.

Turning angle:

Inward: $38^{\circ} 04' \pm 2^{\circ}$

Outward (reference): $32^{\circ} 00' \pm 1^{\circ}$



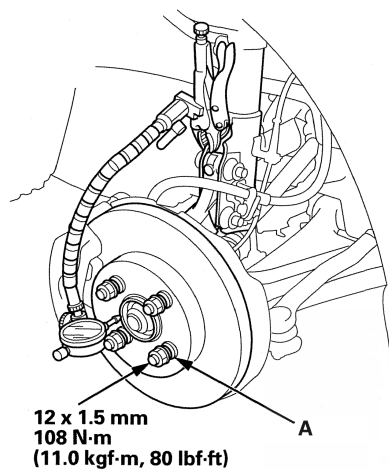
2. If the measurement is not within the specifications, even up both sides of the tie-rod threaded section length while adjusting the front toe. If it is correct, but the turning angle is not within the specifications, check for bent or damaged suspension components.



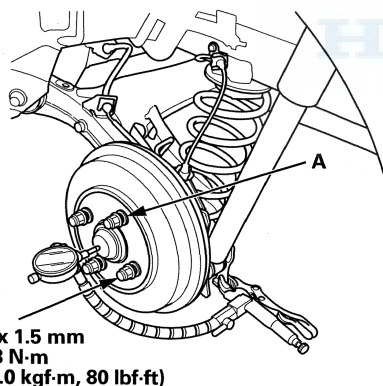
Wheel Bearing End Play Inspection

1. Raise and support the vehicle (see page 1-14).
2. Remove the wheels.
3. Install suitable flat washers (A) and the wheel nuts. Tighten the nuts to the specified torque to hold the brake disc securely against the hub.

Front



Rear



4. Attach the dial gauge. Place the dial gauge against the hub flange.
5. Measure the bearing end play while moving the brake disc or drum inward and outward.

Wheel bearing end play:

Front/Rear: 0—0.05 mm (0—0.0020 in)

6. If the bearing end play measurement is more than the standard, replace the wheel bearing or the hub bearing unit.

Wheel Runout Inspection

1. Raise and support the vehicle (see page 1-14).
2. Check for a bent or deformed wheel.
3. Set up the dial gauge as shown, and measure the axial runout by turning the wheel.

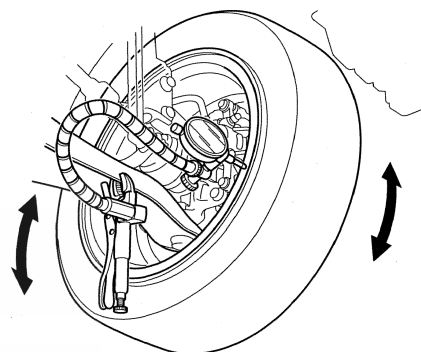
Front and rear wheel axial runout:

Standard:

Steel wheel: 0—1.0 mm (0—0.039 in)

Aluminum wheel: 0—0.7 mm (0—0.028 in)

Service limit: 2.0 mm (0.079 in)



4. Reset the dial gauge to the position shown, and measure the radial runout.

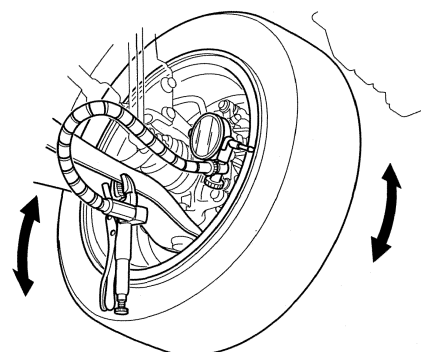
Front and rear wheel radial runout:

Standard:

Steel wheel: 0—1.0 mm (0—0.039 in)

Aluminum wheel: 0—0.7 mm (0—0.028 in)

Service limit: 1.5 mm (0.059 in)



5. If the wheel runout is not within the specification, check the wheel bearing end play (see page 18-11), and make sure the mating surfaces on the brake disc and the inside of the wheel are clean.
6. If the bearing end play is within the specification (see page 18-11), but the wheel runout is more than the service limit, replace the wheel.

Front and Rear Suspension

Wheel Bolt Replacement

Special Tools Required

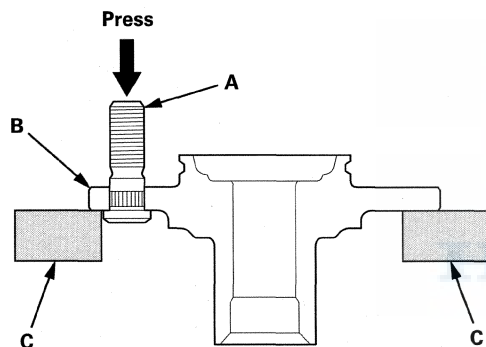
Ball Joint Remover, 28 mm 07MAC-SL0A202

NOTICE

- Do not use a hammer or impact tools (pneumatic or electric) to remove and install the wheel bolts.
- Be careful not to damage the threads of the wheel bolts.

Front

1. Raise and support the vehicle (see page 1-14).
2. Remove the front hub (see page 18-16).
3. Separate the wheel bolt (A) from the hub (B) using a hydraulic press. Support the hub with hydraulic press attachments (C) or equivalent tools.



4. Insert the new wheel bolt into the hub while aligning the splined surfaces on the hub hole with the wheel bolt.

NOTE:

- Before installing the new wheel bolt, clean the mating surfaces on the bolt and the hub.
- Degrease the area around the wheel bolt.
- Make sure the wheel bolt is installed vertically in relation to the hub disc surface.

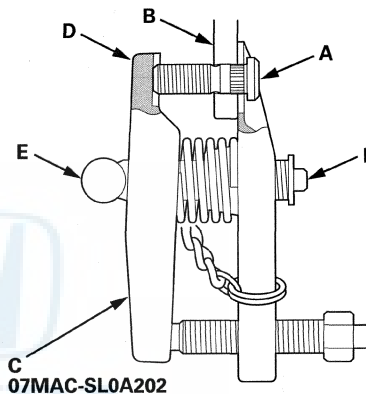
5. Install the wheel bolt using a hydraulic press until the wheel bolt shoulder is fully seated.
6. Install the front hub (see page 18-16).

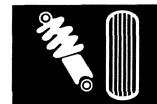
NOTE: If you cannot tighten the wheel nut to the specified torque value when installing the wheel, replace the front hub as an assembly.

Rear

1. Raise and support the vehicle (see page 1-14).
2. Remove the rear brake drum (see page 19-28).
3. Separate the wheel bolt (A) from the hub (B) using the ball joint remover (C), and keep the jaw (D) of the ball joint remover squarely against the wheel bolt (see page 18-13).

NOTE: If the angle of the remover against the wheel bolt is not vertical, readjust the ball joint remover by turning the head (E) of the adjusting bolt (F).



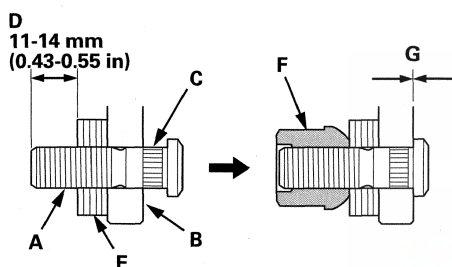


Ball Joint Removal

- Insert the new wheel bolt (A) into the hub (B) while aligning the splined surfaces (C) on the hub hole with the wheel bolt. Adjust the measurement (D) with the washers (P/N 94101-12800 or equivalent) (E), then install a nut (P/N 90304-SC2-000 or equivalent) (F) hand-tight.

NOTE:

- Before installing the new wheel bolt, clean the mating surfaces on the bolt and the hub.
- Degrease the area around the wheel bolt and the threaded section of the nut.
- Make sure the wheel bolt is installed vertically in relation to the hub disc surface.
- Do not install the nut and washers that have been used as tools on a vehicle.



- Tighten the nut until the wheel bolt is drawn fully into the hub. Do not exceed the maximum torque limit. Make sure there is no gap (G) between the bolt and the hub.

Limited torque:

108 N·m (11.0 kgf-m, 80 lbf-ft) max.

- Install the rear brake drum (see page 19-28).

NOTE:

- If you cannot tighten the wheel nut to the specified torque when installing the wheel, replace the rear hub bearing unit as an assembly.
- Before installing the wheel, clean the mating surfaces between the brake drum and the inside of the wheel.

Special Tools Required

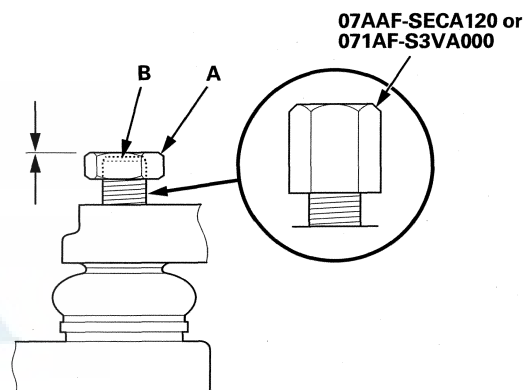
- Ball Joint Thread Protector, 10 mm 07AAF-SECA120
- Ball Joint Thread Protector, 14 mm 071AF-S3VA000
- Ball Joint Remover, 28 mm 07MAC-SL0A202

NOTICE

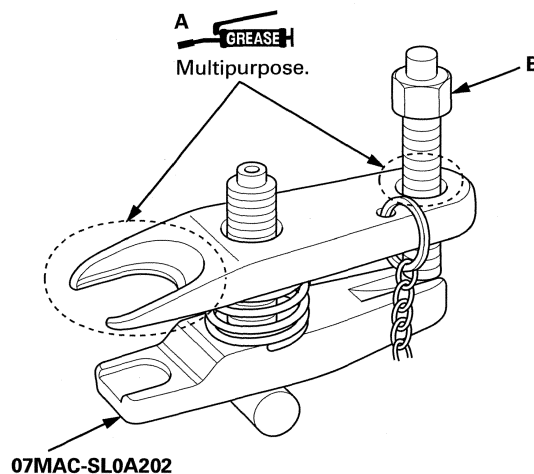
Always use a ball joint remover to disconnect a ball joint. Do not strike the housing or any other part of the ball joint connection to disconnect it.

- Install a hex nut (A) or the ball joint thread protector onto the threads of the ball joint (B).

NOTE: When using a hex nut, make sure the nut is flush with the ball joint pin end to prevent damage to the threaded end of the ball joint pin.



- Apply grease to the ball joint remover on the areas shown (A). This will ease installation of the tool and prevent damage to the pressure bolt (B) threads.



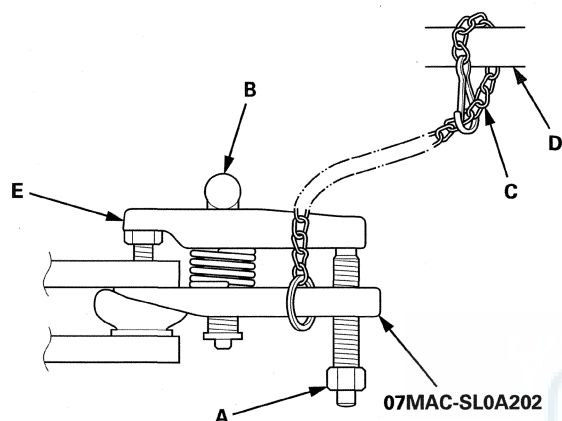
(cont'd)

Front and Rear Suspension

Ball Joint Removal (cont'd)

- Loosen the pressure bolt (A), and install the ball joint remover as shown. Insert the jaws carefully, making sure not to damage the ball joint boot. Adjust the jaw spacing by turning the adjusting bolt (B).

NOTE: Fasten the safety chain (C) securely to a suspension arm or the subframe (D). Do not fasten it to a brake line or wire harness.



- After adjusting the adjusting bolt, make sure the head of the adjusting bolt is in the position shown to allow the jaw (E) to pivot.
- With a wrench, tighten the pressure bolt until the ball joint pin pops loose from the ball joint connecting hole. If necessary, apply penetrating type lubricant to loosen the ball joint pin.

NOTE: Do not use pneumatic or electric tools on the pressure bolt.

- Remove the ball joint remover, then remove the nut or the ball joint thread protector from the end of the ball joint pin, and pull the ball joint out of the ball joint connecting hole. Inspect the ball joint boot, and replace it if damaged.

Ball Joint Boot Inspection/Replacement

Special Tools Required

Ball Joint Boot Clip Guide 07GAF-SE00200

- Check the ball joint boot for weakness, damage, cracks, and grease leaks.

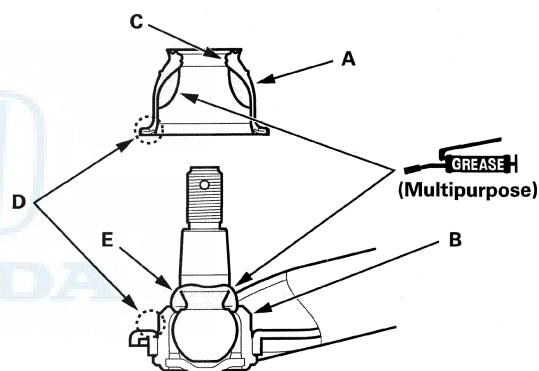
NOTE:

- If the ball joint boot is damaged and leaks grease, replace the lower arm (see page 18-22).
- If the ball joint boot is weak and cracked but does not leak grease, go to step 2. Replace the ball joint boot.

- Remove the lower arm (see page 18-22).

- Remove the ball joint boot (A).

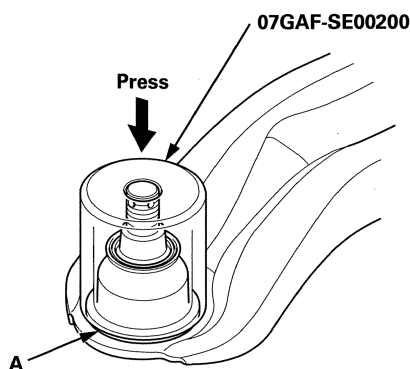
NOTE: Be careful not to damage the mating surface with ball joint boot of ball joint housing (B).



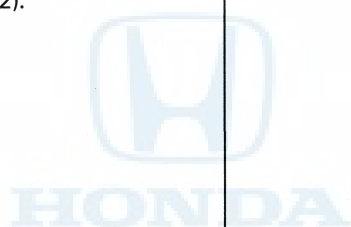
- Pack the interior and lip (C) of a new ball joint boot with grease. Keep the grease off of the ball joint boot-to-lower arm mating surfaces (D).
- Pack fresh grease into the base (E). Do not let dirt or other foreign materials get into the ball joint boot.
- Install the boot on the ball joint, then squeeze it gently to force out any air.



7. Press the boot with the inner bearing driver attachment until the bottom seats (A) on the lower arm all the way around.



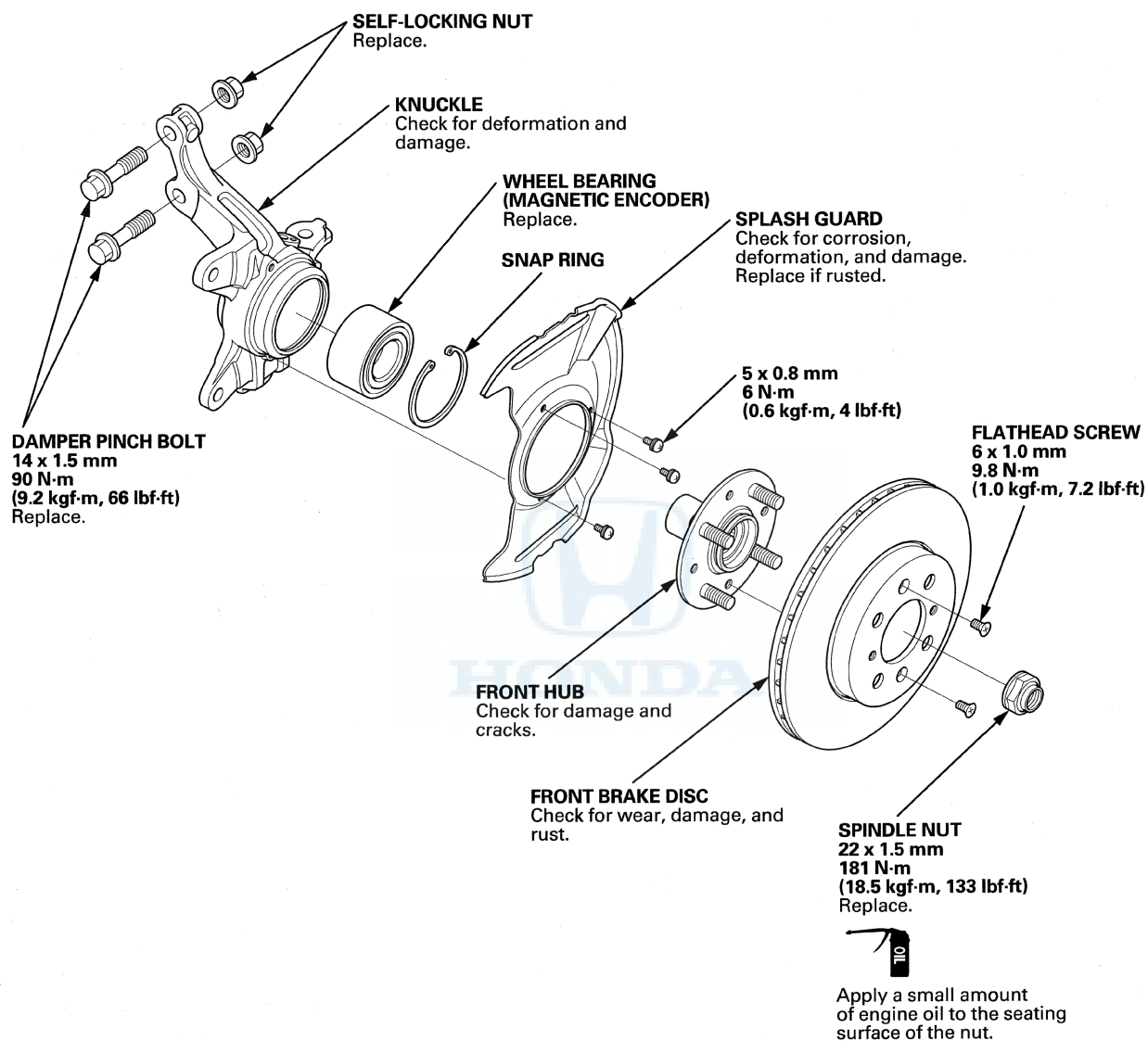
8. After installing a boot, wipe any grease off the exposed portion of the ball joint pin.
9. Install the lower arm (see page 18-22).



Front Suspension

Knuckle/Hub/Wheel Bearing Replacement

Exploded View



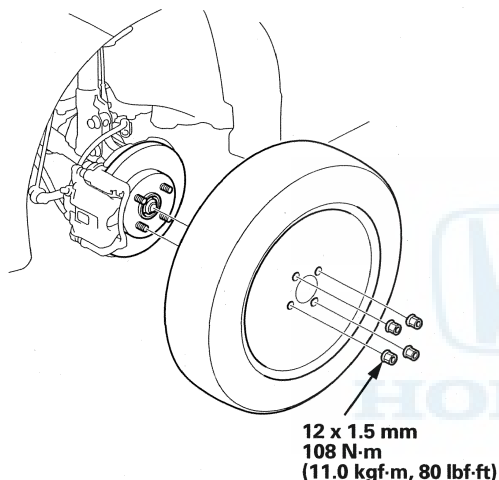


Special Tools Required

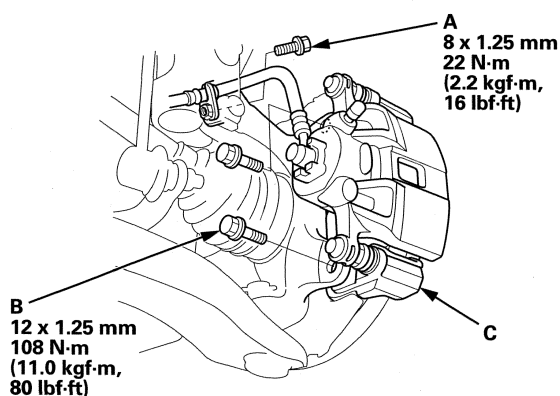
- Ball Joint Remover, 28 mm 07MAC-SL0A202
- Hub Dis/Assembly Tool 07GAF-SE00100
- Driver Handle, 15 x 135L 07749-0010000
- Attachment, 52 x 55 mm 07746-0010400
- Support Base 07965-SD90100
- Ball Joint Thread Protector, 10 mm 07AAF-SECA120
- Ball Joint Thread Protector, 14 mm 071AF-S3VA000

Knuckle/Hub Replacement

1. Raise and support the vehicle (see page 1-14).
2. Remove the wheel nuts and the front wheel.

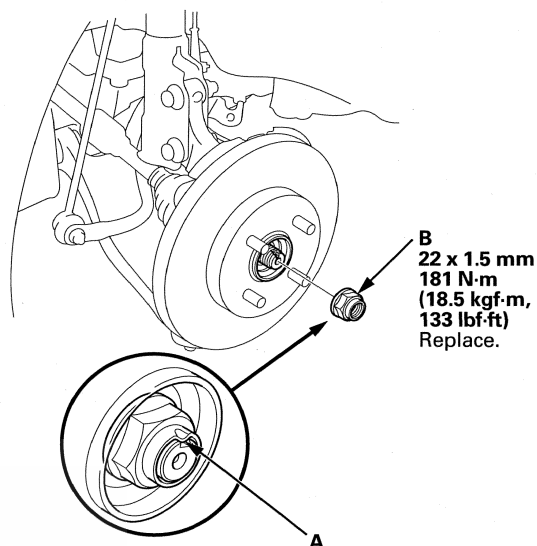


3. Remove the brake hose mounting bolt (A) from the damper.



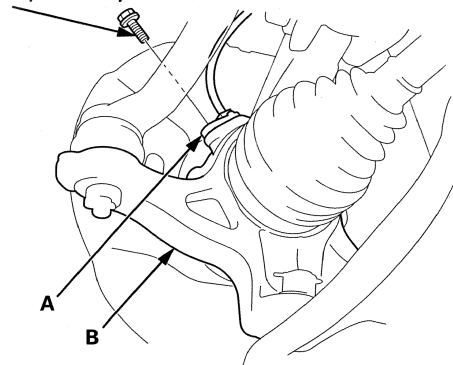
4. Remove the brake caliper bracket mounting bolts (B), then remove the caliper assembly (C) from the knuckle. To prevent damage to the caliper assembly or the brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.

5. Pry up the stake (A) on the spindle nut (B), then remove the nut.



6. Remove the front brake disc (see page 19-17).
7. Check the front hub for damage and cracks.
8. Remove the wheel speed sensor (A) from the knuckle (B). Do not disconnect the wheel speed sensor connector.

6 x 1.0 mm
9.8 N-m
(1.0 kgf-m, 7.2 lbf-ft)



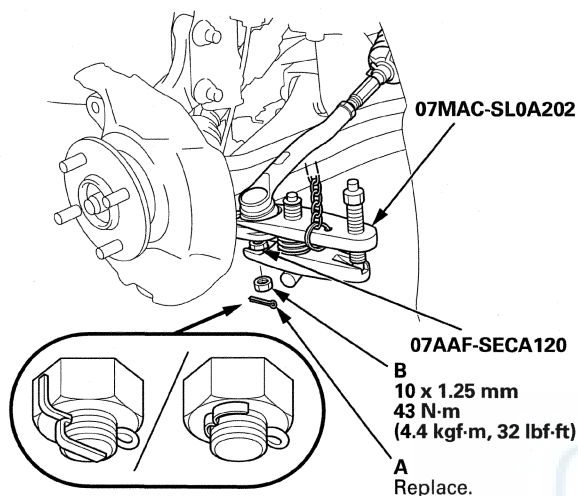
(cont'd)

Front Suspension

Knuckle/Hub/Wheel Bearing Replacement (cont'd)

9. Remove the cotter pin (A) from the tie-rod end ball joint, then remove the nut (B).

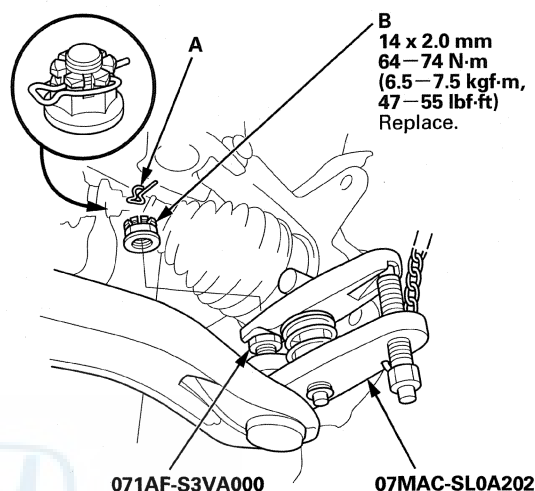
NOTE: During installation, install the new cotter pin after tightening the nut, and bend its end as shown.



10. Disconnect the tie-rod end ball joint from the knuckle using the ball joint remover and the ball joint thread protector (see page 18-13).

11. Remove the lock pin (A) from the lower arm ball joint, then remove the castle nut (B).

NOTE: During installation, install the lock pin as shown after tightening the new castle nut.



12. Disconnect the lower arm ball joint from the knuckle using the ball joint remover and the ball joint thread protector (see page 18-13).

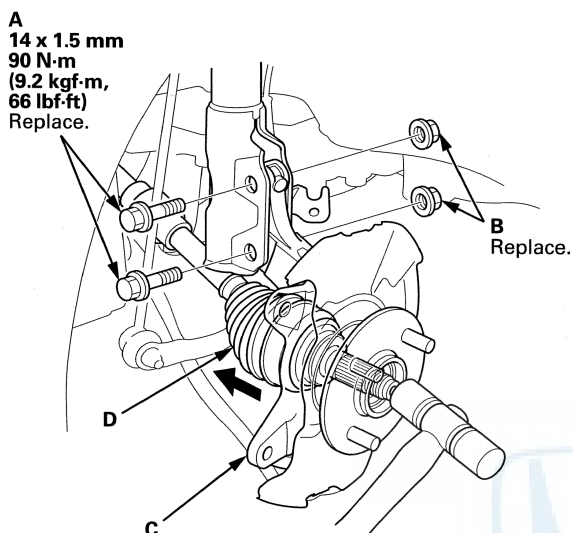
NOTE:

- Be careful not to damage the ball joint boot when installing the remover.
- Do not force or hammer on the lower arm, or pry between the lower arm and the knuckle. You could damage the ball joint.



13. Remove the damper pinch bolts (A) and the self-locking nuts (B) from the damper.

NOTE: During installation, install new damper pinch bolts and a new self-locking nuts.



14. Pull the knuckle (C) outward, and separate the outboard joint (D) from the front hub using a soft face hammer.

NOTE:

- Do not pull the driveshaft end outward. The driveshaft inboard joint may come apart.
- During installation, apply grease to the mating surfaces of the wheel bearing and the driveshaft outboard joint (see step 1 on page 16-20).

15. Install the knuckle/hub in the reverse order of removal, and note these items:

- Be careful not to damage the ball joint boot when connecting the knuckle.
- Before connecting the ball joint to the knuckle, degrease the threaded section and the tapered portion of the ball joint pin, the ball joint connecting hole, the threaded section and the mating surfaces of the castle nut.
- Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
- Use a new spindle nut on reassembly.
- Before installing the spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the driveshaft.
- Before installing the brake disc, clean the mating surfaces of the front hub and the inside of the brake disc.
- Before installing the wheel, clean the mating surfaces of the brake disc and the inside of the wheel.

16. Check the wheel alignment, and adjust it if necessary (see page 18-6).

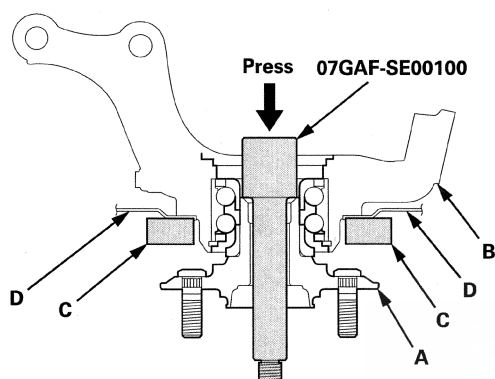
(cont'd)

Front Suspension

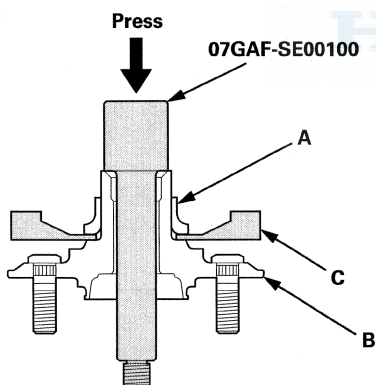
Knuckle/Hub/Wheel Bearing Replacement (cont'd)

Wheel Bearing Replacement

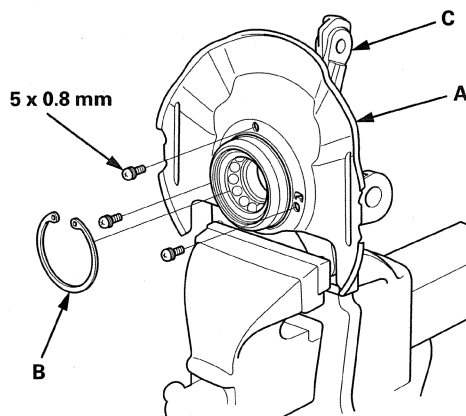
1. Separate the hub (A) from the knuckle (B) using the hub dis/assembly tool and a hydraulic press. Hold the knuckle with the attachment (C) of the hydraulic press or equivalent tool. Be careful not to damage or deform the splash guard (D). Hold onto the hub to keep it from falling when pressed clear.



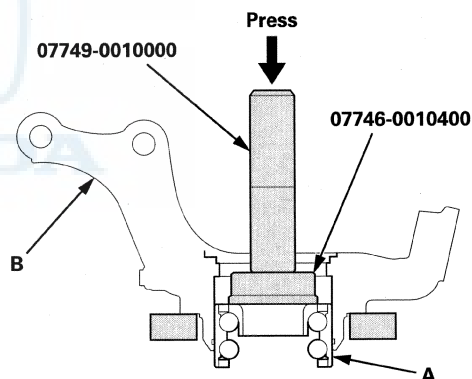
2. Press the wheel bearing inner race (A) off of the hub (B) using the hub dis/assembly tool, a commercially available bearing separator (C), and a press.



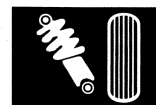
3. Remove the splash guard (A) and the snap ring (B) from the knuckle (C).



4. Press the wheel bearing (A) out of the knuckle (B) using the bearing driver attachment, the driver handle, and a press.



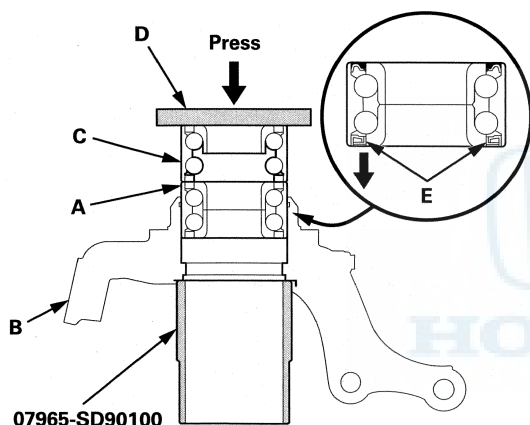
5. Wash the knuckle and the hub thoroughly in high flash point solvent before reassembly.



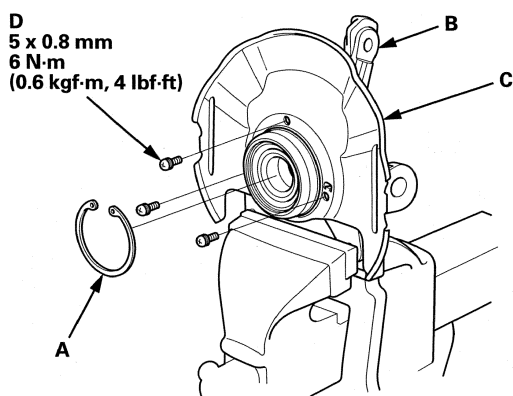
6. Press a new wheel bearing (A) into the knuckle (B) using the old bearing (C), a steel plate (D), the support base, and a press.

NOTE:

- Install the wheel bearing with the wheel speed sensor magnetic encoder (E) (brown color), toward the inside of the knuckle.
- Remove any oil, grease, dust, metal debris, and other foreign material from the magnetic encoder surface.
- Keep any magnetic tools away from the encoder surface.
- Be careful not to damage the encoder surface when you insert the wheel bearing.

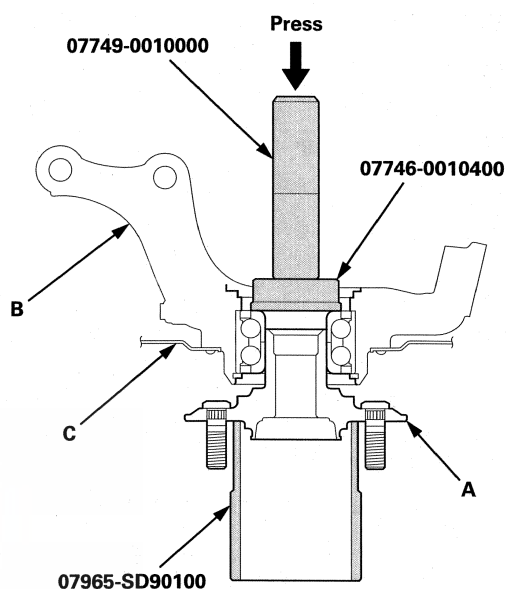


7. Install the snap ring (A) securely in the knuckle (B).



8. Install the splash guard (C), and tighten the screws (D) to the specified torque.

9. Install the hub (A) onto the knuckle (B) using the bearing driver attachment, the driver handle, the support base, and a hydraulic press. Be careful not to damage the splash guard (C).



Front Suspension

Lower Arm Removal/Installation

Special Tools Required

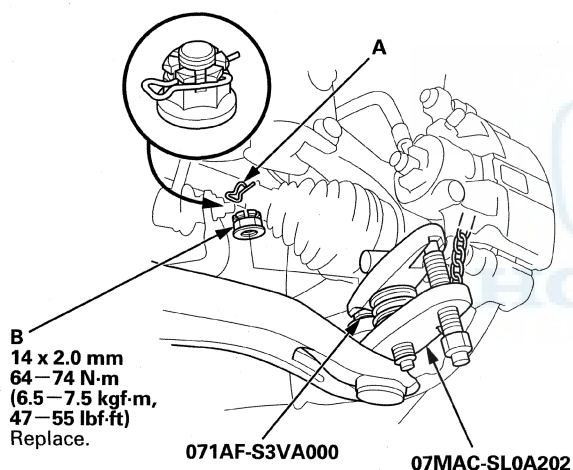
- Ball Joint Thread Protector, 14 mm 071AF-S3VA000
- Ball Joint Remover, 28 mm 07MAC-SL0A202

NOTICE

Do not remove the lower arm from both sides at the same time. The lower arm mounting bolts also secure the subframe to the vehicle.

1. Raise and support the vehicle (see page 1-14).
2. Remove the front wheel.
3. Remove the lock pin (A) from the lower arm ball joint, then remove the castle nut (B).

NOTE: During installation, install the lock pin as shown after tightening the new castle nut.



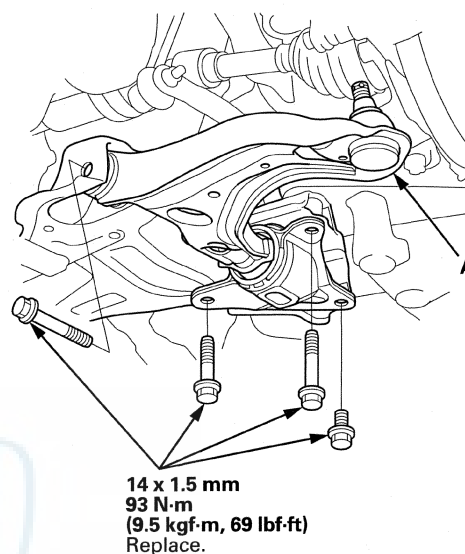
4. Disconnect the lower ball joint from the knuckle using the ball joint remover (see page 18-13).

NOTE:

- Be careful not to damage the ball joint boot when installing the remover.
- Do not force or hammer on the lower arm, or pry between the lower arm and the knuckle. You could damage the ball joint.

5. Remove the lower arm mounting bolts, then remove the lower arm (A) from the front subframe.

NOTE: Use new lower arm mounting bolts during reassembly.



6. Install the lower arm in the reverse order of removal, and note these items:

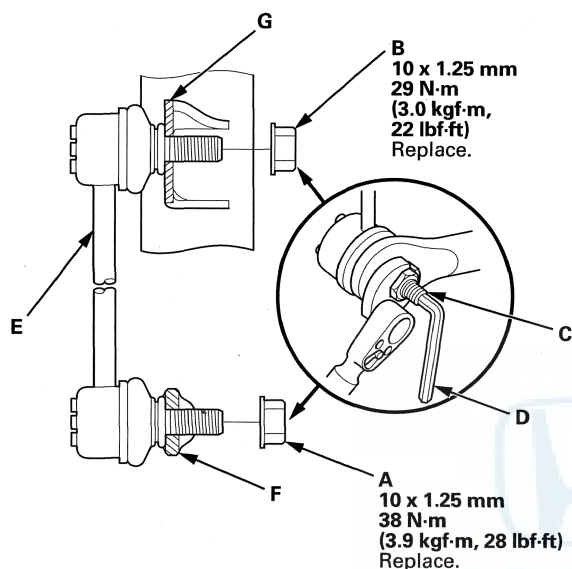
- First install all of the components, and lightly tighten the bolts and the nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque. Do not place the jack against the ball joint of the lower arm.
- Be careful not to damage the ball joint boot when connecting the knuckle.
- Before connecting the ball joint to the knuckle, degrease the threaded section and the tapered portion of the ball joint pin, the ball joint connecting hole, and the threaded section and the mating surfaces of the castle nut.
- Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
- Before installing the wheel, clean the mating surfaces between the brake disc and the inside of the wheel.

7. Check the wheel alignment, and adjust it if necessary (see page 18-6).



Stabilizer Link Removal/Installation

1. Raise and support the vehicle (see page 1-14).
2. Remove the front wheel.
3. Remove the self-locking nut (A) and the flange nut (B) while holding the respective joint pin (C) with a hex wrench (D), then remove the stabilizer link (E).

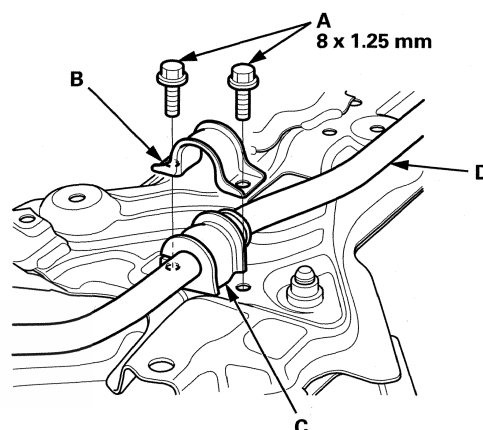


4. Install the stabilizer link on the stabilizer bar (F) and the damper (G) with the joint pins set at the center of their range of movement.
5. Install the new self-locking nut and the new flange nut, and tighten them to the specified torque while holding the respective joint pin with a hex wrench.
6. Clean the mating surfaces between the brake disc and the inside of the wheel, then install the front wheel.
7. Test-drive the vehicle.
8. After 5 minutes of driving, tighten the self-locking nut again to the specified torque.

Stabilizer Bar Replacement

Removal

1. Remove the front subframe (see page 17-63).
2. Remove the steering gearbox from the front subframe (see step 31 on page 17-67).
3. Remove the flange bolts (A) and the bushing holders (B), then remove the bushings (C).



4. Remove the stabilizer bar (D) from the front subframe.

(cont'd)

Front Suspension

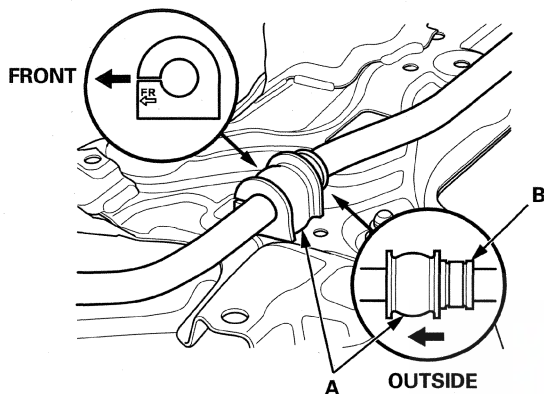
Stabilizer Bar Replacement (cont'd)

Installation

1. Install the bushings (A) on the stabilizer bar.

NOTE:

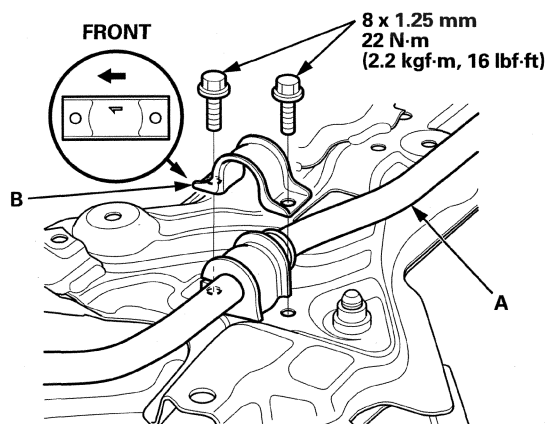
- Note the direction of installation for the bushings.
- Align the stabilizer band clamp (B) with the side of the bushings.



2. Install the stabilizer bar (A) with the bushings on the front subframe.

NOTE:

- Note the right and left direction of the stabilizer bar.
- Note the direction of installation for the bushing holders (B).

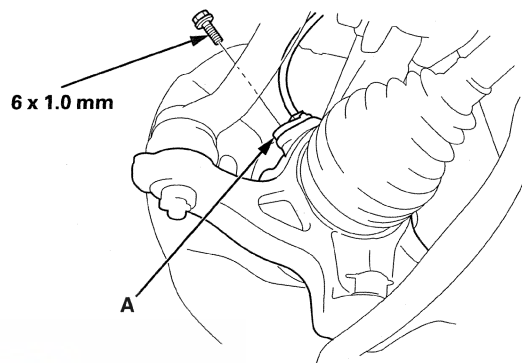


3. Install the steering gearbox on the front subframe (see page 17-68).
4. Install the front subframe (see page 17-68).

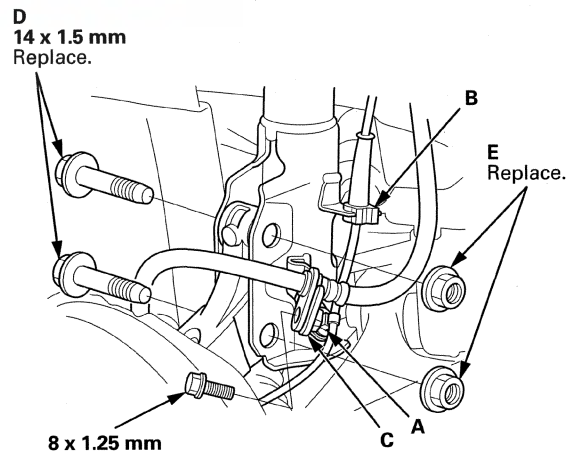
Damper/Spring Removal and Installation

Removal

1. Raise and support the vehicle (see page 1-14).
2. Remove the front wheel.
3. Remove the wheel speed sensor (A) from the knuckle. Do not disconnect the wheel speed sensor connector.



4. Disconnect the stabilizer link from the damper (see page 18-23).
5. Remove the wheel speed sensor clip (A), the wire guide grommet (B), and the brake hose bracket (C) from the damper. Do not disconnect the wheel speed sensor connector.

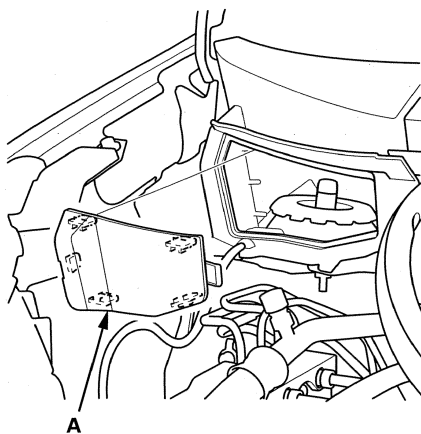


6. Remove the damper pinch bolts (D) and the self-locking nuts (E) from the damper.

NOTE: Do not allow the knuckle to rotate too far outward. This may allow the driveshaft inboard joint to come apart.



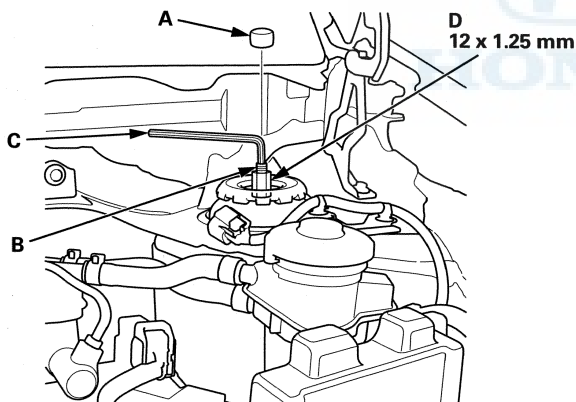
7. Passenger's side removal: Remove the lid (A).



8. Driver's side removal: Remove these items:

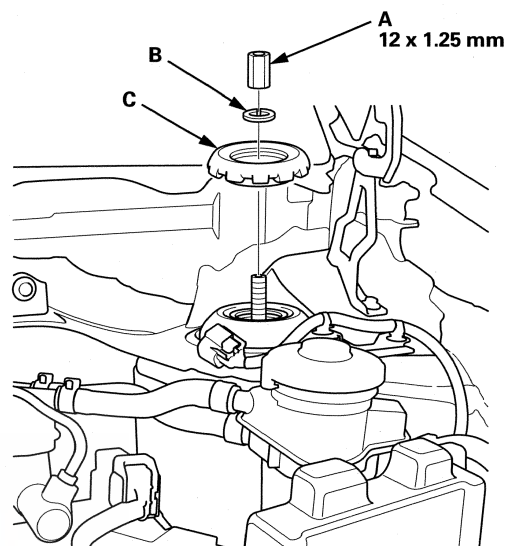
- Wiper arms (see page 22-264)
- Cowl cover (see page 20-168)
- Wiper motor (see page 22-262)

9. Remove the damper cap (A) from the top of the damper.



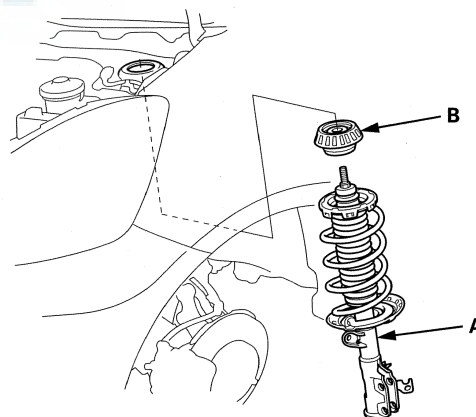
10. Hold the damper shaft (B) using a hex wrench (C), and loosen the damper mounting nut (D).

11. Remove the damper mounting nut (A) and the wave washer (B), then remove the damper mounting base (C) from the top of the damper.



12. Remove the damper/spring (A) and the damper rubber mount (B).

NOTE: Be careful not to damage the body.



(cont'd)

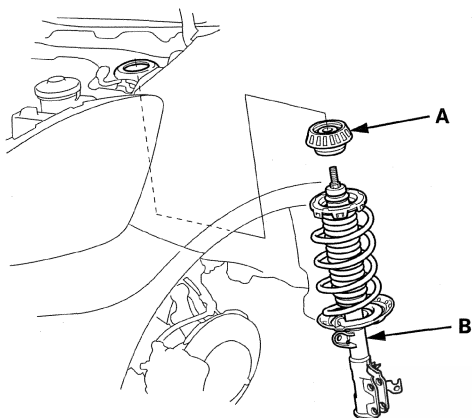
Front Suspension

Damper/Spring Removal and Installation (cont'd)

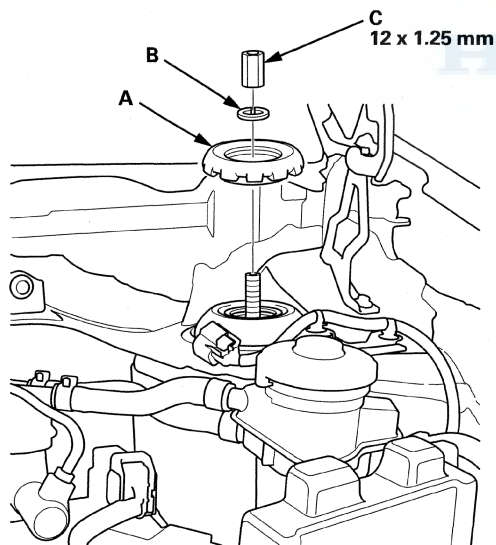
Installation

1. Install the damper rubber mount (A) and the damper/spring (B) onto the upper mount.

NOTE: Be careful not to damage the body.

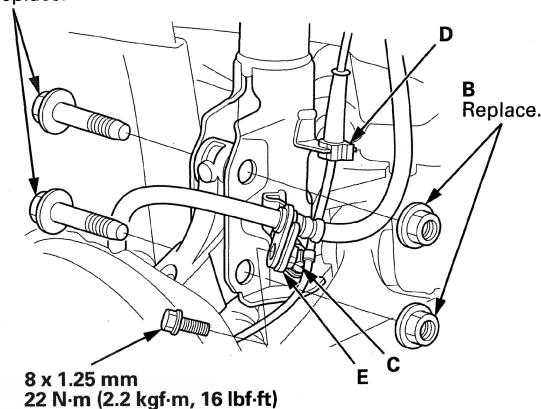


2. Install the damper mounting base (A) and the wave washer (B), then loosely install the damper mounting nut (C).



3. Loosely install new damper pinch bolts (A) and new self-locking nuts (B).

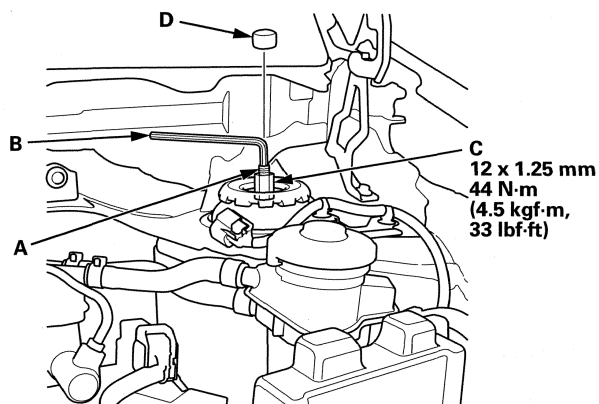
A
14 x 1.5 mm
90 N·m (9.2 kgf·m, 66 lbf·ft)
Replace.



4. Install the wheel speed sensor harness clip (C), the wire guide grommet (D) and the brake hose bracket (E) to the damper.
5. Place a floor jack under the lower arm, and raise the suspension to load it with the vehicle's weight.
6. Tighten the damper pinch bolts while holding the self-locking nuts to the specified torque.
7. Connect the stabilizer link to the damper and tighten to the specified torque (see page 18-23).



8. Hold the damper shaft (A) with a hex wrench (B), and tighten the damper mounting nut (C) to the specified torque.

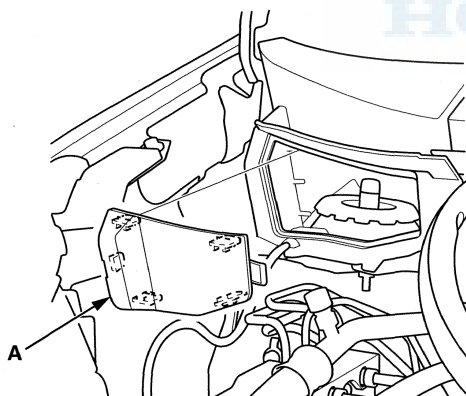


9. Install the cap (D) to the top of the damper.

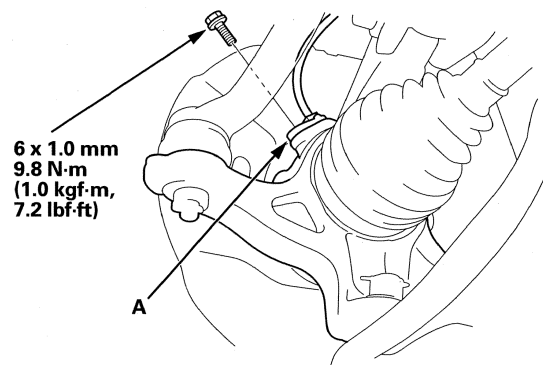
10. Driver's side installation: Install these items:

- Wiper motor (see page 22-262)
- Cowl cover (see page 20-170)
- Wiper arms (see page 22-264)

11. Passenger's side installation: Install the lid (A).



12. Install the wheel speed sensor (A) to the knuckle.



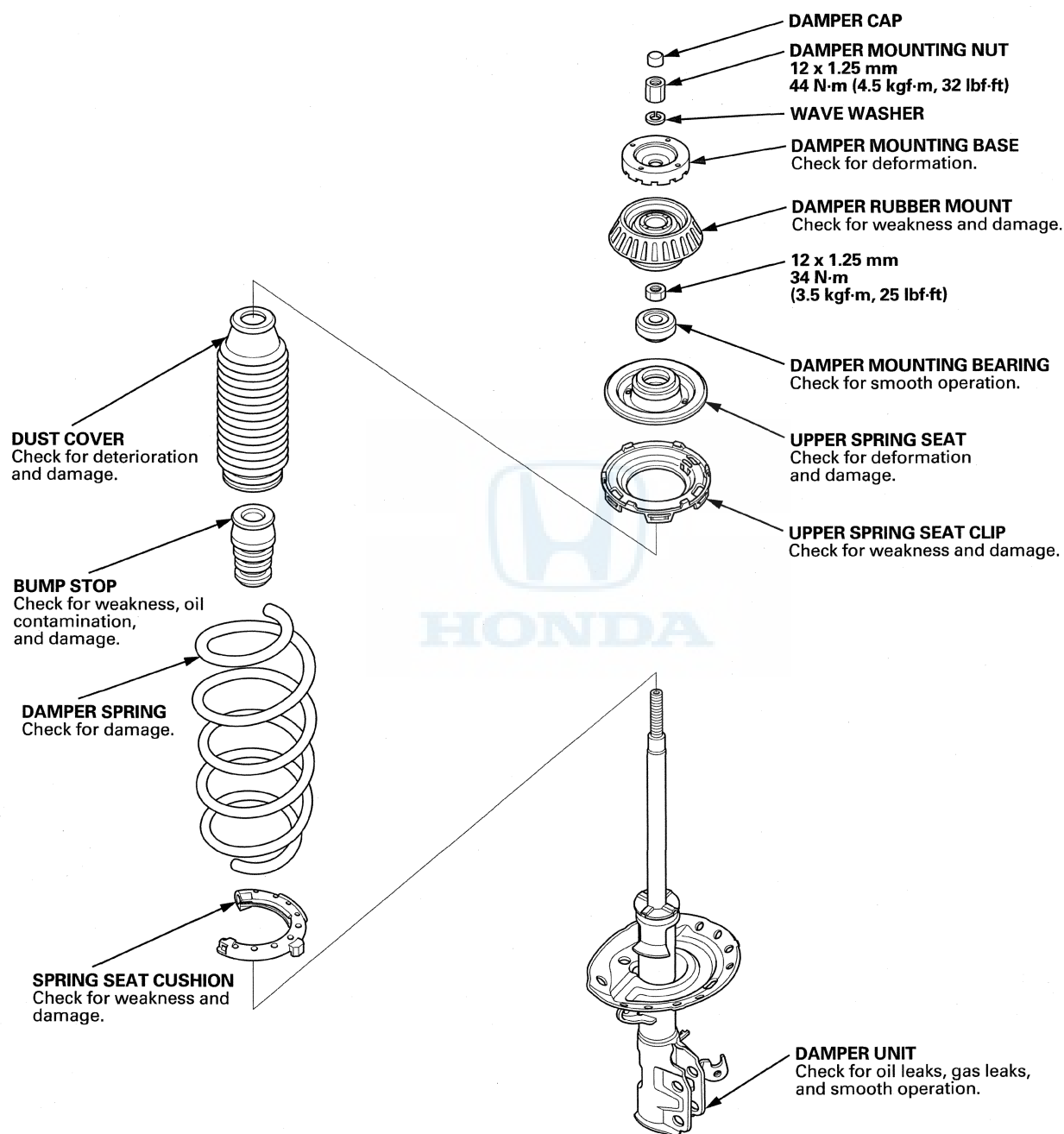
13. Clean the mating surfaces between the brake disc and the inside of the wheel, then install the front wheel.

14. Check the wheel alignment, and adjust it if necessary (see page 18-6).

Front Suspension

Damper/Spring Disassembly, Inspection, and Reassembly

Exploded View



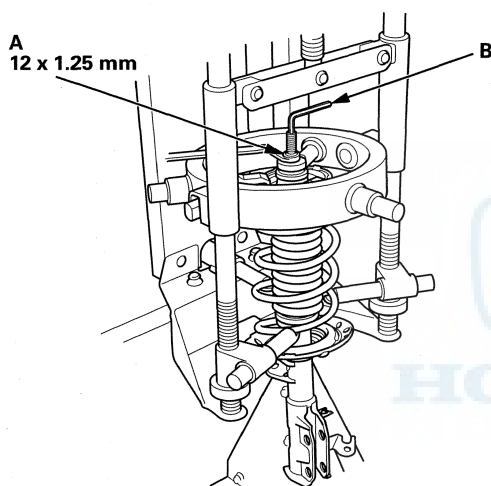


NOTE:

- When compressing the damper spring, use a commercially available strut spring compressor (Branick MST-580A or Model 7200, or equivalent) according to the manufacturer's instructions.
- Refer to the Exploded View as needed during the following procedure.

Disassembly

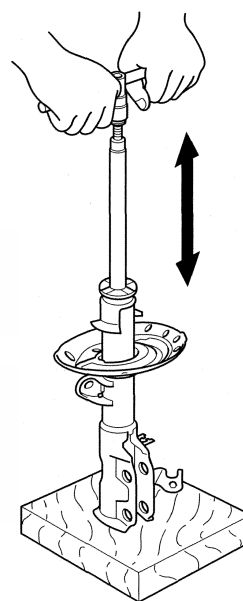
1. Compress the damper spring, then remove the nut (A) while holding the damper shaft with a hex wrench (B). Do not compress the damper spring more than necessary to remove the nut.



2. Release the pressure from the strut spring compressor, then disassemble the damper as shown in the Exploded View.

Inspection

1. Install the nut on the damper shaft end, and set the socket wrench and T-handle on the nut.
2. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should extend smoothly and constantly when compression is released. If it does not, the gas is leaking and the damper should be replaced.



3. Check for oil leaks, abnormal noises, and binding during these tests.

(cont'd)

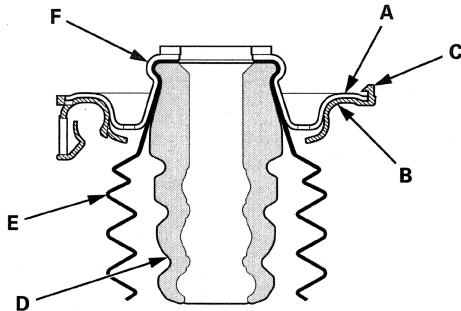
Front Suspension

Damper/Spring Disassembly, Inspection, and Reassembly (cont'd)

Reassembly

1. Install the upper spring seat (A) to the upper spring seat clip (B).

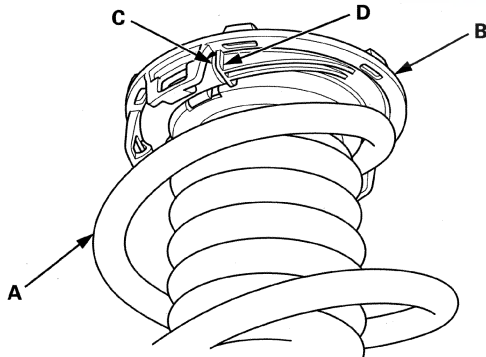
NOTE: Make sure to securely set the upper spring seat to the hook (C) on the spring seat clip.



2. Install the bump stop (D) and the dust cover (E) to the upper spring seat.

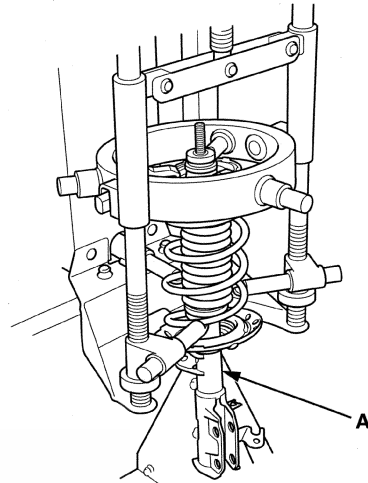
NOTE: Push the bump stop and the dust cover into the dent (F) of the upper spring seat securely.

3. Install the damper spring (A) on the upper spring seat clip (B) by aligning the upper end (C) of the damper spring with the ledge portion (D) of the upper spring seat clip.



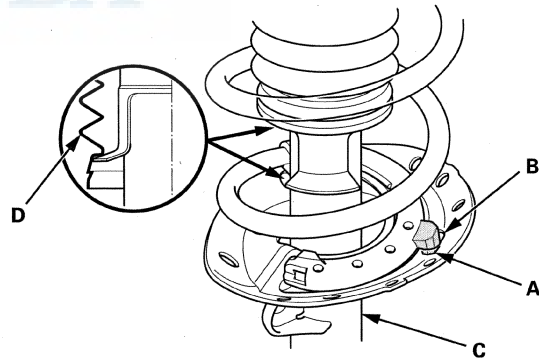
4. Install the spring seat cushion on the damper spring.
5. Compress the damper spring.

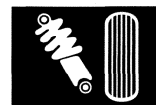
6. Install all the parts except the nut and the damper bearing onto the damper unit (A) by referring to the Exploded View.



7. Align the raised portion (A) of the spring seat cushion and the hole (B) of the lower spring seat on the damper unit (C).

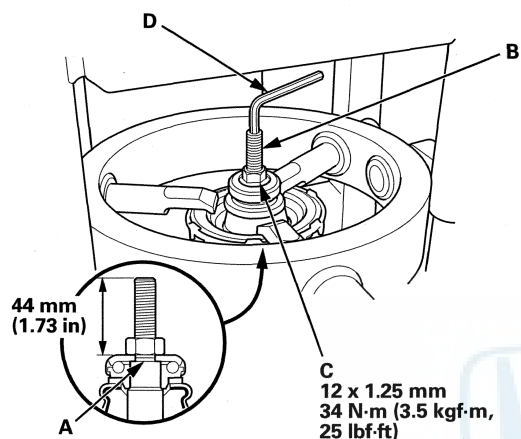
NOTE: After reassembling the damper/spring, install the dust cover (D) into the damper unit as shown.





8. Install the damper bearing onto the damper shaft.
9. Compress the damper spring until the position (A) of the damper shaft (B) comes in contact with the damper bearing. Do not excessively compress the damper spring.

NOTE: Make sure the distance of the rod is 44 mm (1.73 in) from the upper surface of the bearing.

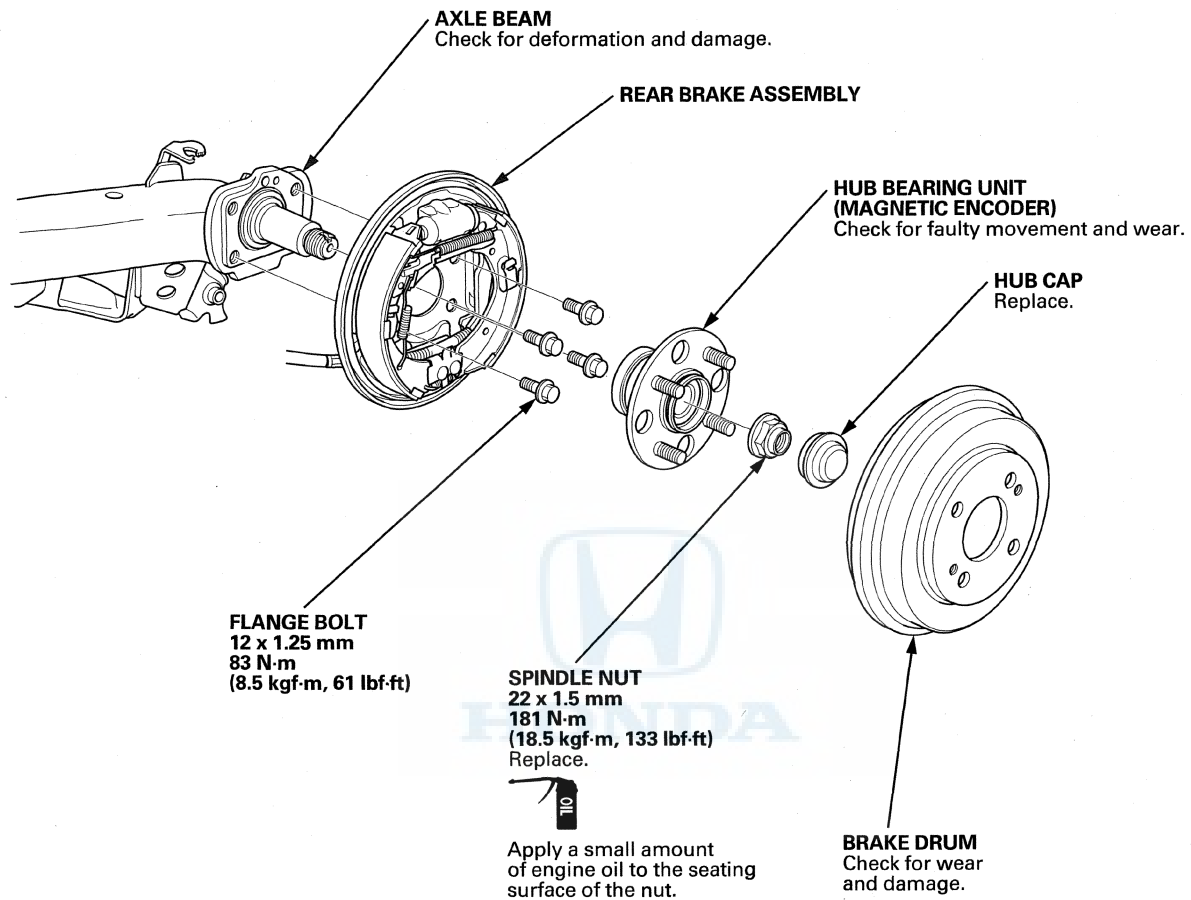


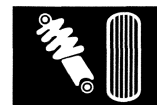
10. Install the nut (C).
11. Hold the damper shaft with a hex wrench (D), and tighten the nut to the specified torque.
12. Remove the damper/spring from the strut spring compressor.

Rear Suspension

Hub Bearing Unit Replacement

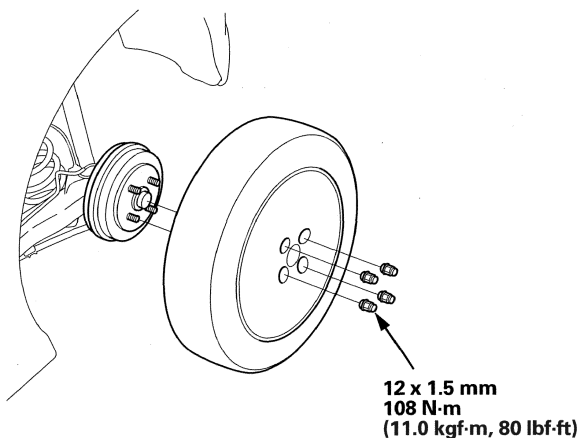
Exploded View



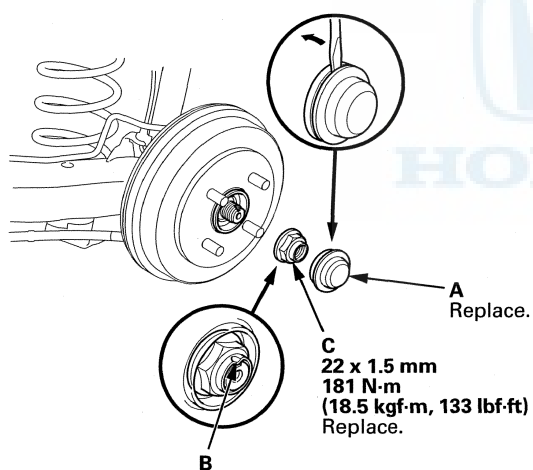


1. Raise and support the vehicle (see page 1-14).

2. Remove the wheel nuts and the rear wheel.

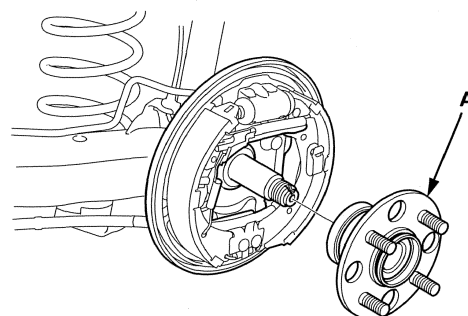


3. Remove the hub cap (A). Pry up the stake (B), then remove the spindle nut (C).



4. Remove the brake drum (see page 19-28).

5. Remove the hub bearing unit (A) from the spindle.



6. Check the hub bearing unit for damage and cracks.

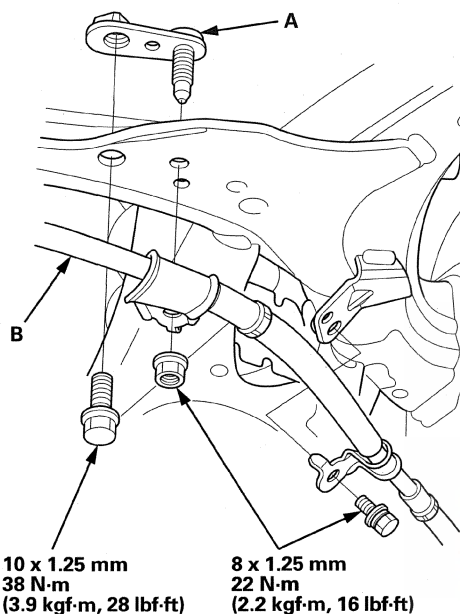
7. Install the hub bearing unit in the reverse order of removal, and note these items:

- Tighten all mounting hardware to the specified torque.
- Use a new spindle nut and hub cap on reassembly.
- Before installing the spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the spindle.
- Before installing the brake drum, clean the mating surfaces between the hub bearing unit and the inside of the brake drum.
- Before installing the wheel, clean the mating surfaces between the brake drum and the inside of the wheel.

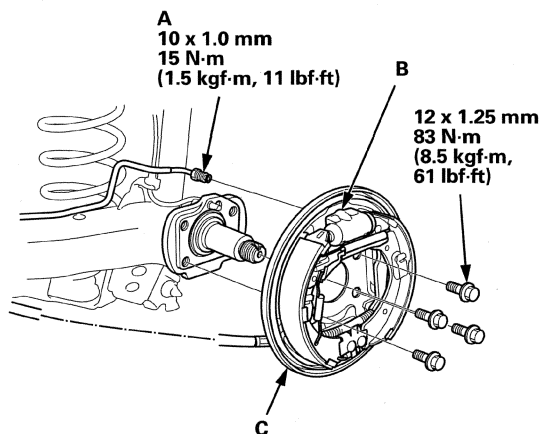
Rear Suspension

Axle Beam Replacement

1. Raise and support the vehicle (see page 1-14).
2. Remove the rear wheels.
3. Remove the rear hub bearing unit (see page 18-32).
4. Remove the parking brake cable bracket (left side) (A), the brake line bracket (right side), and the parking brake cable (B) from the axle beam.

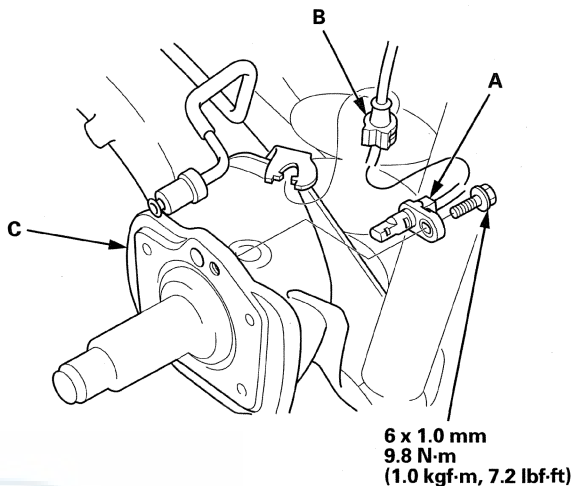


5. Disconnect the brake line (A) from the wheel cylinder (B), and plug the line with a shop towel.

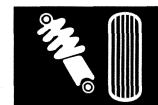


6. Remove the backing plate (C) with the brake shoes assembly from the spindle.

7. Remove the wheel speed sensor (A) and the wire guide grommet (B) from the axle beam (C). Do not disconnect the wheel speed sensor connector.



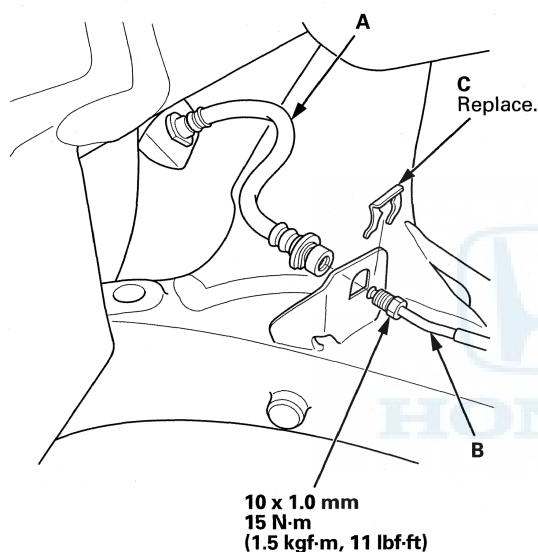
8. Remove the rear spring (see page 18-40).



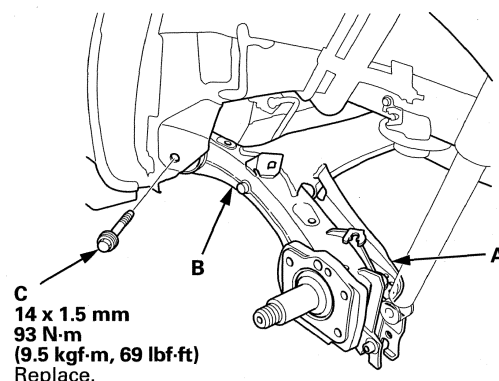
9. Disconnect the brake hose (A) from both sides of the brake line (B), then remove the brake hose by removing the brake hose clip (C).

NOTE:

- Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.
- Plug the end of a hose and joints to prevent spilling brake fluid.
- Use the new brake hose clip during reassembly.



10. Place a floor jack under the lower spring seat (A) on both sides of the axle beam (B), and support it by raising the floor jack. Do not place the floor jack under the center of the axle beam.



11. Remove the axle beam mounting bolts (C) on both sides.

NOTE: Use new axle beam mounting bolts during reassembly.

12. Lower the jack slowly, then remove the axle beam.

13. Install the axle beam in the reverse order of removal, and note these items:

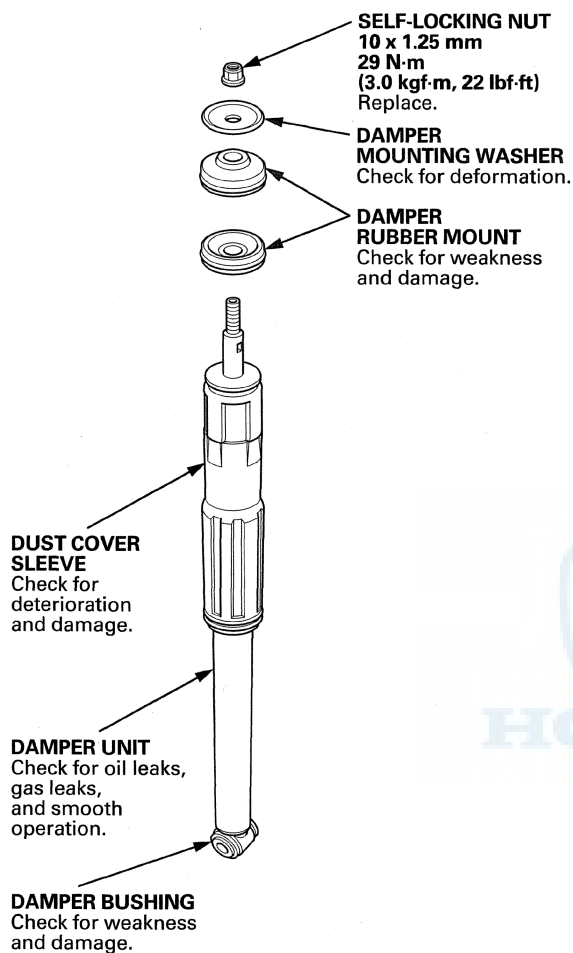
- First install all of the components, and lightly tighten the bolts, and place a jack under the lower spring seat of the axle beam on both sides, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque.
- After installing the brake hose, the brake line, and the parking brake cable, check for interference and twisting of other parts.
- Before installing the brake drum, clean the mating surfaces between the hub bearing unit and the inside of the brake drum.
- After installing, fill the reservoir with new brake fluid, and bleed the brake system (see page 19-8).
- Check the brake hose and line joint for leaks, and tighten if necessary.
- Before installing the wheel, clean the mating surfaces between the brake drum and the inside of the wheel.

14. Check the wheel alignment, and adjust it if necessary (see page 18-6).

Rear Suspension

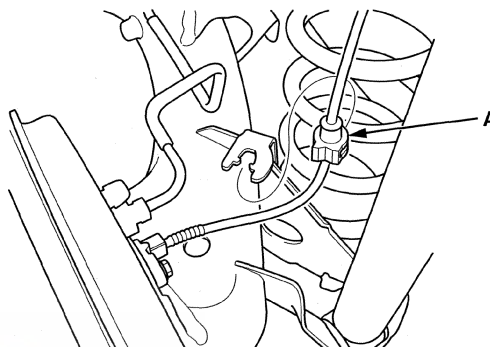
Damper Replacement

Exploded View

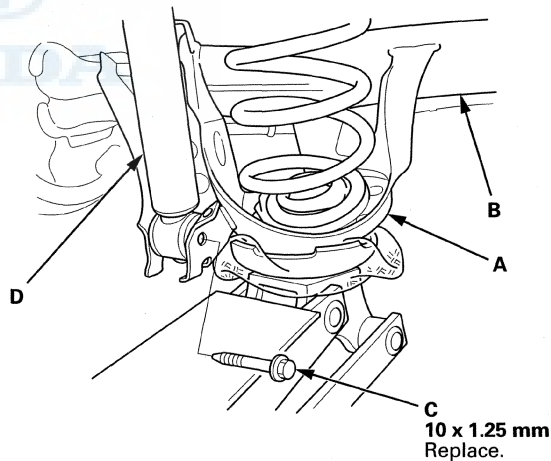


Removal

1. Raise and support the vehicle (see page 1-14).
2. Remove the rear wheel.
3. Remove the wire guide grommet (A) from both sides of the axle beam.



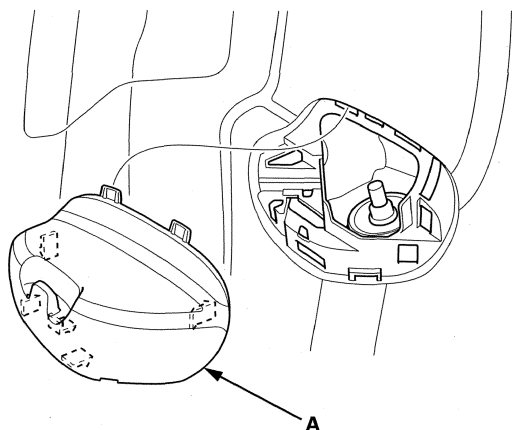
4. Position a floor jack under lower spring seat (A) on both sides of the axle beam (B). Raise the floor jack until the suspension begins to compress.



5. Remove the damper mounting bolt (C) that connects the axle beam and the damper (D).

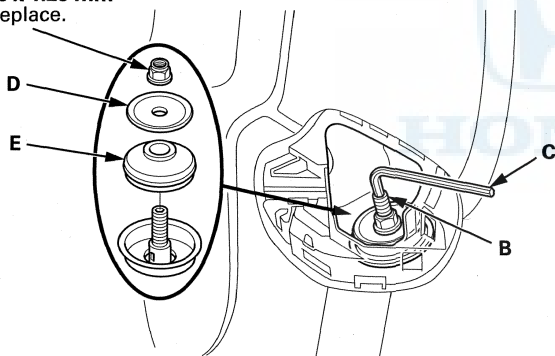


6. Remove the access panel (A) from the cargo area side trim.



7. Remove the self-locking nut (A) while holding the damper shaft (B) with a hex wrench (C).

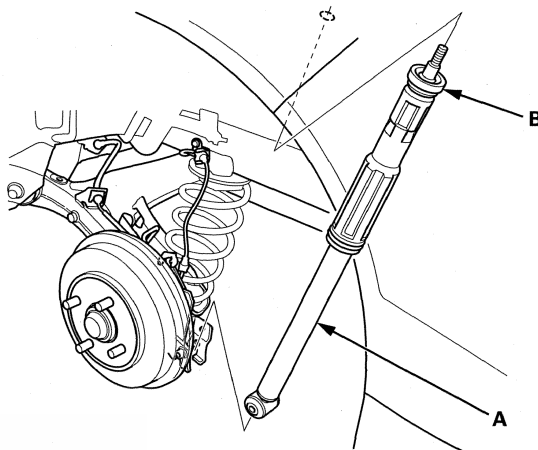
A
10 x 1.25 mm
Replace.



8. Remove the damper mounting washer (D) and the damper rubber mount (E) from the top of the damper.

9. Compress the damper unit (A) by hand, and remove it from the vehicle.

NOTE: Be careful not to damage the body.



10. Remove the damper rubber mount (B).

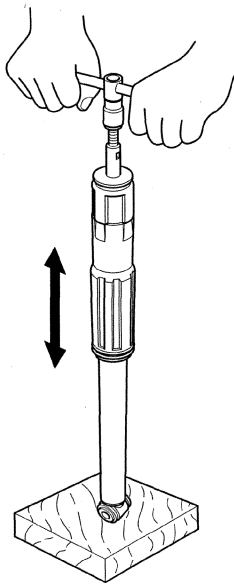
(cont'd)

Rear Suspension

Damper Replacement (cont'd)

Inspection

1. Install the flange nut on the damper shaft end, and set the socket wrench and T-handle on the nut.
2. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should extend smoothly and constantly when compression is released. If it does not, the gas is leaking and the damper should be replaced.

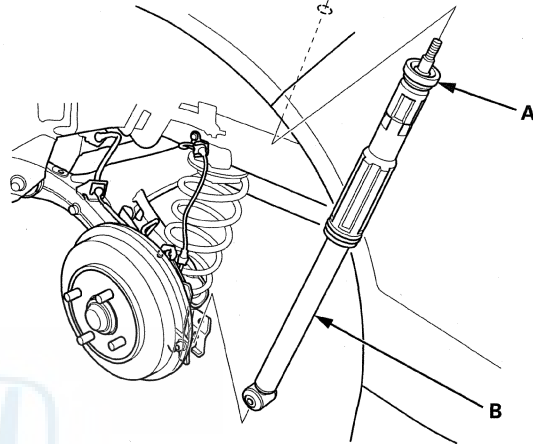


3. Check for oil leaks, abnormal noises, and binding during these tests.

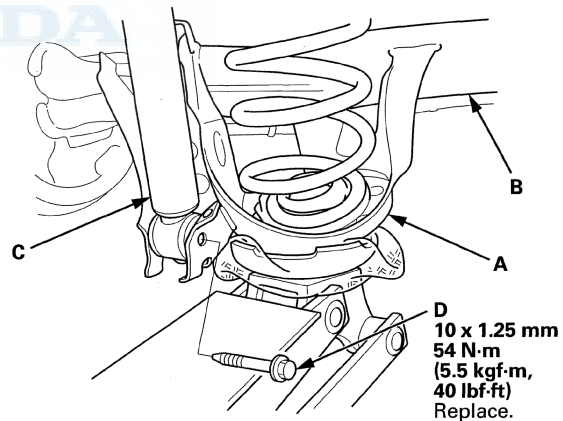
Installation

1. Install the damper rubber mount (A) onto the damper unit. Position the damper assembly (B) between the body and the axle beam.

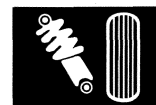
NOTE: Be careful not to damage the body.



2. Position the floor jack under lower spring seat (A) on both sides of the axle beam (B).

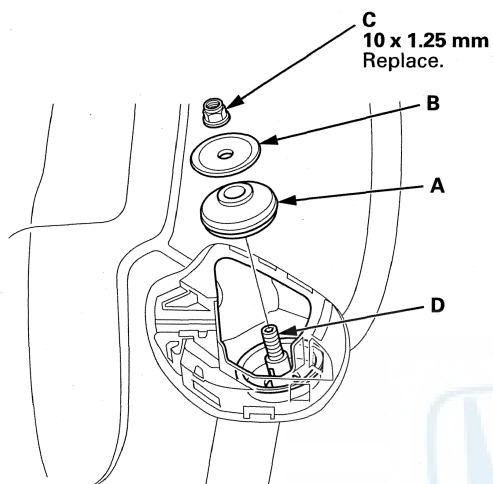


3. Slowly raise the jack until you can align the bolt hole with the holes in the axle beam and the damper (C), then loosely tighten the new damper mounting bolt (D) on both sides.
4. Raise the rear suspension with the jack until the vehicle just lifts off of the safety stands, then tighten the damper mounting bolts to the specified torque.

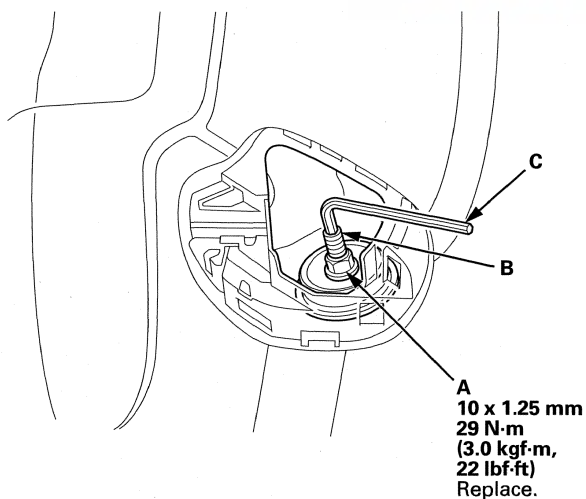


5. Install the damper rubber mount (A), the damper mounting washer (B), and the new self-locking nut (C) on the damper shaft (D).

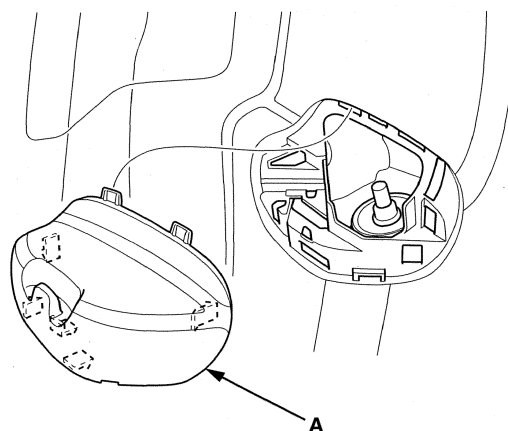
NOTE: During installation, note the direction of the damper rubber mount and the damper mounting washer.



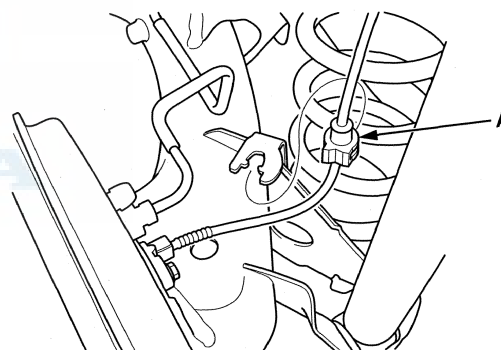
6. Tighten the self-locking nut (A) to the specified torque while holding the damper shaft (B) with a hex wrench (C).



7. Install the access panel (A) on the cargo area side trim.



8. Install the wire guide grommet (A) on both sides of the axle beam.

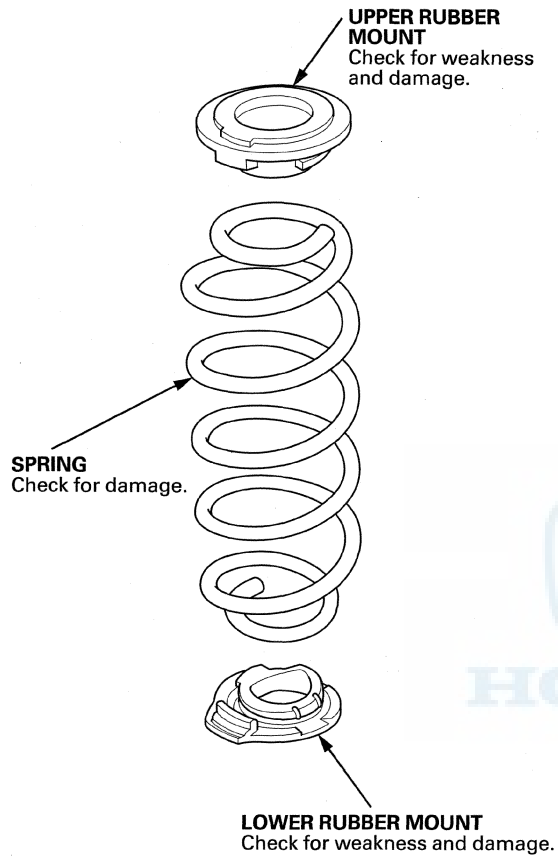


9. Clean the mating surfaces between the brake drum and the inside of the wheel, then install the rear wheel.

Rear Suspension

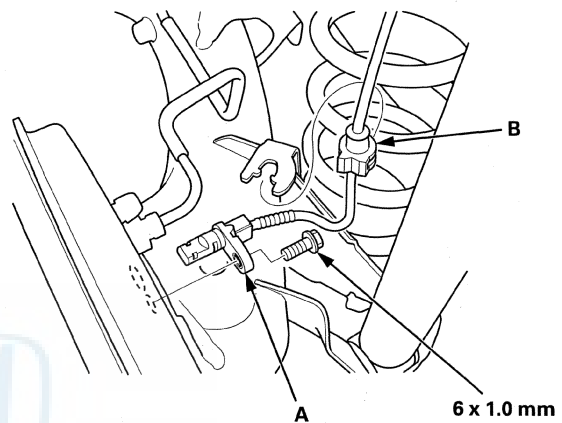
Spring Replacement

Exploded View

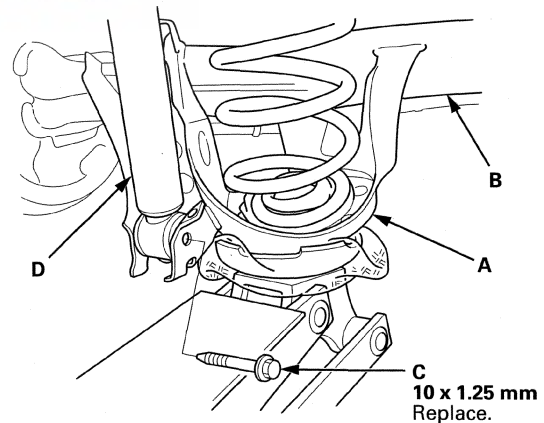


Removal

1. Raise and support the vehicle (see page 1-14).
2. Remove the rear wheel.
3. Remove the wheel speed sensor (A) and the wire guide grommet (B) from both sides of the axle beam. Do not disconnect the wheel speed sensor connector.



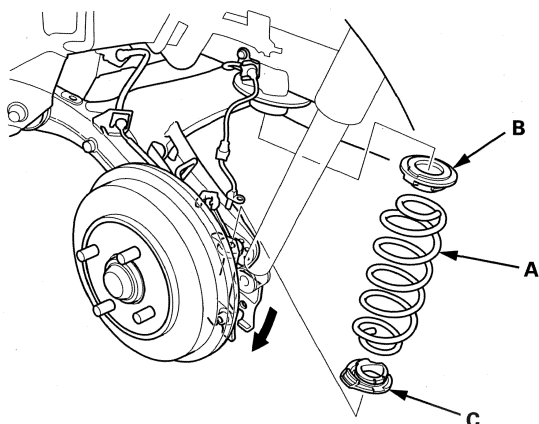
4. Position the floor jack under spring seat (A) on both sides of the axle beam (B). Raise the floor jack until the suspension begins to compress.



5. Remove the damper mounting bolt (C) that connects the axle beam and the damper (D) from both sides.
6. Lower the floor jack gradually.

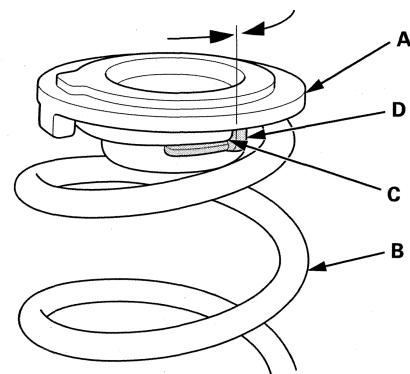


7. Remove the spring (A), the upper rubber mount (B), and the lower rubber mount (C). Do not lower the jack more than necessary.

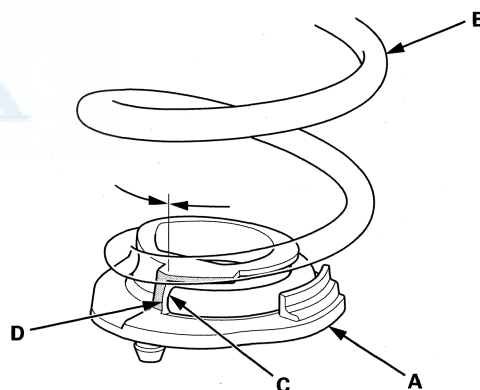


Installation

1. Install the upper rubber mount (A) on the spring (B) by aligning the upper end (C) of the spring with the ledge portion (D) on the upper rubber mount.



2. Install the lower rubber mount (A) on the spring (B) by aligning the lower end (C) of the spring with the ledge portion (D) on the lower rubber mount.



(cont'd)

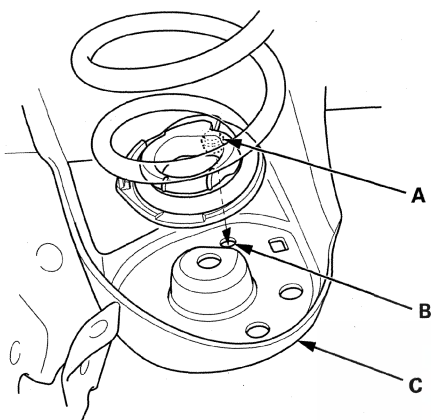
Rear Suspension

Spring Replacement (cont'd)

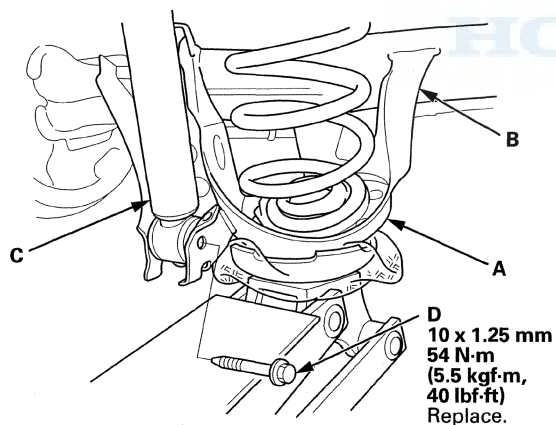
3. Install the tab (A) of the lower rubber mount into the groove (B) of the lower spring seat (C).

NOTE:

- Make sure that the tab of the lower rubber mount is properly installed into the lower spring seat.
- Make sure that the spring is installed correctly.

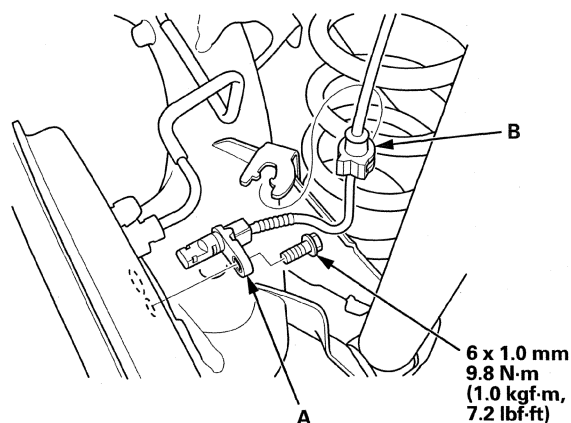


4. Position a floor jack under the lower spring seat (A) on both sides of the axle beam (B).

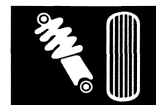


5. Slowly raise the floor jacks until you can align the bolt hole with the holes in the axle beam and the damper (C), then loosely tighten a new damper mounting bolt (D) on both sides.
6. Raise the rear suspension with the floor jacks until the vehicle just lifts off of the safety stands, then tighten the damper mounting bolts to the specified torque.

7. Install the wheel speed sensor (A) and the wire guide grommet (B) on both sides of the axle beam.

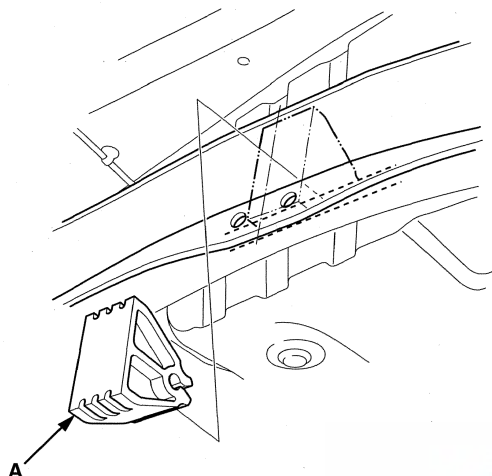


8. Clean the mating surfaces between the brake drum and the inside of the wheel, then install the rear wheel.
9. Check the wheel alignment, and adjust it if necessary (see page 18-6).



Stabilizer Bushing Replacement

1. Raise and support the vehicle (see page 1-14).
2. Remove the stabilizer bushing (A) from the axle beam.



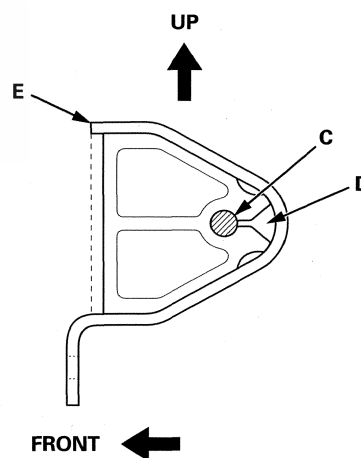
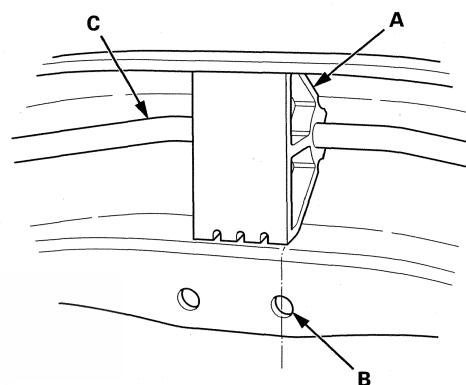
3. Apply silicone spray (P/N 08209-0001) to the new stabilizer bushing. This will ease installation of the bushing into the stabilizer and the axle beam.

NOTE: When spraying any agents that contain silicone, cover all the connectors, terminals, and switches in area with a protective cloth or plastic sheet.

4. Install the stabilizer bushing (A) into the axle beam by aligning the end face of the stabilizer bushing to the center of hole (B).

NOTE:

- Securely install the stabilizer (C) into the stabilizer bushing groove (D).
- Make sure the stabilizer bushing is not protrusion the end of the axle beam (E).



Suspension

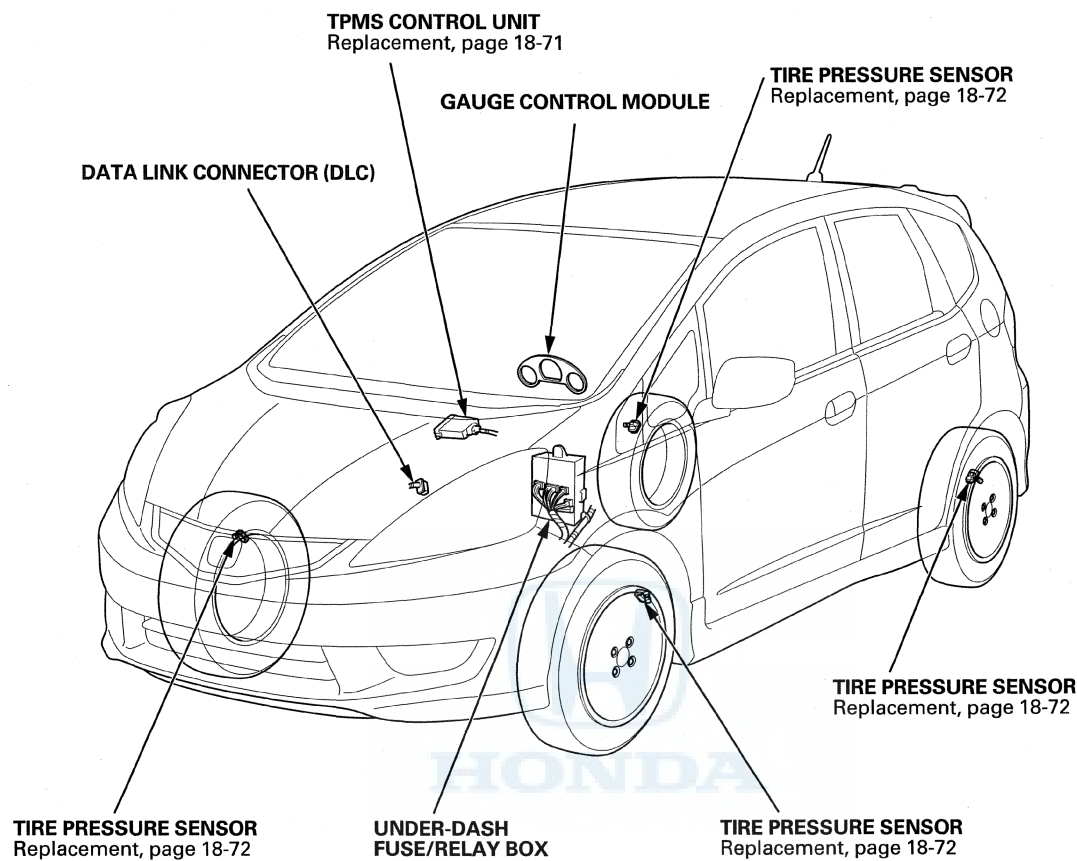
TPMS

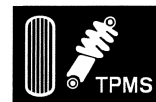
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TPMS

Component Location Index

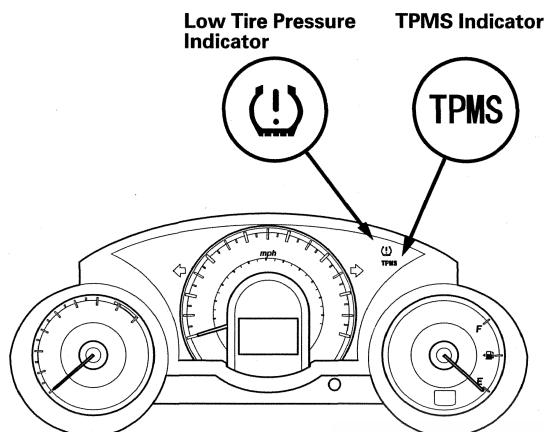




General Troubleshooting Information

System Indicator

The TPMS (tire pressure monitoring system) has the low tire pressure indicator and the TPMS indicator.



The Low Tire Pressure Indicator

- If the system detects low tire pressure in any of the four tires, the low tire pressure indicator comes on.
- When the indicator comes on, inflate the tires and test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute, and the low tire pressure indicator will go off.
- If the TPMS control unit detects a problem in the system during an indication of low tire pressure, it turns off the low tire pressure indicator, stores the DTC(s), and turns on the TPMS indicator.

The TPMS Indicator

- If a problem is detected in the system, the TPMS indicator comes on.
- If low tire pressure and a problem in the system are detected, only the TPMS indicator comes on.

When the system is OK, the TPMS indicator and the low tire pressure indicator should come on when you turn the ignition switch to ON (II), and then go off 2 seconds later. If it doesn't, there is a problem with the system.

DTC 11, 13, 15, 17

If the system detects low pressure in any of the four tires, the low tire pressure indicator comes on, and the TPMS control unit sets one or more of these codes: DTC 11, 13, 15, 17. When the tire pressure returns to normal, and the TPMS control unit receives the normal pressure signal from the tire pressure sensor, the TPMS control unit turns off the indicators. However TPMS control unit still retains the DTC(s).

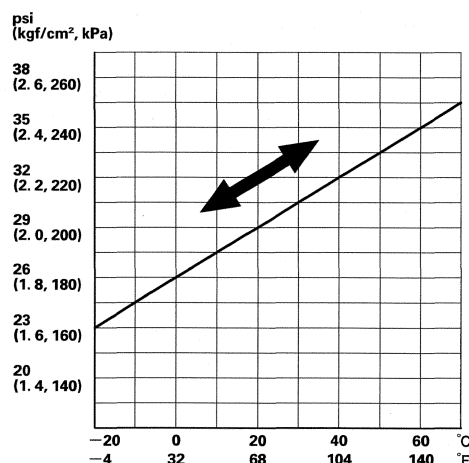
NOTE: After reinflating the tire, you must test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute so that the tire pressure sensor transmits the signal that it is OK.

Tire Pressure Changing by Temperature

Tire pressures increase slightly as the temperature in the tires rises during driving.

Pressures can also increase or decrease slightly with changes in outside air temperature.

A temperature change of about 18 °F (10 °C) changes tire pressure by about 10 kPa (0.1 kgf/cm², 1.5 psi). If the temperature drops, tire pressure could decrease enough to turn on the low tire pressure indicator, but later, the tire temperature could increase enough to turn the indicator off. To resolve a complaint of such intermittent indications, confirm and clear the stored DTC(s) and check the cold tire pressures. Then explain to the customer how temperature changes can affect the system.



(cont'd)

General Troubleshooting Information (cont'd)

Problems That Are Not System Faults

- **Tire Sealant**
Fluid sealant used to repair a punctured tire can damage the tire pressure sensor mounted on each wheel. It can prevent the system from detecting the correct tire pressure, which sets a DTC 11, 13, 15, or 17 even though the system is normal.
- **Cold Weather**
When the weather is extremely cold, about -40°F (-40 °C) or colder, the output of the lithium battery in each tire pressure sensor may drop far enough that the TPMS control unit sets a DTC for low battery voltage (DTC 31, 33, 35, or 37) even though the system is normal.
- **Non-TPMS type Wheels (Including Spare Tire)**
Vehicles equipped with TPMS must use wheels made for the system. Every TPMS type wheel has an exclusive mark; do not use any other type of wheel (see page 18-56).
When a flat tire is replaced with the spare tire, the TPMS indicator comes on (DTC 32, 34, 36, or 38) because the system is no longer receiving the signal from the flat tire's transmitter. This is not a problem with the spare tire.

How a Diagnostic Trouble Code (DTC) is Set

- When the system detects a problem, the TPMS control unit sets a code, but shifts to fail-safe mode, and does not alert the driver to low tire pressures.
- If the TPMS control unit loses power, or fails, the TPMS indicator comes on, but no DTC is set.
- The memory can hold all the DTCs that could possibly be set. However, when the same DTCs are detected more than once, the most recent one overwrites the previous one, so only the latest DTC of each type is stored.
- DTCs are indicated in ascending order, not in the order they occurred.
- Set DTCs are stored in the EEPROM (nonvolatile memory), they cannot be cleared by disconnecting the battery. To clear a DTC, connect the HDS (Honda Diagnostic System) to the data link connector (DLC), and follow the screen prompts.

How to Troubleshoot DTCs

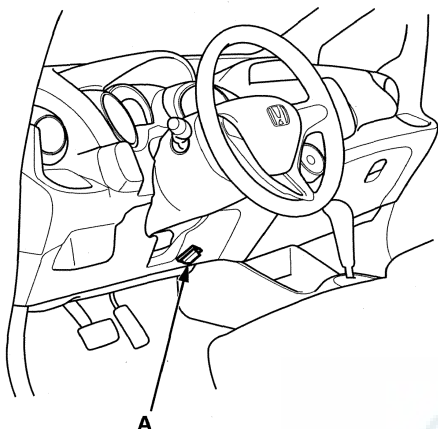
DTC troubleshooting procedures assume that the cause of the problem is still present and the TPMS indicator is still on. Do not use a troubleshooting procedure unless the system has set the DTC listed for it.

NOTE: For DTCs 11, 13, 15, and 17 (low tire pressure), the TPMS indicator comes on only if the DTCs are caused by a system problem rather than just low tire pressure.

1. Ask the customer to describe the conditions when the indicator came on, and try to reproduce the same conditions for troubleshooting. Find out if the customer checked and/or adjusted tire pressures since the indicator came on.
2. If an indicator does not come on during the test-drive, check for loose terminals, poor contact due to damaged terminals, etc. before you start troubleshooting.
3. After troubleshooting, repair and clear the DTCs, and test-drive the vehicle. Make sure no indicators come on.

How to Retrieve DTCs

1. With the ignition switch in LOCK (0), connect the HDS (Honda Diagnostic System) to the data link connector (DLC) (A) located under the driver's side of the dashboard.



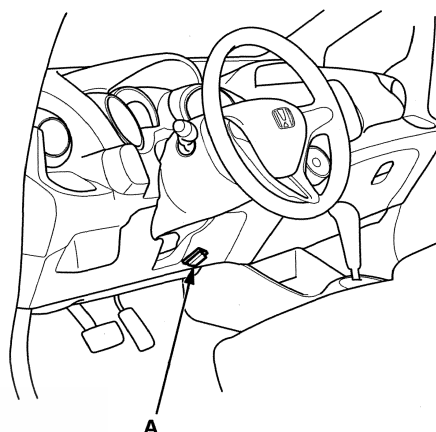
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it does not, go to the DLC circuit troubleshooting (see page 11-193).
4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC troubleshooting.

NOTE: See the HDS Help menu for specific instructions.

5. Turn the ignition switch to LOCK (0).

How to Clear DTCs

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it does not, go to the DLC circuit troubleshooting (see page 11-193).
4. Clear the DTC(s) by following the screen prompts on the HDS.

NOTE: See the HDS Help menu for specific instructions.

5. Turn the ignition switch to LOCK (0).

TPMS

Memorizing the Tire Pressure Sensor ID

Special Tools Required

TPMS Trigger Tool ATEQ VT55

*Available through the Honda Tool and Equipment Program 888-424-6857

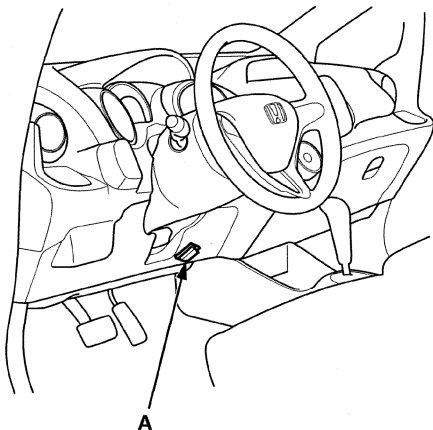
All four tire pressure sensor IDs must be memorized to the TPMS control unit whenever you do any of these actions:

- Replace the TPMS control unit.
- Replace the tire pressure sensor.
- Substitute a known-good wheel with tire pressure sensor.

NOTE:

- Make sure the TPMS tool has the latest software. Check the official Honda service website for more service information about the TPMS tool.
- The TPMS tool is necessary to do this procedure.
- Let the vehicle sit for at least 5 minutes to allow the tire pressure sensors to switch to sleep mode.
- To ensure the TPMS control unit memorizes the correct sensor ID, the vehicle with the new tire pressure sensor must be at least 10 ft (3 m) away from other vehicles that have tire pressure sensors.
- When doing a tire rotation, memorizing the tire pressure sensors is not needed.

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.

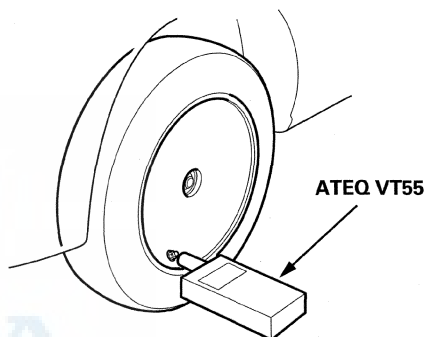


2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it does not, go to the DLC circuit troubleshooting (see page 11-193).
4. Select Sensor ID Learning from the mode menu on the HDS.

5. Follow HDS screen prompts to turn on the TPMS tool.
6. Hold the TPMS tool near the valve stem of one wheel, and memorize the pressure sensor ID by following the screen prompts on the HDS.

NOTE:

- See the HDS Help menu for specific instructions.
- If you turn the ignition switch to LOCK (0) before memorizing all four sensor IDs, the memorizing sensor ID is canceled.
- If more than one sensor ID is displayed on the HDS, verify that the vehicle has not been driven for 5 minutes, and there are no other vehicles or tire pressure sensors within 10 ft (3 m).



7. Repeat step 6 for each wheel until all four tire pressure sensor IDs are memorized. When all four sensor IDs are memorized, the low tire pressure indicator blinks.
8. Turn the ignition switch to LOCK (0).
9. Disconnect the HDS from the DLC.
10. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.
11. Make sure the low tire pressure indicator does not blink.
12. Make sure the tires are inflated to the specified tire pressure listed on the doorjamb label.
13. Turn the ignition switch to LOCK (0).

Tire Pressure Sensor Location

Special Tools Required

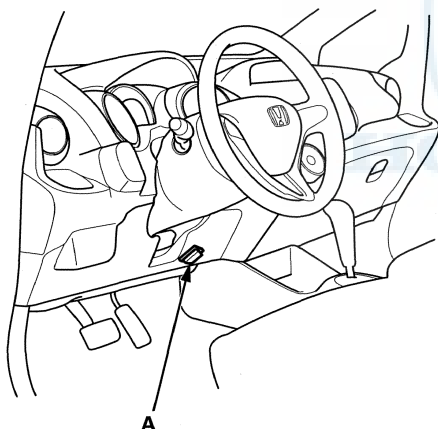
TPMS Trigger Tool ATEQ VT55

*Available through the Honda Tool and Equipment Program 888-424-6857

NOTE:

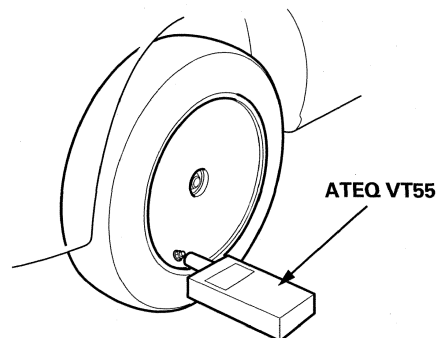
- Make sure the TPMS tool has the latest software. Check the official Honda service website for more service information about the TPMS tool.
- The TPMS tool is necessary to do this procedure.
- Let the vehicle sit for at least 5 minutes to allow the pressure sensors to switch to sleep mode.
- This procedure locates where the tire pressure sensors 1, 2, 3, 4 are mounted, when activated by the TPMS tool.
- Position the vehicle at least 10 ft (3 m) away from other vehicles that have tire pressure sensors.

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the TPMS control unit. If it does not, go to the DLC circuit troubleshooting (see page 11-193).
4. Using the HDS, bring up the TPMS DATA LIST, scroll down to the bottom, and locate the four tire sensors ID numbers. These are the sensor ID numbers assigned to each tire location.
5. Follow the HDS screen prompts under tire pressure sensor ID learn, to turn on the TPMS tool.

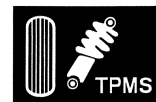
6. Activate the TPMS sensor using the ATEQ VT55 tool.



7. The ATEQ VT55 will display the sensor data including the tire pressure sensor ID number.
8. Locate the tire pressure sensor ID number in the TPMS DATA LIST with the HDS, and match it to the sensor ID on the TPMS tool. Note the sensor location.
9. Turn the ignition switch to LOCK (0).

DTC Troubleshooting Index

DTC	Detection Item	Troubleshooting
11	Tire 1 Low Air Pressure	DTC Troubleshooting (see page 18-60)
13	Tire 2 Low Air Pressure	DTC Troubleshooting (see page 18-60)
15	Tire 3 Low Air Pressure	DTC Troubleshooting (see page 18-60)
17	Tire 4 Low Air Pressure	DTC Troubleshooting (see page 18-60)
21	Tire 1 Pressure Sensor Abnormal High Temperature	DTC Troubleshooting (see page 18-61)
22	Tire 2 Pressure Sensor Abnormal High Temperature	DTC Troubleshooting (see page 18-61)
23	Tire 3 Pressure Sensor Abnormal High Temperature	DTC Troubleshooting (see page 18-61)
24	Tire 4 Pressure Sensor Abnormal High Temperature	DTC Troubleshooting (see page 18-61)
31	Tire 1 Pressure Sensor Low Battery Voltage	DTC Troubleshooting (see page 18-62)
32	Tire 1 Pressure Sensor Signal Failure	DTC Troubleshooting (see page 18-62)
33	Tire 2 Pressure Sensor Low Battery Voltage	DTC Troubleshooting (see page 18-62)
34	Tire 2 Pressure Sensor Signal Failure	DTC Troubleshooting (see page 18-62)
35	Tire 3 Pressure Sensor Low Battery Voltage	DTC Troubleshooting (see page 18-62)
36	Tire 3 Pressure Sensor Signal Failure	DTC Troubleshooting (see page 18-62)
37	Tire 4 Pressure Sensor Low Battery Voltage	DTC Troubleshooting (see page 18-62)
38	Tire 4 Pressure Sensor Signal Failure	DTC Troubleshooting (see page 18-62)
41	Abnormal Signal Reception Error	DTC Troubleshooting (see page 18-63)
51	Tire 1 Pressure Sensor Registration Error	DTC Troubleshooting (see page 18-64)
53	Tire 2 Pressure Sensor Registration Error	DTC Troubleshooting (see page 18-64)
55	Tire 3 Pressure Sensor Registration Error	DTC Troubleshooting (see page 18-64)
57	Tire 4 Pressure Sensor Registration Error	DTC Troubleshooting (see page 18-64)
81	TPMS Control Unit Failure	DTC Troubleshooting (see page 18-65)
83	No VSP Signal	DTC Troubleshooting (see page 18-65)
85	F-CAN Communication Failure	DTC Troubleshooting (see page 18-66)
91	Tire 1 Pressure Sensor Internal Error	DTC Troubleshooting (see page 18-67)
93	Tire 2 Pressure Sensor Internal Error	DTC Troubleshooting (see page 18-67)
95	Tire 3 Pressure Sensor Internal Error	DTC Troubleshooting (see page 18-67)
97	Tire 4 Pressure Sensor Internal Error	DTC Troubleshooting (see page 18-67)



Symptom Troubleshooting Index

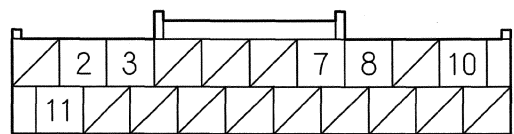
Symptom	Diagnostic procedure	Also check for
HDS does not communicate with the TPMS control unit or the vehicle	Troubleshooting the DLC circuit (see page 11-193)	
Low tire pressure indicator does not come on, and no DTCs are stored	Symptom Troubleshooting (see page 18-67)	
Low tire pressure indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 18-68)	
TPMS indicator does not come on, and no DTCs are stored	Symptom Troubleshooting (see page 18-69)	
TPMS indicator does not go off, and no DTCs are stored	Symptom Troubleshooting (see page 18-69)	



TPMS

System Description

TPMS Control Unit Inputs and Outputs at the 20P Connector



Wire side of female terminals

Terminal number	Wire color	Terminal sign (Terminal name)	Description	Signal
2	WHT	F-CAN H (F-CAN communication signal high)	F-CAN communication circuit	Ignition switch ON (II): pulses
3	BLK	GND (Ground)	Ground for the TPMS control unit	Less than 0.2 V at all times
7	BLU	K-LINE (Data link connector)	Communications with the HDS	—
8	LT BLU	IG1 (Ignition switch 1)	Power source for activating the system	Ignition switch ON (II): battery voltage Ignition switch in LOCK (0): less than 0.1 V
10	RED	+B (Battery positive)	Power source for the TPMS control unit	Battery voltage at all times
11	RED	F-CAN L (F-CAN communication signal low)	F-CAN communication circuit	Ignition switch ON (II): pulses



System Structure

Once the vehicle speed exceeds 28 mph (45 km/h), the TPMS control unit monitors all four tire pressure sensors and the system function. If it detects low pressure in a tire, it alerts the driver by turning on the low tire pressure indicator. If it detects a problem in the system, it turns on the TPMS indicator.

TPMS Control Unit

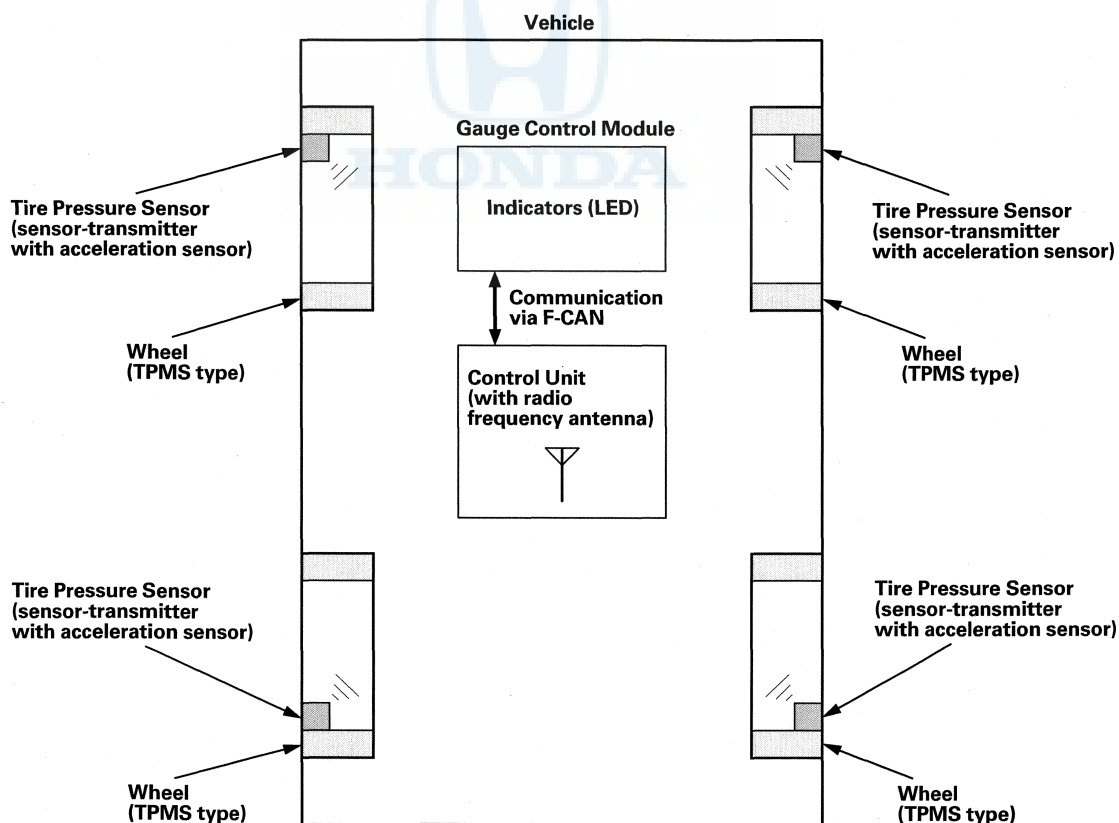
Mounted over the accelerator pedal module, the TPMS control unit receives wireless tire pressure sensor ID signals every time the vehicle speeds exceeds 28 mph (45 km/h). It also receives wireless signals from the transmitters for tire pressure and the sensor condition, and it continuously monitors and controls the system. The TPMS control unit cannot directly determine the position (location) of a tire pressure sensor(s) on the vehicle since it is a wireless system. The TPMS control unit assumes a sensor is in the same location on the vehicle as it was when it was last memorized. Tire pressure sensor locations will change during scheduled vehicle maintenance (tire rotation).

NOTE: To determine the actual location of each TPMS wheel sensor on the vehicle, do the tire pressure sensor location procedure (see page 18-51). Once the tire pressure sensor locations are identified, write the sensor ID on the sidewall of the tire with a tire crayon to eliminate confusion.

Indicators

Two indicators are in the gauge control module: The low tire pressure indicator comes on when any tire pressure is low, and the TPMS indicator that comes on only if there's a problem with the system.

The low tire pressure indicator alerts the driver that a tire(s) pressure is low, but does not specify the tire(s) location.



(cont'd)

TPMS

System Description (cont'd)

Tire pressure sensor

Each sensor is an integrated unit made up of the tire valve stem, a pressure sensor, and a transmitter. The unit is attached to the inside of the wheel, around the valve stem. The sensor transmits the internal tire information to the TPMS control unit once every 60 seconds when the vehicle speed exceeds 28 mph (45 km/h). When the TPMS control unit receives a tire pressure signal that is less than: With 15 inch wheels 175 kPa (1.8 kgf/cm², 25 psi) or With 16 inch wheels 183 kPa (1.9 kgf/cm², 27 psi), the TPMS control unit then turns on the low tire pressure indicator. When that tire's pressure is increased to more than: With 15 inch wheels 200 kPa (2.0 kgf/cm², 29 psi) or With 16 inch wheels 210 kPa (2.1 kgf/cm², 30 psi), and the vehicle is driven above 28 mph (45 km/h) the transmitter sends the tire pressure signal to the TPMS control unit, and then the TPMS control unit turns the indicator off.

NOTE: Do not mix the tire pressure sensors or TPMS wheels with other TPMS types. Be sure to use the correct sensors and wheels for this system.

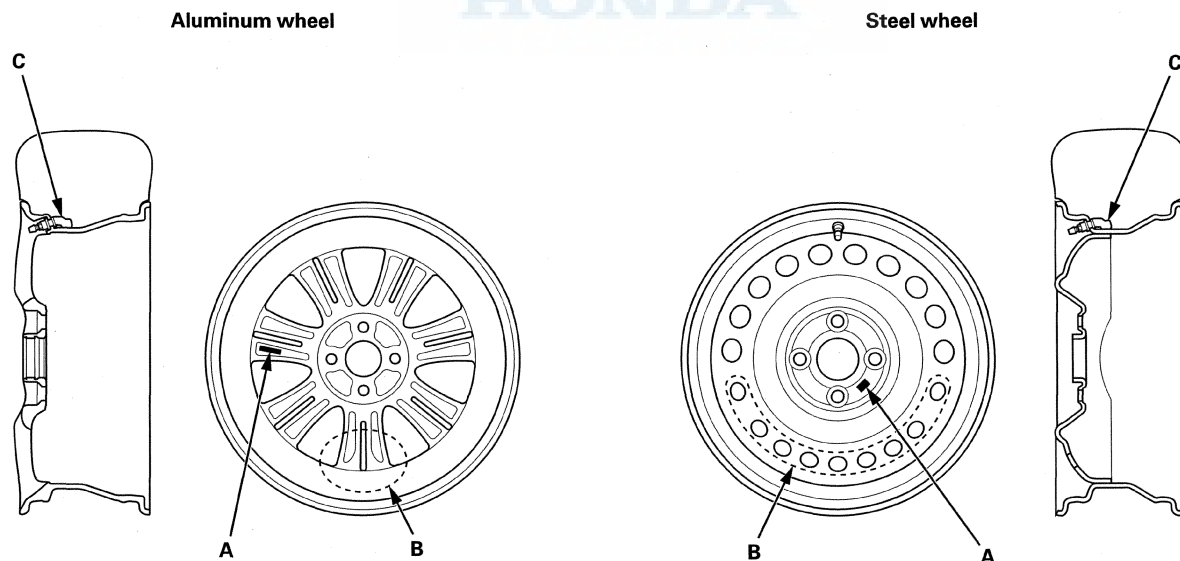
Sensors are active:

- When the wheel rotates over 28 mph (45 km/h) the sensor detects the momentum, and switches the sensor to the normal function mode.
- The LF (low frequency) signal of the TPMS initializer tool makes the sensor active even though the vehicle is stopped. The tire pressure sensor goes into sleep mode when the acceleration sensor detects the wheel is stationary for 5 minutes or more.

Wheels

The TPMS will not work unless TPMS type wheels are installed on the vehicle. There are two different type of wheels used.

- Aluminum wheel type: The original equipment wheels have a "TPMS" mark (A) on them. The wheels also have counterweights (B) incorporated on the opposite side of the tire pressure sensor (C), to counterbalance the weight of the sensor.
- Steel wheel type: The original equipment wheels have a "TPMS" mark (A) on them, and a counterweight (B) balances the weight of the tire pressure sensor (C) by a size difference in the wheel disc holes.

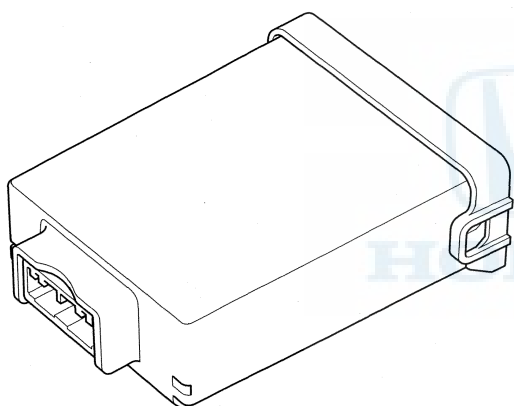


System Communication

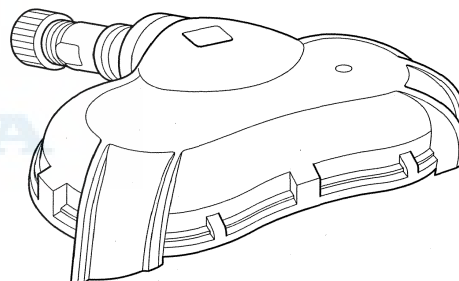
- When the vehicle is traveling more than 28 mph (45 km/h), an RF (radio frequency) band wave signal is transmitted from each tire pressure sensor to the TPMS control unit.
- When the wheels rotate, the tire pressure sensors momentum is detected, switching them from sleep mode to normal function (awake) mode. After the vehicle is stationary for 5 minutes, the sensors switch from normal function mode back to sleep mode to extend their battery life.
- Each tire pressure sensor has its own tire pressure sensor ID to prevent jamming by similar systems on other vehicles. After memorizing all the sensor IDs, the TPMS control unit recognizes only those specific signals.
- An tire pressure sensor ID cannot be memorized automatically. The TPMS control unit knows which sensor ID belongs to each tire pressure sensor. This recurring sensor ID confirmation prevents any confusion in the system as a result of normal tire rotation.

NOTE: Be careful not to bend the brackets on the TPMS control unit. Misalignment of the TPMS control unit could interfere with sending and receiving signals.

TPMS Control Unit
(with an internal radio frequency antenna)

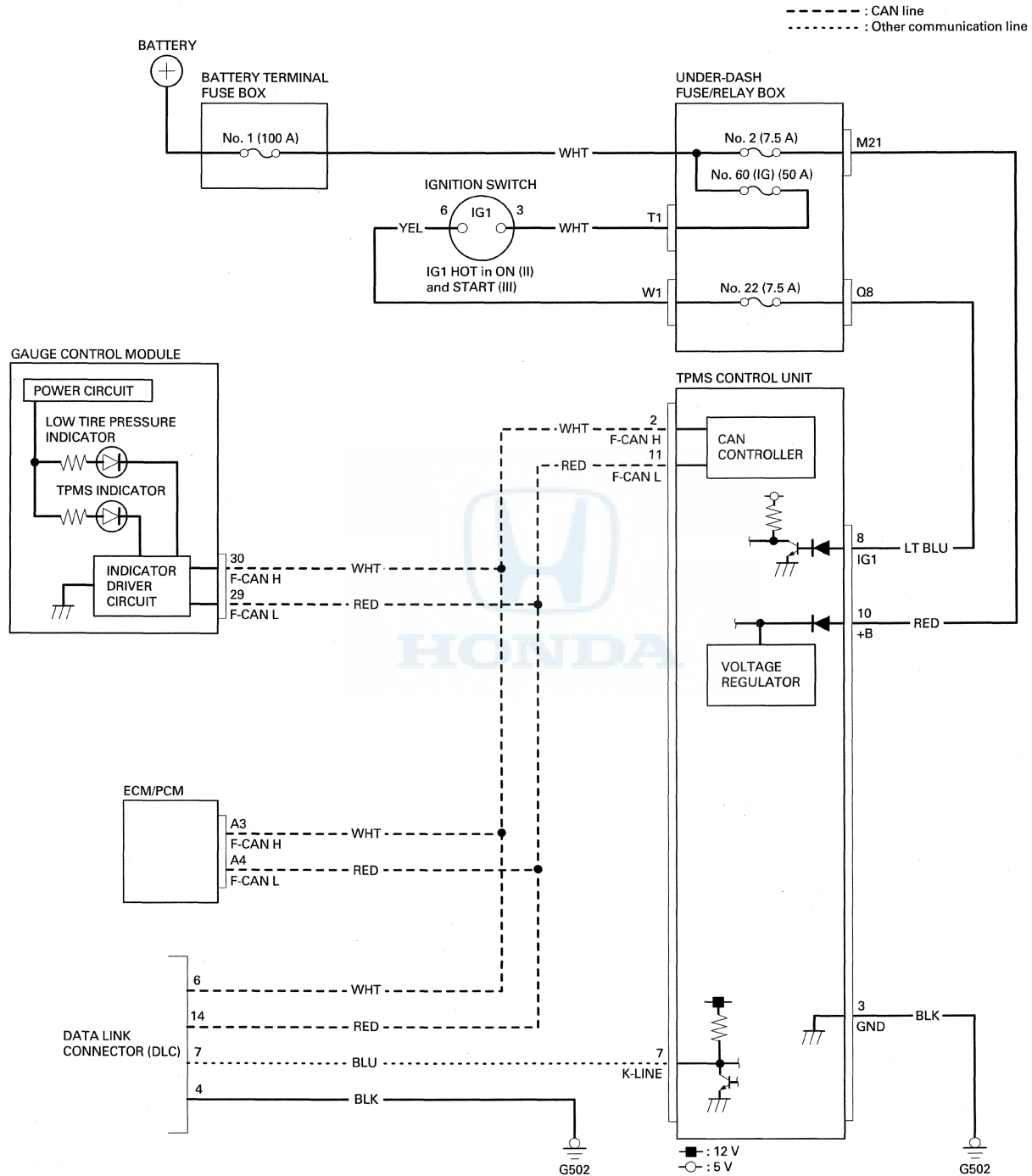


Tire Pressure Sensor
(Sensor-transmitter with acceleration sensor)



TPMS

Circuit Diagram



**UNDER-DASH FUSE/RELAY BOX
CONNECTOR M (34P)**

1	2	3	4	5	6	7	8	/	10	11	12	13	14	15	16	17
18	/	20	21	/	23	24	/	/	/	/	/	/	/	/	33	34

Wire side of female terminals

**UNDER-DASH FUSE/RELAY BOX
CONNECTOR Q (16P)**

1	2	3	4	5	6	/	8
9	10	11	/	13	14	/	16

Wire side of female terminals

GAUGE CONTROL MODULE 32P CONNECTOR

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Wire side of female terminals

TPMS CONTROL UNIT 20P CONNECTOR

/	2	3	/	/	/	7	8	/	10
11	/	/	/	/	/	/	/	/	/

Wire side of female terminals

ECM/PCM CONNECTOR A (49P)

1	3	4	6	7	9	10
11	15	16	18	19	20	21
22	24	25	26	27	28	
29	30	32	34	35	36	38
41	42	43	44	46	47	48

Terminal side of female terminals

DATA LINK CONNECTOR (DLC)

/	/	/	4	5	6	7	/
9	/	/	12	/	14	/	16

Terminal side of female terminals

TPMS

DTC Troubleshooting

DTC 11, 13, 15, 17: Tire Low Air Pressure

NOTE: If low tire pressure is detected, the TPMS control unit sets one or more of these DTCs, and turns on the low tire pressure indicator. If the low tire pressure indicator comes on because of a low tire pressure, and the customer corrects it before bringing the vehicle in, the DTCs will be stored, but the indicator turns off.

1. Turn the ignition switch to LOCK (0).
2. Make sure the tires are inflated to the specified tire pressure listed on the doorjamb label.
3. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.

Does the low tire pressure indicator go off?

YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 4.

4. Check for DTCs with the HDS.
5. Note the tire pressure sensor(s) number by the indicated DTC.

DTC	Tire Pressure Sensor Number
11	No. 1
13	No. 2
15	No. 3
17	No. 4

6. Do the tire pressure sensor location procedure to determine the affected tire location and relate it to the tire pressure sensor number (see page 18-51).
7. Check the TIRE 1, TIRE 2, TIRE 3, or TIRE 4 AIR PRESSURE in the TPMS DATA LIST with the HDS, and compare it with the actual measured tire pressure.

Is the indicated tire pressure on the HDS within 40 kPa (0.4 kgf/cm², 6 psi) of the actual tire pressure?

YES—Go to step 8.

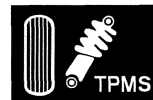
NO—Replace the appropriate tire pressure sensor (see page 18-72). ■

8. Clear the DTC with the HDS.
9. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.
10. Check for DTCs with the HDS.

Is DTC 11, 13, 15, or 17 indicated?

YES—Replace the TPMS control unit (see page 18-71). ■

NO—If any other DTCs are indicated, troubleshoot the appropriate DTC. If no DTCs are indicated, the system is OK at this time. ■



DTC 21, 22, 23, 24: Tire Pressure Sensor Abnormal High Temperature

1. Turn the ignition switch to LOCK (0).

2. Make sure the tires have cooled down.

NOTE: An abnormal rise in the internal temperature of the tires can be caused by:

- Excessive braking
- Failure to release the parking brake (rear tires only)
- Leaving the vehicle running while parked (front tires only)
- Improper assembly of a wheel and tire

3. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.

Does the TPMS indicator go off?

YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 4.

4. Check for DTCs with the HDS.

5. Note the tire pressure sensor(s) number by the indicated DTC.

DTC	Tire Pressure Sensor Number
21	No. 1
22	No. 2
23	No. 3
24	No. 4

6. Do the tire pressure sensor location procedure to determine the affected tire location and relate it to the tire pressure sensor number (see page 18-51).

7. Check the TIRE 1, TIRE 2, TIRE 3, or TIRE 4 AIR TEMPERATURE in the TPMS DATA LIST with the HDS.

Is 176 °F (80 °C) or more indicated?

YES—Replace the appropriate tire pressure sensor (see page 18-72). ■

NO—Go to step 8.

8. Clear the DTC with the HDS.

9. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.

10. Check for DTCs with the HDS.

Is DTC 21, 22, 23, or 24 indicated?

YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-71), and recheck. ■

NO—If any other DTCs are indicated, troubleshoot the appropriate DTC. If no DTCs are indicated, the system is OK at this time. ■

(cont'd)

TPMS

DTC Troubleshooting (cont'd)

DTC 31, 33, 35, 37: Tire Pressure Sensor Low Battery Voltage

NOTE: This problem occurs when the temperature around the sensor is -40°F (-40°C) or less. Note that the diagnosis must be made in a place where ambient temperature is -40°F (-40°C) or more.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.
4. Check for DTCs with the HDS.

Is DTC 31, 33, 35, or 37 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. ■

5. Note the tire pressure sensor(s) number by the indicated DTC.

DTC	Tire Pressure Sensor Number
31	No. 1
33	No. 2
35	No. 3
37	No. 4

6. Do the tire pressure sensor location procedure to determine the affected tire location and relate it to the tire pressure sensor number (see page 18-51).

Did each tire pressure sensor respond to the TPMS tool?

YES—Go to step 7.

NO—Check that the tire pressure sensor is properly mounted. If necessary, replace the appropriate tire pressure sensor (see page 18-72). ■

7. Check the TIRE 1, TIRE 2, TIRE 3, or TIRE 4 PRESSURE SENSOR BATTERY STATUS in the TPMS DATA LIST with the HDS.

Is LOW indicated?

YES—Replace the appropriate tire pressure sensor (see page 18-72). ■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-71), and recheck. ■

DTC 32, 34, 36, 38: Tire Pressure Sensor Signal Failure

NOTE:

- Inspect for an aftermarket electrical device(s) (such as an inverter, battery charger, CB radio, etc) interfering with the RF signal from the tire pressure sensors when driving the vehicle.
- If DTC 41 is also set, troubleshoot the DTC first (see page 18-63).

1. Turn the ignition switch to LOCK (0).
2. Make sure all four wheels are TPMS type wheels with mounted tire pressure sensors.

Are TPMS type wheels with a tire pressure sensor mounted on the vehicle?

YES—Go to step 3.

NO—Install the TPMS type wheel, and memorize the pressure sensor ID with the HDS (see page 18-50). ■

3. Turn the ignition switch to ON (II).
4. Check for DTCs with the HDS.
5. Note the tire pressure sensor(s) number by the indicated DTC.

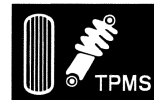
DTC	Tire Pressure Sensor Number
32	No. 1
34	No. 2
36	No. 3
38	No. 4

6. Do the tire pressure sensor location procedure to determine the affected tire location and relate it to the tire pressure sensor number (see page 18-51).

Did each tire pressure sensor respond to the TPMS tool?

YES—Go to step 7.

NO—Check for an aftermarket electrical device interfering with the RF signals from the sensors. If there are no electrical devices causing interference, replace the appropriate tire pressure sensor (see page 18-72). ■



7. Turn the ignition switch to LOCK (0), and wait 5 minutes or more.
8. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.
9. Check if the value of the AIR PRESSURE and AIR TEMPERATURE of the affected sensor changes from DEFAULT to the correct tire pressure on the TPMS DATA LIST with the HDS.

Does the value of the AIR PRESSURE and AIR TEMPERATURE change from DEFAULT to the correct tire pressure?

YES—Intermittent failure, the system is OK at this time. ■

NO—Replace the appropriate tire pressure sensor (see page 18-72). ■

DTC 41: Abnormal Signal Reception Error

NOTE: Inspect for an aftermarket electrical device(s) (such as an inverter, battery charger, CB radio, etc.) interfering with the RF signal from the tire pressure sensors when driving the vehicle.

1. Turn the ignition switch to LOCK (0).
2. Make sure all four wheels are TPMS type wheels with mounted tire pressure sensors.

Are TPMS type wheels with tire pressure sensors mounted on the vehicle?

YES—Go to step 3.

NO—Install the TPMS type wheel, and memorize the tire pressure sensor ID with the HDS (see page 18-50). ■

3. Memorize the tire pressure sensor IDs with the HDS (see page 18-50).

Did each tire pressure sensor respond to the TPMS tool?

YES—Intermittent failure, the system is OK at this time. ■

NO—Substitute a known-good TPMS control unit (see page 18-71), then go to step 4.

4. Memorize the tire pressure sensor IDs with the HDS (see page 18-50).

Did each tire pressure sensor respond to the TPMS tool?

YES—Replace the original TPMS control unit (see page 18-71). ■

NO—Do the troubleshooting for DTC 32, 34, 36, 38 (see page 18-62). ■

(cont'd)

DTC Troubleshooting (cont'd)

DTC 51, 53, 55, 57: Tire Pressure Sensor Registration Error

NOTE:

- The DTCs will only set during memorizing the tire pressure sensor ID.
- Inspect for an aftermarket electrical device(s) (such as an inverter, battery charger, CB radio, etc.) interfering with the RF signal from the tire pressure sensors when driving the vehicle.

1. Turn the ignition switch to LOCK (0).
2. Make sure all four wheels are TPMS type wheels with mounted tire pressure sensors.

Are TPMS type wheels with a tire pressure sensor mounted on the vehicle?

YES—Go to step 3.

NO—Install a TPMS type wheel, and memorize the tire pressure sensor ID with the HDS (see page 18-50).■

3. Turn the ignition switch to ON (II).
4. Check for DTCs with the HDS.
5. Note the tire pressure sensor(s) number by the indicated DTC.

DTC	Tire Pressure Sensor Number
51	No. 1
53	No. 2
55	No. 3
57	No. 4

6. Do the tire pressure sensor location procedure to determine the affected tire location and relate it to the tire pressure sensor number (see page 18-51).

Did each tire pressure sensor respond to the TPMS tool?

YES—Go to step 7.

NO—Check for an aftermarket electrical device interfering with the RF signals from the sensors. If there are no electrical devices causing interference, replace the appropriate tire pressure sensor (see page 18-72).■

7. Turn the ignition switch to LOCK (0), and wait 5 minutes or more.

8. Turn the ignition switch to ON (II).

9. Clear the DTC with the HDS.

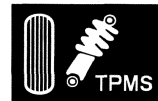
10. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.

11. Check for DTCs with the HDS.

Is DTC 51, 53, 55, or 57 indicated?

YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-71), and recheck.■

NO—Intermittent failure, the system is OK at this time.■



DTC 81: TPMS Control Unit Failure

NOTE: Low battery voltage can cause this DTC. Make sure the battery is fully charged and in good condition (see page 22-68).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 81 indicated?

YES—Replace the TPMS control unit (see page 18-71).■

NO—Intermittent failure, the system is OK at this time.■

DTC 83: No VSP Signal

NOTE: If DTC 85 stored at the same time as DTC 83, troubleshoot DTC 85 first, then recheck for DTC 83.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle at 7 mph (10 km/h) or more.
4. Check the speedometer.

Does the speedometer register speed?

YES—Go to step 5.

NO—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then go to step 1 and recheck. If the ECM/PCM was updated and DTCs are not indicated, troubleshooting is complete. If the ECM/PCM was substituted and DTCs are not indicated, replace the original ECM/PCM (see page 11-215).■

5. Check the VEHICLE SPEED in the TPMS DATA LIST with the HDS.

Is the vehicle speed indicated?

YES—Intermittent failure, the system is OK at this time.■

NO—Substitute a known-good TPMS control unit (see page 18-71), and recheck.■

(cont'd)

DTC Troubleshooting (cont'd)

DTC 85: F-CAN Communication Failure

NOTE: Check the fuel and emission systems DTCs with the HDS, and troubleshoot the ECM/PCM and F-CAN communication errors first (see page 11-3).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), and then back to ON (II).
4. Wait about 5 seconds.
5. Check for DTCs with the HDS.

Is DTC 85 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. ■

6. Test-drive the vehicle.

Does the speedometer work?

YES—Go to step 10.

NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).
8. Disconnect the TPMS control unit 20P connector (see page 18-71).
9. Test-drive the vehicle.

Does the speedometer work?

YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-71), and recheck. ■

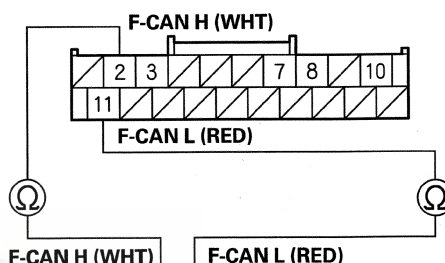
NO—Turn the ignition switch to LOCK (0), and reconnect all connectors, then check and troubleshoot the fuel and emissions systems (see page 11-3). ■
10. Turn the ignition switch to LOCK (0).
11. Short the SCS line with the HDS.
12. Disconnect ECM/PCM connector A (49P) (see page 11-215).
13. Disconnect the TPMS control unit 20P connector (see page 18-71).

14. Check for continuity between the TPMS control unit 20P connector terminals and the ECM/PCM connector A (49P) terminals individually (see table).

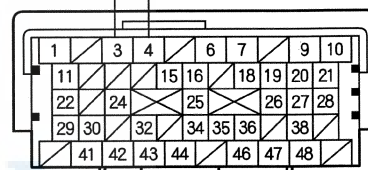
Terminal Name	TPMS Control Unit 20P Connector Terminal	ECM/PCM Connector A (49P) Terminal
F-CAN L	No. 11	No. 4
F-CAN H	No. 2	No. 3

TPMS CONTROL UNIT 20P CONNECTOR

Wire side of female terminals



F-CAN H (WHT) F-CAN L (RED)



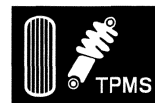
ECM/PCM CONNECTOR A (49P)

Terminal side of female terminals

Is there continuity?

YES—Check for loose terminals and poor connections at the TPMS control unit and G502. If necessary, substitute a known-good TPMS control unit (see page 18-71), and recheck. ■

NO—Repair an open in the wire between the TPMS control unit and the ECM/PCM. ■



Symptom Troubleshooting

DTC 91, 93, 95, 97: Tire Pressure Sensor Internal Error

1. Turn the ignition switch to ON (II).
2. Check for DTCs with the HDS.
3. Note the tire pressure sensor(s) number by the indicated DTC.

DTC	Tire Pressure Sensor Number
91	No. 1
93	No. 2
95	No. 3
97	No. 4

4. Do the tire pressure sensor location procedure to determine the affected tire location and relate it to the tire pressure sensor number (see page 18-51).

Did each tire pressure sensor respond to the TPMS tool?

YES—Go to step 5.

NO—Check that the tire pressure sensor is properly mounted. If necessary, replace the appropriate tire pressure sensor (see page 18-72). ■

5. Clear the DTC with the HDS.
6. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.
7. Check for DTCs with the HDS.

Is DTC 91, 93, 95, or 97 indicated?

YES—Replace the appropriate tire pressure sensor (see page 18-72), and recheck. If DTCs are still present, substitute a known-good TPMS control unit (see page 18-71), and recheck. ■

NO—If any other DTCs are indicated, troubleshoot the appropriate DTC. If no DTCs are indicated, the system is OK at this time. ■

Low tire pressure indicator does not come on, and no DTCs are stored

1. Turn the ignition switch to ON (II).
2. Check the low tire pressure indicator for several seconds when the ignition switch is turned ON (II).

Did the indicator come on and then go off?

YES—Go to step 3.

NO—Go to step 7.

3. Test-drive the vehicle at 28 mph (45 km/h) or more for at least 1 minute.
4. Stop the vehicle, and lower the pressure in each tire until the low tire pressure indicator comes on (see table).

NOTE:

- Reinflate the tire before continuing to the next tire.
- After noting whether the low tire pressure indicator came on, make sure it goes off when you reinflate the tire before proceeding to the next tire.
- If 5 minutes has passed since finishing the last test-drive, reactivate the appropriate tire pressure sensor using the TPMS tool (see page 18-51).

Model	Specified Tire Pressure Lower Limit
15 inch wheels	175 kPa (1.8 kgf/cm ² , 25 psi)
16 inch or larger wheels	183 kPa (1.9 kgf/cm ² , 27 psi)

Does the indicator come on when the pressure drops below the specified tire pressure lower limit?

YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 5.

5. Do the tire pressure sensor location procedure to determine the affected tire location and relate it to the tire pressure sensor number (see page 18-51).

Did each tire pressure sensor respond to the TPMS tool?

YES—Go to step 6.

NO—Check that the tire pressure sensor is properly mounted. If necessary, replace the appropriate tire pressure sensor (see page 18-72). ■

(cont'd)

TPMS

Symptom Troubleshooting (cont'd)

6. Check the TIRE 1, TIRE 2, TIRE 3, or TIRE 4 AIR PRESSURE in the TPMS DATA LIST with the HDS, and compare with the actual measured tire pressure.

Is the indicated tire pressure on the HDS within 40 kPa (0.4 kgf/cm², 6 psi) of the actual tire pressure?

YES—Substitute a known-good TPMS control unit (see page 18-71), and recheck. ■

NO—Replace the appropriate tire pressure sensor (see page 18-72). ■

7. Do the gauge self-diagnostic function (see page 22-274).

Is the gauge control module OK?

YES—Go to step 8.

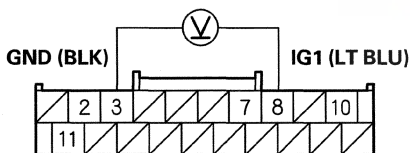
NO—Replace the gauge control module (see page 22-294). ■

8. Turn the ignition switch to LOCK (0).

9. Disconnect the TPMS control unit 20P connector (see step 3 on page 18-71).

10. Measure the voltage between TPMS control unit 20P connector terminals No. 3 and No. 8.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Repair a short to power in the wire between the TPMS control unit and the No. 22 (7.5 A) fuse in the under-dash fuse/relay box. ■

NO—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-71), and recheck. ■

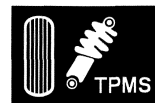
Low tire pressure indicator does not go off, and no DTCs are stored

1. Turn the ignition switch to LOCK (0).
2. Disconnect the TPMS control unit 20P connector (see page 18-71).
3. Turn the ignition switch to ON (II).
4. Check the low tire pressure indicator for several seconds when the ignition switch is turned ON (II).

Did the indicator come on and then go off?

YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-71), and recheck. ■

NO—Do the troubleshooting for the gauge control module (see page 22-274). If necessary, substitute a known-good gauge control module (see page 22-294), and recheck. ■



TPMS indicator does not come on, and no DTCs are stored

1. Turn the ignition switch to LOCK (0).
2. Disconnect the TPMS control unit 20P connector (see page 18-71).
3. Turn the ignition switch to ON (II).
4. Check the TPMS indicator for several seconds when the ignition switch is turned ON (II).

Did the indicator come on?

YES—Check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-71), and recheck.■

NO—Do the troubleshooting for the gauge control module (see page 22-274). If necessary, substitute a known-good gauge control module (see page 22-294), and recheck.■

TPMS indicator does not go off, and no DTCs are stored

NOTE: If the TPMS control unit was replaced, the TPMS indicator will be on until all four tire pressure sensor ID codes are learned.

1. Turn the ignition switch to ON (II).
2. Check the TPMS indicator for several seconds when the ignition switch is turned ON (II).

Did the indicator come on, and then go off?

YES—Intermittent failure, the system is OK at this time.■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Check the No. 2 (7.5 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Replace the fuse. Turn the ignition switch to ON (II), then turn it to LOCK (0) again. If the fuse blows again, repair the short to ground on the No. 2 (7.5 A) fuse circuit.■

NO—Reinstall the checked fuse, then go to step 5.

5. Check the No. 22 (7.5 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Replace the fuse. Turn the ignition switch to ON (II), then turn it to LOCK (0) again. If the fuse blows again, repair the short to ground on the No. 22 (7.5 A) fuse circuit.■

NO—Reinstall the checked fuse, then go to step 6.

6. Do the gauge control module self-diagnostic function (see page 22-274).

Is the gauge control module OK?

YES—Go to step 7.

NO—Replace the gauge control module (see page 22-294).■

7. Disconnect TPMS control unit 20P connector (see page 18-71).

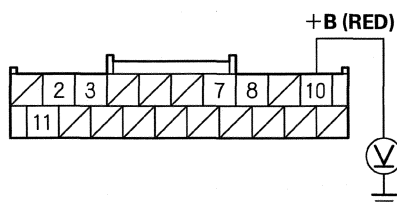
(cont'd)

TPMS

Symptom Troubleshooting (cont'd)

8. Measure the voltage between body ground and TPMS control unit 20P connector terminal No. 10.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

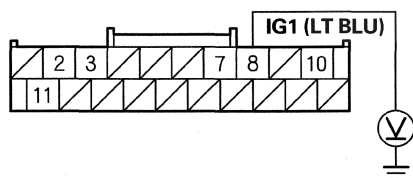
YES—Go to step 9.

NO—Repair an open in the wire between the TPMS control unit and the No. 2 (7.5 A) fuse in the under-dash fuse/relay box. ■

9. Turn the ignition switch to ON (II).

10. Measure the voltage between body ground and TPMS control unit 20P connector terminal No. 8.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 11.

NO—Repair an open in the wire between the TPMS control unit and the No. 22 (7.5 A) fuse in the under-dash fuse/relay box. ■

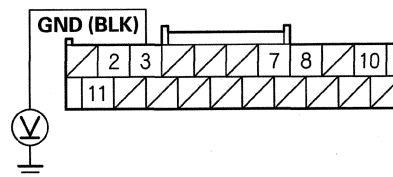
11. Turn the ignition switch to LOCK (0).

12. Reconnect TPMS control unit 20P connector.

13. Turn the ignition switch to ON (II).

14. Measure the voltage between body ground and TPMS control unit 20P connector terminal No. 3.

TPMS CONTROL UNIT 20P CONNECTOR



Wire side of female terminals

Is there 0.2 V or more?

YES—Repair an open or high resistance in the wire between the TPMS control unit and body ground (G502). ■

NO—Go to step 15.

15. Turn the ignition switch to LOCK (0).

16. Disconnect gauge control module 32P connector (see page 22-294).

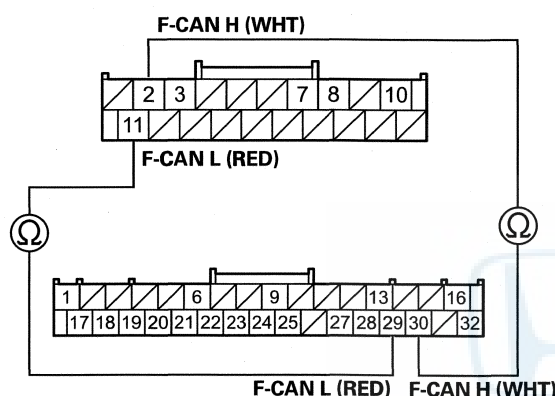
17. Disconnect the TPMS control unit 20P connector (see page 18-71).

TPMS Control Unit Replacement

18. Check for continuity between TPMS control unit 20P connector terminals and gauge control module 32P connector terminals (see table).

Terminal Name	TPMS Control Unit 20P Connector Terminal	Gauge Control Module 32P Connector Terminal
F-CAN L	No. 11	No. 29
F-CAN H	No. 2	No. 30

TPMS CONTROL UNIT 20P CONNECTOR
Wire side of female terminals



GAUGE CONTROL MODULE 32P CONNECTOR
Wire side of female terminals

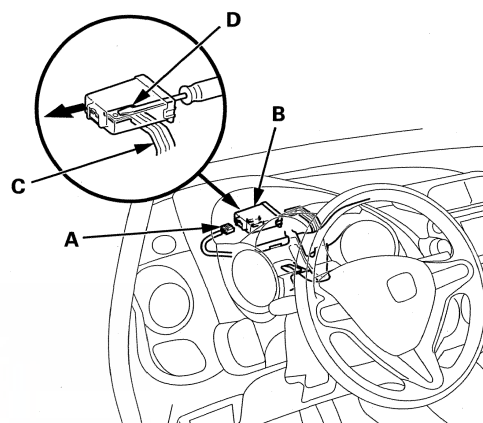
Is there continuity?

YES—Do the troubleshooting for the gauge control module (see page 22-274). If the gauge control module is OK, check for loose terminals and poor connections at the TPMS control unit. If necessary, substitute a known-good TPMS control unit (see page 18-71), and recheck. ■

NO—Repair an open in the wire between the TPMS control unit and the gauge control module. ■

NOTE: Make sure the TPMS control unit mounting bracket is not bent or twisted as this may affect its communication with the tire pressure sensors.

1. Turn the ignition switch to LOCK (0).
2. Remove the driver's dashboard undercover (see page 20-98).
3. Disconnect the TPMS control unit 20P connector (A).



4. Remove the TPMS control unit (B) from the bracket (C).

NOTE: While separating the TPMS control unit from the bracket, use a flat-tipped screwdriver (D) to push and release it from the bracket.

5. Install the TPMS control unit in the reverse order of removal.

NOTE: Make sure the TPMS control unit is properly installed. You will hear a click when the TPMS control unit is securely mounted on the bracket.

6. Connect the HDS, and memorize the tire pressure sensor IDs using the TPMS initializer tool (see page 18-50).

Tire Pressure Sensor Replacement

Removal

NOTICE

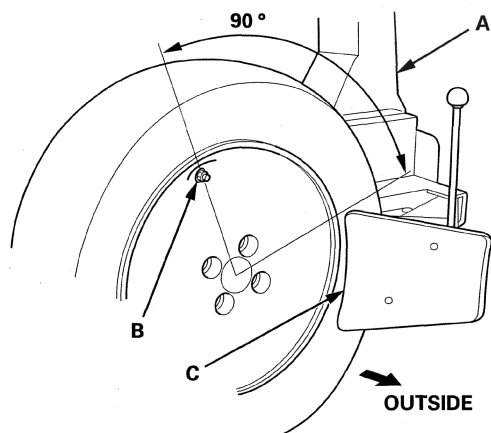
Each tire pressure sensor contains a lithium anode battery that is not removable. The complete tire pressure sensor should be disposed of according to local battery disposal guidelines or requirements. An improperly disposed battery can be harmful to the environment.

1. Raise and support the vehicle (see page 1-14).
2. Remove the wheel with the faulty tire pressure sensor.
3. Remove the tire valve stem cap and the valve stem core, and let the tire deflate.
4. Remove any balance weights, and then break the bead loose from the wheel with a commercially available tire changer (A).

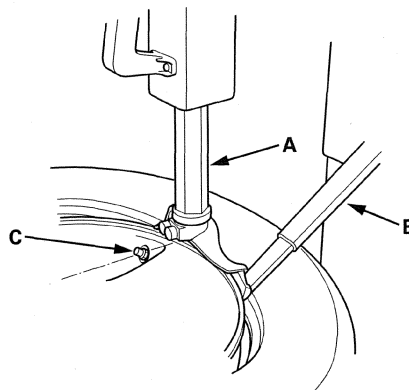
NOTICE

Note these items to avoid damaging the tire pressure sensor:

- Do the outside of the wheel first.
- Position the wheel as shown so the valve stem (B) is 90 degrees from the bead breaker (C) as shown.
- Do not position the bead breaker of the tire changer too close to the rim.

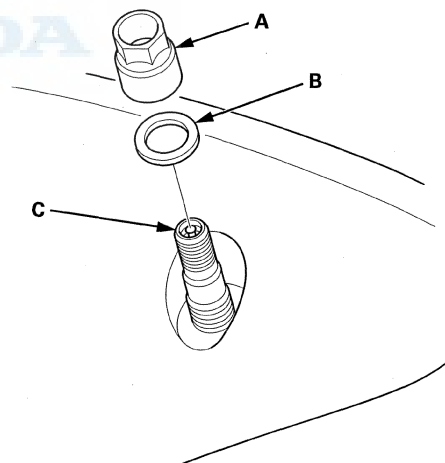


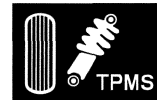
5. Position the wheel so the tire machine (A) and tire iron (B) are next to the valve stem (C) and will move away from it when the machine starts. Then remove the tire from the wheel.



6. Remove the valve stem nut (A) and the washer (B), then remove the tire pressure sensor with the valve stem (C) from the wheel.

NOTE: Check the nut and the washer; if they are deteriorated or damaged, replace them with new ones during reassembly.

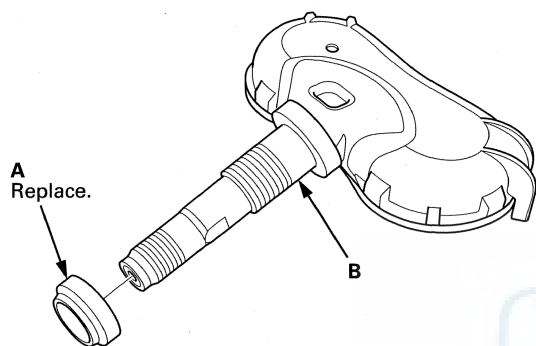




7. Remove and discard the valve stem grommet (A) from the tire pressure sensor (B).

NOTE:

- The valve stem grommet might stay in the wheel; make sure you remove it.
- Always use a new valve stem grommet whenever the tire pressure sensor has been removed from the wheel. When only removing a tire from the wheel, replace the valve stem grommet if it is possible.

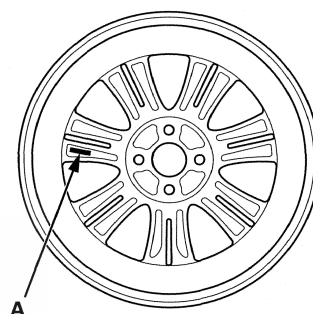


Installation

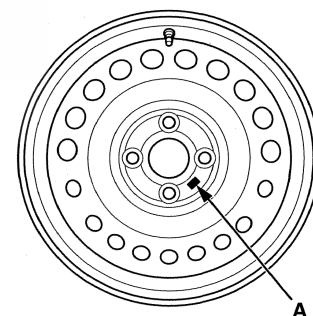
NOTE:

- Use only wheels that have a "TPMS" stamp (A) on the inside of the aluminum wheels, and the outside of the steel wheels.
- The vehicle may be equipped with either aluminum wheels, or steel wheels.

Aluminum wheel



Steel wheel



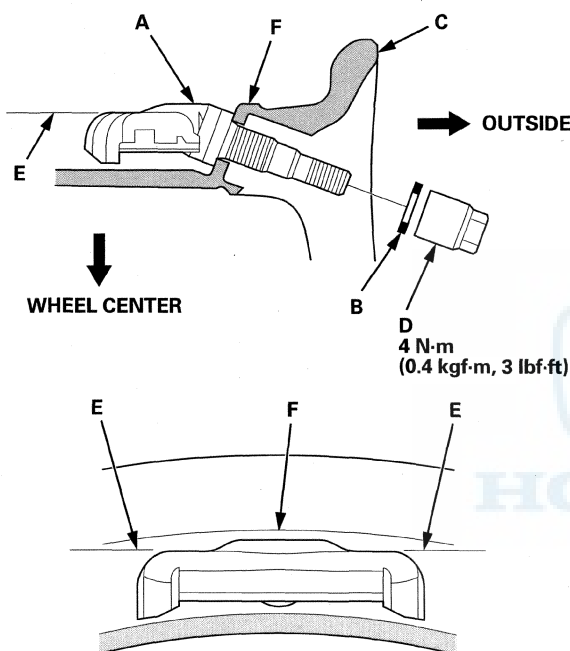
1. Before installing the tire pressure sensor, clean the mating surfaces on the sensor and the wheel.

(cont'd)

Tire Pressure Sensor Replacement (cont'd)

2. Install the tire pressure sensor (A) and the washer (B) to the wheel (C), and tighten the valve stem nut (D) finger tight. Make sure the pressure sensor is resting on the wheel.

NOTE: Install the tire pressure sensor so that the sensor housing surface (E) does not extend beyond the protrusion (F) on the wheel to prevent the sensor housing from being caught on the bead of the tire when assembling the tire.

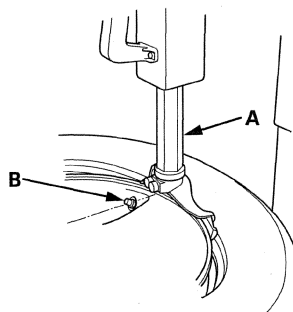


3. Tighten the valve stem nut to the specified torque while holding the tire pressure sensor.

NOTE:

- Do not use air or electric impact tools to tighten a valve stem nut.
- Do not twist the tire pressure sensor to adjust its position with the wheel, as this will damage or deform the valve stem grommet.

4. Lube the tire bead sparingly with a paste-type tire mounting lubricant, and position the wheel so the tire machine (A) are next to the valve stem (B) and will move away from it when the machine starts. Then install the tire onto the wheel.



5. With a dry air source, inflate the tire to 300 kPa (3.1 kgf/cm², 44 psi) to seat the tire bead to the rim, then adjust the tire pressure (see page 18-6), and install the valve stem cap.

NOTE: Make sure the tire bead is seated on both sides of the rim evenly.

6. Check and adjust the wheel balance, then install the wheels on the vehicle.
7. Lower the vehicle. Torque the wheel nuts to specifications (see page 18-16).
8. Connect the HDS, and memorize the pressure sensor IDs using the TPMS tool (see page 18-50).

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If brakes maintenance is required)

The Fit SRS includes a driver's airbag in the steering wheel hub, a front passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags, side airbags, and/or side curtain airbags.
- Do not bump or impact the SRS unit, front impact sensors, or side impact sensors, especially when the ignition switch is in ON (II), or for at least 3 minutes after the ignition switch is turned to LOCK (0); otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.



Brakes

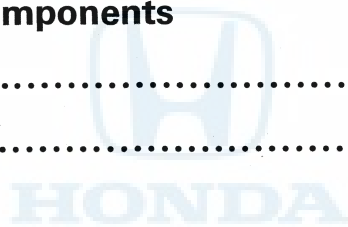
Conventional Brake Components19-1

ABS Components - 09-11 Models 19-39

VSA System Components

09-11 Models19-85

12 Model 19-175



Brakes

Conventional Brake Components

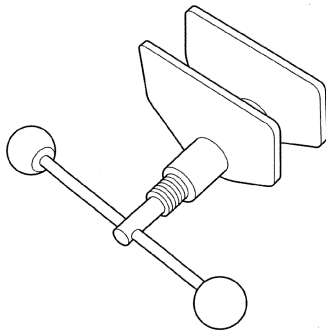
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Conventional Brake Components

Special Tools

Ref.No.	Tool Number	Description	Qty
①	07AAE-SEPA101	Brake Caliper Piston Compressor	1

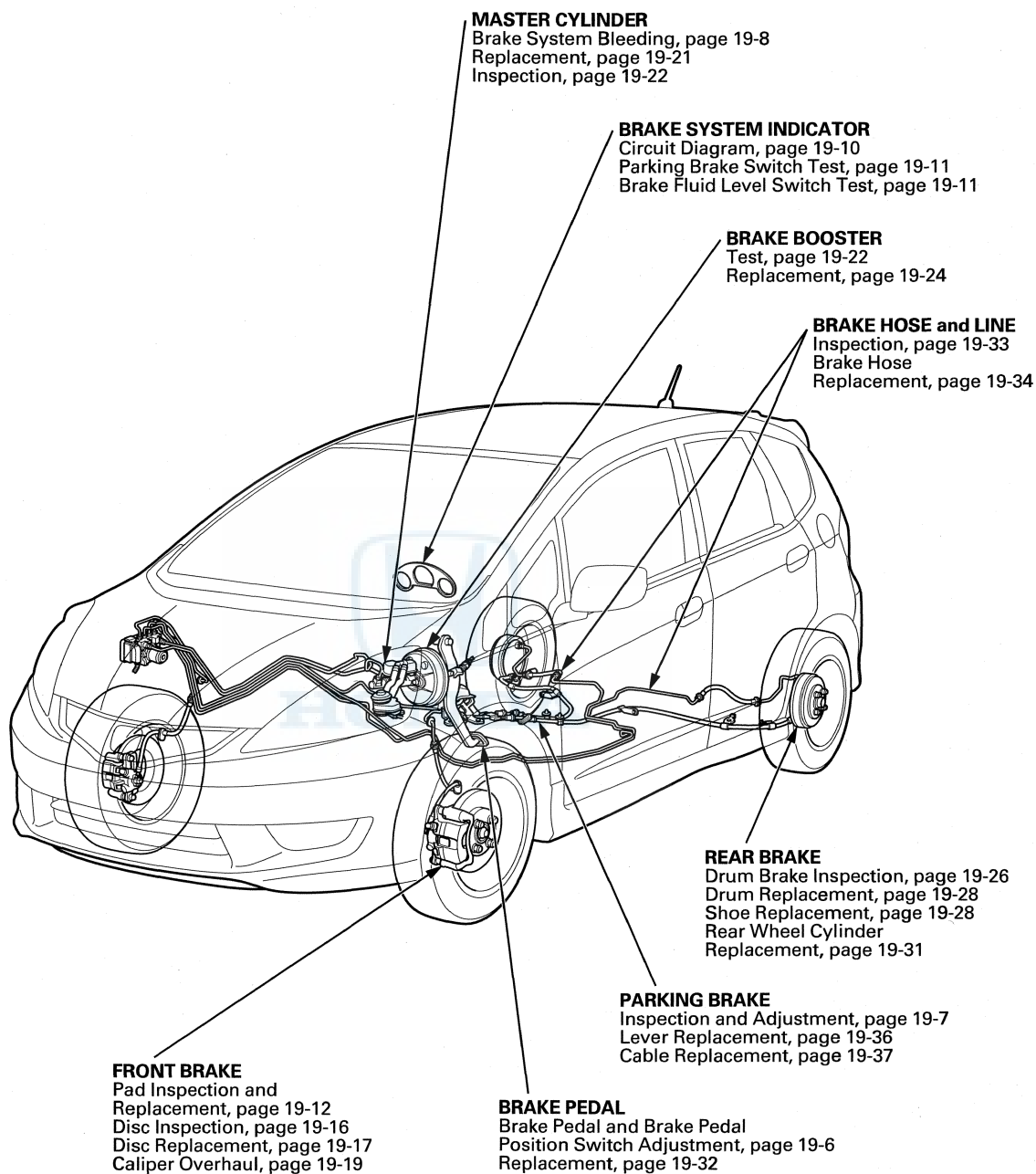


①





Component Location Index



Conventional Brake Components

Brake System Inspection and Test

Inspect the brake system components listed. Repair or replace any parts that are leaking or damaged.

Component Inspections:

Component	Procedure	Also check for
Master Cylinder	Look for damage or signs of fluid leakage at: <ul style="list-style-type: none">• Reservoir, reservoir union or master cylinder body.• Lines, reservoir hose and grommets, and their joints.• Between master cylinder and booster.	Bulging seal at reservoir cap. This is a sign of fluid contamination.
Brake Hoses	Look for damage or signs of fluid leakage at: <ul style="list-style-type: none">• Line joints and banjo bolt connections.• Hoses and lines, also inspect for twisting or damage.	Bulging, twisted, or bent lines.
Caliper	Look for damage or signs of fluid leakage at: <ul style="list-style-type: none">• Piston seal.• Banjo bolt connections.• Bleed screw.	Seized or sticking caliper pins.
Wheel Cylinder	Look for damage or signs of fluid leakage at: <ul style="list-style-type: none">• Wheel cylinder.• Line joints.• Bleed screw.	
ABS or VSA Modulator-control Unit	Look for damage or signs of fluid leakage at: <ul style="list-style-type: none">• Line joints.• Modulator-control unit.	

Brake System Test

Brake pedal sinks/fades when braking

1. Set the parking brake, and start the engine, then turn off the A/C. Allow the engine to warm up to normal operating temperature (radiator fan comes on twice).
2. Make sure the steering column lock lever is in the locked position. Attach a 50 mm (1.97 in) piece of masking tape along the bottom of the steering wheel, and draw a horizontal reference mark across it.
3. With the transmission in neutral (M/T) or P or N (A/T), press and hold the brake pedal lightly (about the same pressure needed to keep an A/T-equipped vehicle from creeping), then release the parking brake.
4. While still holding the brake pedal, hook the end of the tape measure behind the brake pedal, then pull the tape up to the steering wheel. Note the measurement between the brake pedal and the reference mark on the steering wheel.
5. Apply steady pressure to the brake pedal for 3 minutes.
6. Watch the tape measure.
 - If the measurement increases 10 mm (0.39 in) or less, the master cylinder is OK.
 - If the measurement increases more than 10 mm (0.39 in), replace the master cylinder.



Symptom Troubleshooting

Rapid brake pad wear, vehicle vibration (after a long drive), or high, hard brake pedal

NOTE: Make sure that the caliper pins are installed correctly. Upper caliper pin B and lower caliper pin A are different. If the pins are installed in the wrong location, it will cause vibration, uneven or rapid brake pad wear, and possibly uneven tire wear. For proper caliper pin location (see page 19-19).

1. Drive the vehicle until the brakes drag or until the pedal is high and hard. This can take 20 or more brake pedal applications during an extended test-drive.
2. With the engine running, raise and support the vehicle (see page 1-14), and spin all four wheels by hand.

Is there brake drag at any of the wheels?

YES—Go to step 3.

NO—Look for other causes of pad wear, high pedal, or vehicle vibration. ■

3. Turn the ignition switch to LOCK (0), press the brake pedal several times to deplete the vacuum in the brake booster, and then spin the wheels again to check for brake drag.

Is there brake drag at any of the wheels?

YES—Go to step 4.

NO—Replace the brake booster (see page 19-24). ■

4. Without removing the brake lines, unbolt and separate the master cylinder from the brake booster, then spin the wheels to check for brake drag.

Is there brake drag at any of the wheels?

YES—Go to step 5.

NO—Check the brake pedal position switch adjustment and pedal free play (see page 19-6). ■

5. Loosen the hydraulic lines at the master cylinder, then spin the wheels to check for brake drag.

Is there brake drag at any of the wheels?

YES—Go to step 6.

NO—Check the master cylinder reservoir for contamination in the brake fluid. If you find contamination, flush the entire brake system of all contaminated fluid, then replace all rubber parts in the brake system that were exposed to contaminated fluid. If the brake fluid is OK, replace the master cylinder (see page 19-21). ■

6. Loosen the bleed screws at each caliper, then spin the wheels to check for brake drag.

Is there brake drag at any of the wheels?

YES—Check the master cylinder reservoir for contamination in the brake fluid. If you find contamination, flush the entire brake system of all contaminated fluid, then replace all rubber parts in the brake system that were exposed to contaminated fluid. If the brake fluid is OK, disassemble and repair the caliper on the wheel(s) with brake drag. ■

NO—Look for and replace any damaged brake lines. If all brake lines are OK, replace the ABS or VSA modulator-control unit: ABS (see page 19-81), VSA (see page 19-171). ■

Conventional Brake Components

Brake Pedal and Brake Pedal Position Switch Adjustment

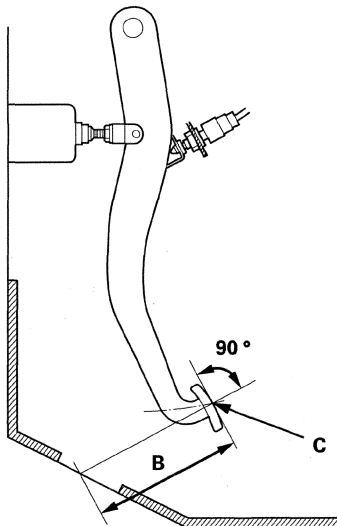
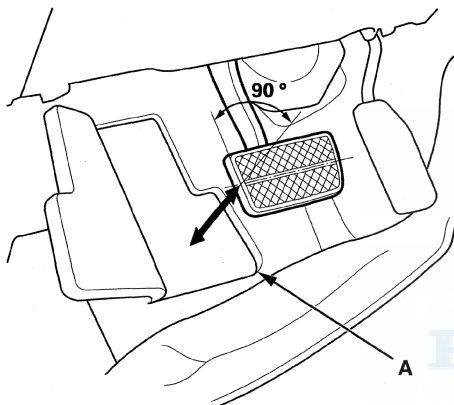
Pedal Height

1. Remove the driver's dashboard undercover (see page 20-98).
2. Turn the brake pedal position switch 45 ° counterclockwise, and pull it back until it is no longer touching the brake pedal.
3. Pull back the carpet and find the cutout (A) in the insulation. Measure the pedal height (B) at the center of the pedal pad (C) to the floor without the insulation.

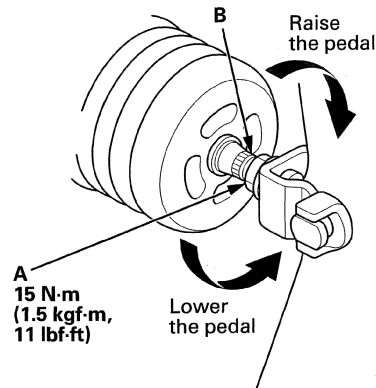
Standard pedal height (with carpet moved):

M/T: 132 mm (5.20 in)

A/T: 147 mm (5.79 in)

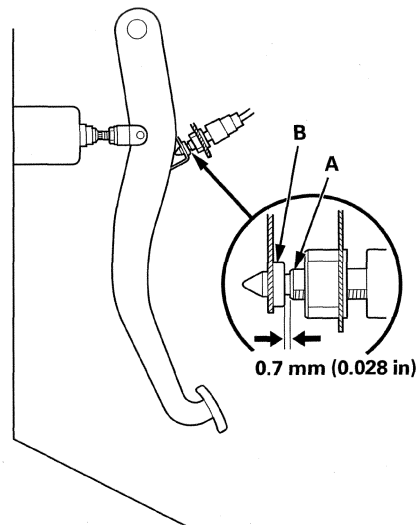


4. Loosen the pushrod locknut (A), and screw the pushrod (B) in or out with pliers until the standard pedal height from the floor is reached. After adjustment, tighten the locknut firmly. Do not adjust the pedal height with the pushrod pressed.



Brake Pedal Position Switch Adjustment

5. Lift up on the brake pedal by hand. Push in the brake pedal position switch until its plunger is fully pressed (threaded end (A) touching the pad (B) on the pedal arm). Turn the switch 45 ° clockwise to lock it. The gap between the brake pedal position switch and the pad is automatically adjusted to 0.7 mm (0.028 in) by locking the switch. Make sure the brake lights go off when the pedal is released.



6. Install all the removed parts in the reverse order of removal.
7. Check the brake pedal free play.

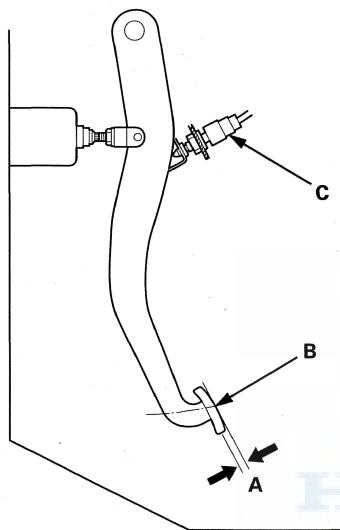


Parking Brake Inspection and Adjustment

Pedal Free Play

1. With the ignition switch in LOCK (0), inspect the free play (A) at the brake pedal pad (B) by pushing the brake pedal by hand. If the brake pedal free play is out of specification, adjust the brake pedal position switch (C). If the brake pedal free play is insufficient, it may result in brake drag.

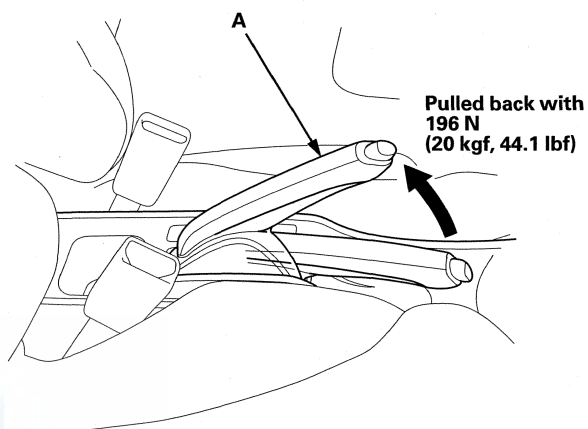
Free play: 1–5 mm (0.04–0.20 in)



Inspection

1. Pull the parking brake lever (A) with 196 N (20 kgf, 44.1 lbf) of force to fully apply the parking brake. The parking brake lever should be locked within the specified number of clicks.

Lever locked clicks: 5 to 7 clicks



2. If the number of lever clicks is not as specified, adjust the parking brake.

(cont'd)

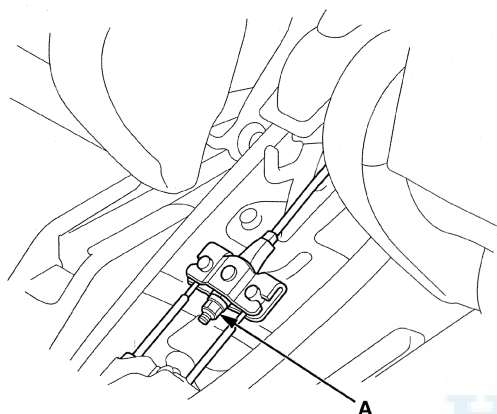
Conventional Brake Components

Parking Brake Inspection and Adjustment (cont'd)

Adjustment

NOTE: After servicing the rear brake shoes, loosen the parking brake adjusting nut, start the engine, and press the brake pedal several times to set the self-adjusting brake before adjusting the parking brake.

1. Raise and support the vehicle (see page 1-14).
2. Remove the center console (see page 20-93).
3. Release the parking brake lever fully.
4. Loosen the parking brake adjusting nut (A).



5. Press the brake pedal several times to set the self-adjusting brake before adjusting the parking brake.
6. Pull the parking brake lever 1 click.
7. Tighten the parking brake adjusting nut until the parking brakes drag slightly when the rear wheels are turned.
8. Release the parking brake lever fully, and check that the parking brakes do not drag when the rear wheels are turned. Readjust if necessary.
9. Make sure the parking brake lever locks within the specified number of clicks (5 to 7 clicks).
10. Install the center console (see page 20-93).

Brake System Bleeding

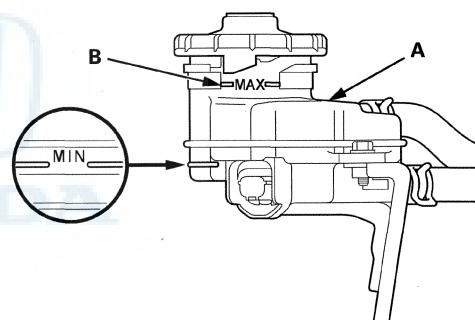
NOTICE

Do not spill brake fluid on the vehicle; it may damage the paint. If brake fluid gets on the paint, wash it off immediately with water.

NOTE:

- Do not reuse the drained fluid. Use only new Honda DOT 3 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Make sure no dirt or other foreign matter is allowed to contaminate the brake fluid.
- The reservoir connected to the master cylinder must be at the MAX (upper) level mark at the start of the bleeding procedure and checked after bleeding each wheel location. Add fluid as required.

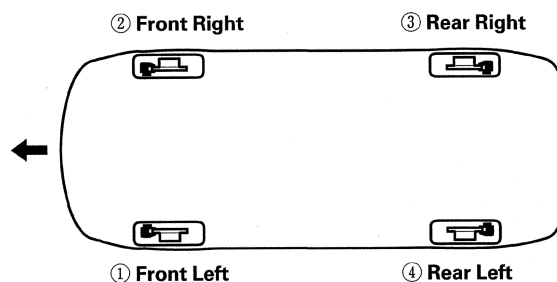
1. Make sure the brake fluid level in the reservoir (A) is at the MAX (upper) level line (B).



2. Have someone slowly pump the brake pedal several times, then apply steady pressure.
3. Start the bleeding at the driver's side of the front brake system.

NOTE: Bleed the calipers or the wheel cylinders in the sequence shown.

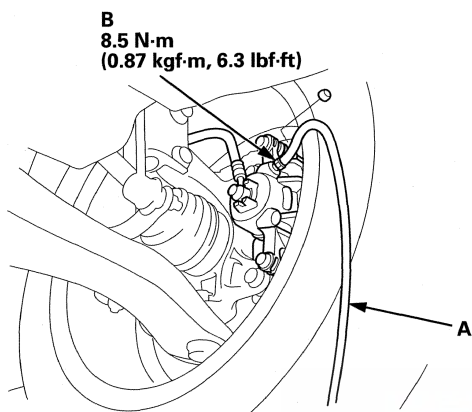
BLEEDING SEQUENCE:



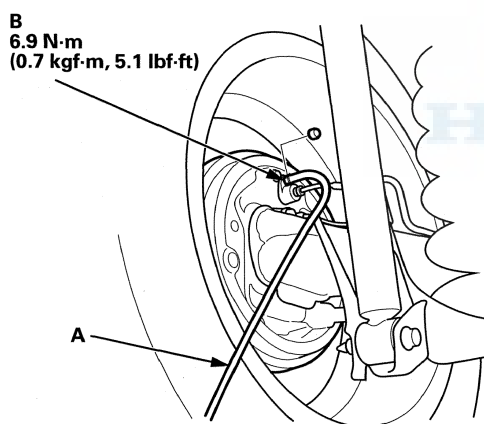


4. Attach a length of clear drain tube (A) to the bleed screw (B), then loosen the bleed screw to allow air to escape from the system. Then tighten the bleed screw securely.

Front



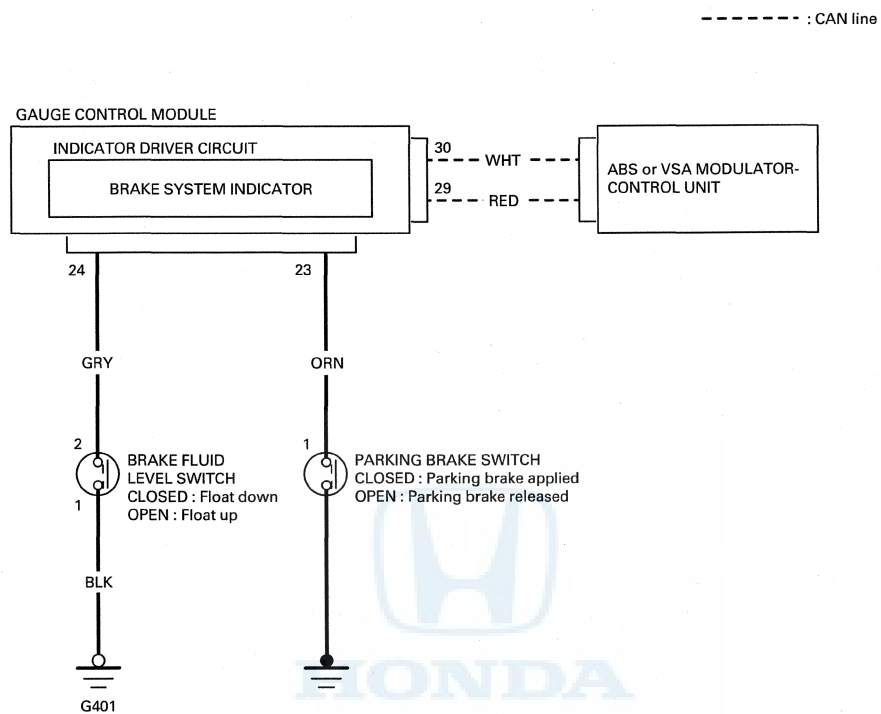
Rear



5. Refill the master cylinder reservoir to the MAX (upper) level line.
6. Repeat the procedure for each brake circuit until there are no air bubbles in the fluid.

Conventional Brake Components

Brake System Indicator Circuit Diagram

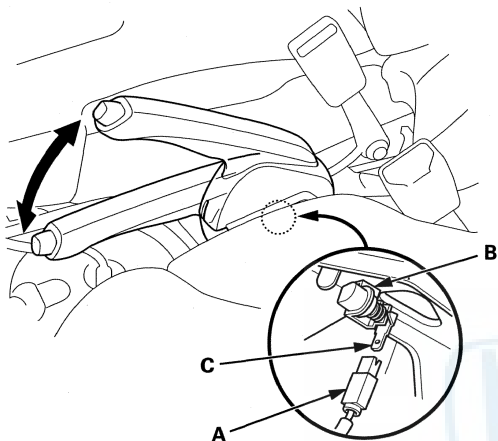




Parking Brake Switch Test

NOTE: If both the ABS indicator and the brake system indicator come on at the same time, check the ABS or VSA system first: ABS (see page 19-41), VSA (see page 19-88).

1. Remove the center console (see page 20-93).
2. Disconnect the parking brake switch connector (A) from the parking brake switch (B).



3. Check for continuity between the switch terminal (C) and body ground.
 - With the parking brake lever pulled, there should be continuity.
 - With the parking brake lever released, there should be no continuity.

NOTE: If the parking brake switch and the brake fluid level switch are OK, but the brake system indicator does not function, do the gauge control module self-diagnostic function (see page 22-274).

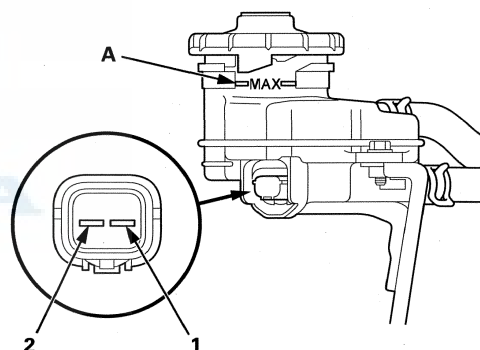
4. Reconnect the parking brake switch connector.
5. Install the center console (see page 20-93).

Brake Fluid Level Switch Test

NOTE: If both the ABS indicator and the brake system indicator come on at the same time, check the ABS or VSA system first: ABS (see page 19-41), VSA (see page 19-88).

1. Disconnect the brake fluid level switch connector.
2. Check for continuity between the terminals (1) and (2) with the float in the down position and in the up position.
 - Remove the brake fluid completely from the reservoir. With the float down, there should be continuity.
 - Fill the reservoir with brake fluid to the MAX (upper) level (A). With the float up, there should be no continuity.

NOTE: If the parking brake switch and the brake fluid level switch are OK, but the brake system indicator does not function, do the gauge control module self-diagnostic function (see page 22-274).



3. Reconnect the brake fluid level switch connector.

Conventional Brake Components

Front Brake Pad Inspection and Replacement

Special Tools Required

Brake Caliper Piston Compressor 07AAE-SEPA101

⚠ CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

Inspection

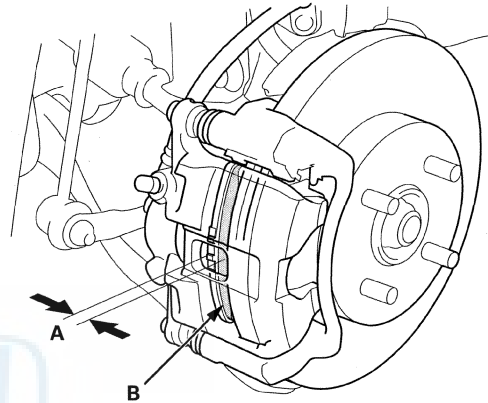
1. Raise and support the vehicle (see page 1-14).
2. Remove the front wheels.
3. Check the thickness (A) of the inner pad (B) and the outer pad (C). Do not include the thickness of the backing plate.

Brake pad thickness:

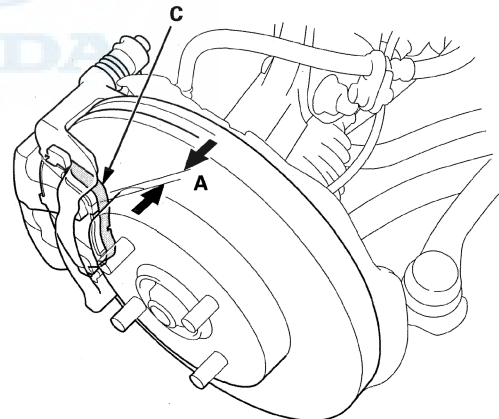
Standard: 10.0 mm (0.394 in)

Service limit: 1.6 mm (0.063 in)

Inner pad



Outer pad

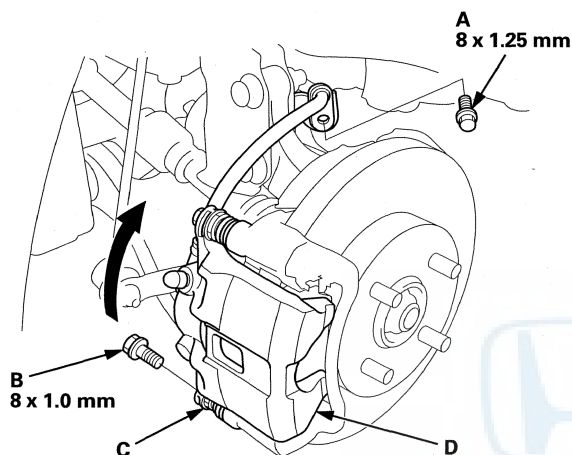


4. If any part of the brake pad thickness is less than the service limit, replace the front brake pads as a set.
5. Clean the mating surfaces between the brake disc and the inside of the wheel, then install the front wheels.



Replacement

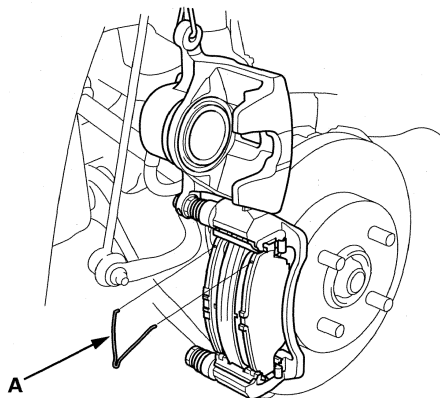
1. Remove some of the brake fluid from the master cylinder.
2. Raise and support the vehicle (see page 1-14).
3. Remove the front wheels.
4. Remove the brake hose mounting bolt (A).



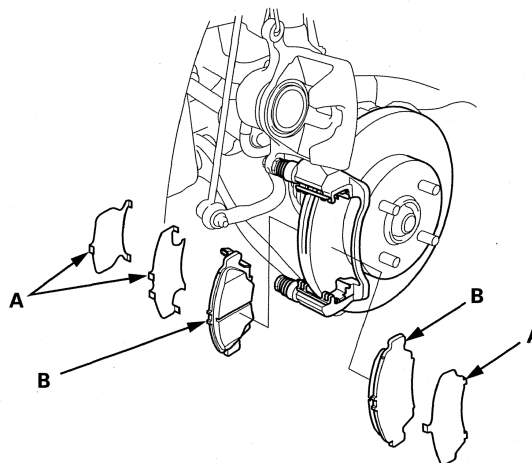
5. Remove the flange bolt (B) while holding the caliper pin (C) with a wrench. Be careful not to damage the pin boot, and pivot the caliper (D) up out of the way. Check the hose and the pin boots for damage and deterioration.

6. 09-11 models: Remove the pad return spring (A).

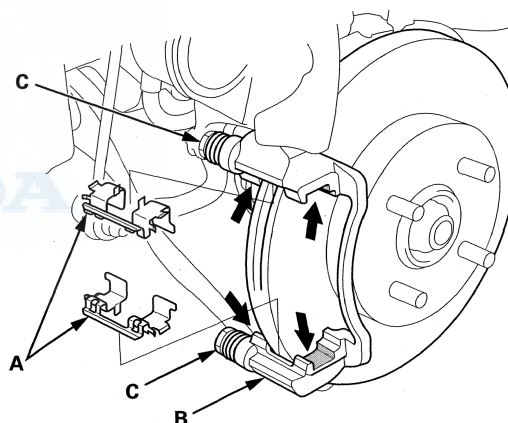
NOTE: The pad springs are installed on the pads to prevent brake drag. Be careful when fully pivoting up the caliper body or the spring could be flipped out of position.



7. Remove the pad shims (A) and the brake pads (B).



8. Remove the pad retainers (A).



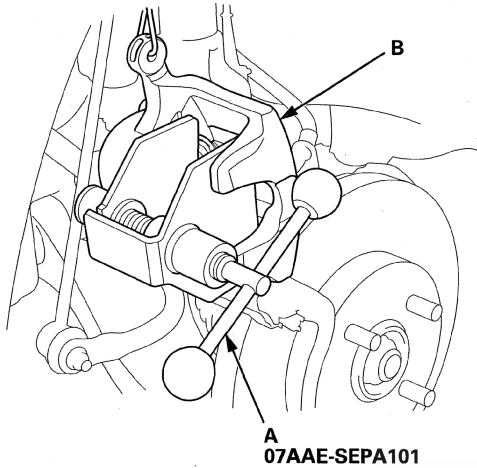
9. Clean the caliper bracket (B) thoroughly; remove any rust, and check for grooves and cracks. Verify that the caliper pins (C) move in and out smoothly. Clean and lube if needed.
10. Inspect the brake disc for runout, thickness, parallelism, and check for damage and cracks (see page 19-16).
11. Apply a thin coat of M-77 assembly paste (P/N 08798-9010) to the retainer mating surface of the caliper bracket (indicated by the arrows).
12. Install the pad retainers. Wipe excess assembly paste from the retainers. Keep the assembly paste away from the brake disc and the brake pads.

(cont'd)

Conventional Brake Components

Front Brake Pad Inspection and Replacement (cont'd)

13. Install the brake caliper piston compressor (A) on the caliper body (B).

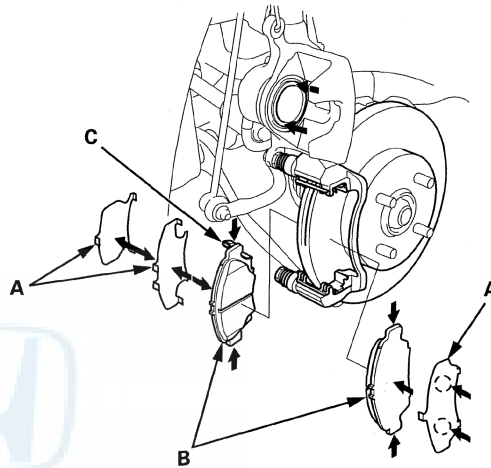


14. Press in the piston with the brake caliper piston compressor tool so the caliper body will fit over the brake pads. Make sure the piston boot is in position to prevent damaging it when pivoting the caliper body down.

NOTE: Be careful when pressing in the piston; brake fluid might overflow from the master cylinder's reservoir. If brake fluid gets on any painted surface, wash it off immediately with water.

15. Remove the brake caliper piston compressor tool.

16. Apply a thin coat of M-77 assembly paste (P/N 08798-9010) to the pad side of the shims (A), the back of the brake pads (B), and the other areas indicated by the arrows. Wipe off the excess assembly paste from the pad shims and brake pads friction material. Keep grease and assembly paste away from the brake disc and brake pads. Contaminated brake disc or brake pads reduce stopping ability.

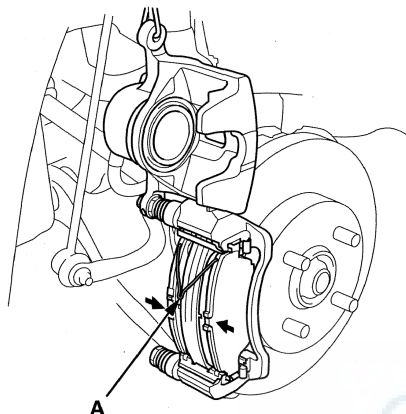


17. Install the brake pads and the pad shims correctly. Install the brake pad with the wear indicator (C) on the upper inside. If you are reusing the brake pads, always reinstall the brake pads in their original positions to prevent a temporary loss of braking efficiency.

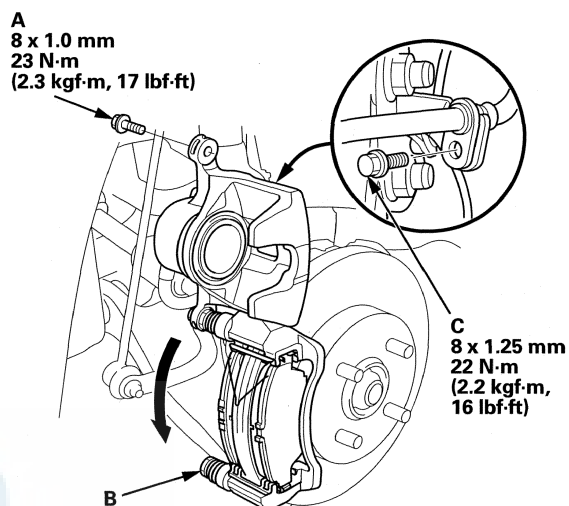


18. 09-11 models: Install the pad return spring (A) while holding the brake pads.

NOTE: Insert the pad return spring ends into the pad installation holes securely.



19. Pivot the caliper down into position. Install the flange bolt (A), and tighten it to the specified torque while holding the caliper pin (B) with a wrench being careful not to damage the pin boot.



20. Install the brake hose mounting bolt (C).
21. Clean the mating surfaces between the brake disc and the inside of the wheel, then install the front wheels.
22. Press the brake pedal several times to make sure the brakes work.

NOTE: Engagement may require a greater pedal stroke immediately after the brake pads have been replaced as a set. Several applications of the brake pedal will restore the normal pedal stroke.

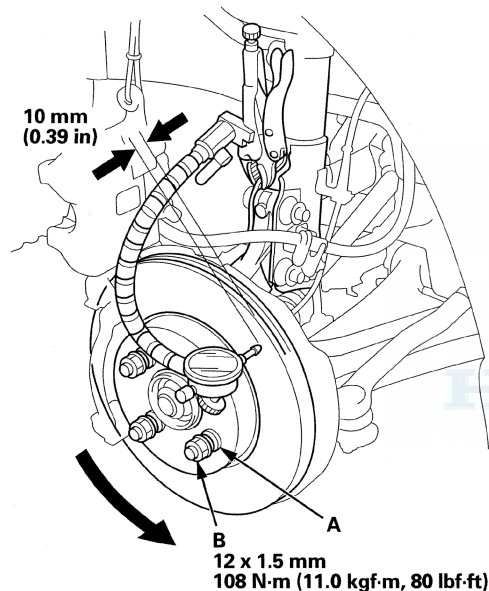
23. Add brake fluid as needed.
24. After installation, check for leaks at hose and line joints or connections, and retighten if necessary.
- Test-drive the vehicle, then recheck for leaks (see page 19-33).

Conventional Brake Components

Front Brake Disc Inspection

Runout

1. Raise and support the vehicle (see page 1-14).
2. Remove the front wheels.
3. Remove the brake pads (see page 19-13).
4. Inspect the brake disc to wheel surface for damage and cracks. Clean the brake disc thoroughly, and remove all rust.
5. Install suitable flat washers (A) and the wheel nuts (B), and tighten the wheel nuts to the specified torque to hold the brake disc securely against the hub.



6. Set up the dial gauge against the brake disc as shown, and measure the runout at 10 mm (0.39 in) from the outer edge of the brake disc.

Brake disc runout:

Service limit: 0.04 mm (0.0016 in)

7. If the brake disc is beyond the service limit, refinish the brake disc with a Honda-approved commercially available on-car brake lathe.

Maximum refinishing limit: 19.0 mm (0.748 in)

NOTE:

- If the brake disc is beyond the service limit for refinishing, replace it (see page 19-17).
- If the brake disc is replaced with a new one, check the new disc for runout. If the new disc is out of specification, refinish the disc.

8. Install the brake pads (see page 19-13).
9. Clean the mating surfaces between the brake disc and the inside of the wheel, then install the front wheels.



Front Brake Disc Replacement

Thickness and Parallelism

1. Raise and support the vehicle (see page 1-14).
2. Remove the front wheels.
3. Remove the brake pads (see page 19-13).
4. Using a micrometer (A), measure the brake disc thickness at eight points, about 45 ° apart and 10 mm (0.39 in) in from the outer edge of the brake disc. Replace the brake disc if the smallest measurement is less than the maximum refinishing limit.

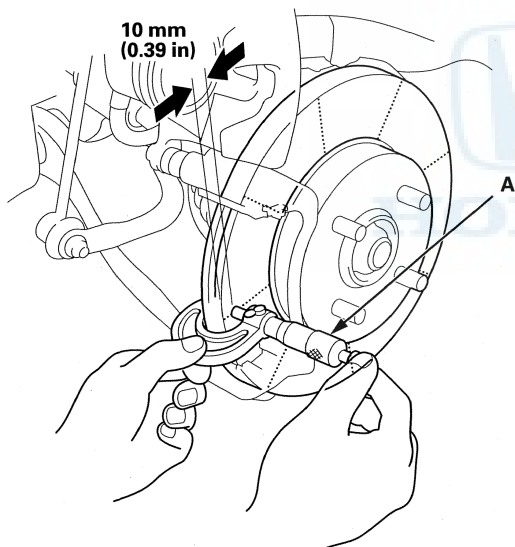
Brake disc thickness:

Standard: 21.0 mm (0.827 in)

Maximum refinishing limit: 19.0 mm (0.748 in)

Brake disc parallelism: 0.015 mm (0.00059 in) max.

NOTE: This is the maximum allowable difference between the thickness measurements.



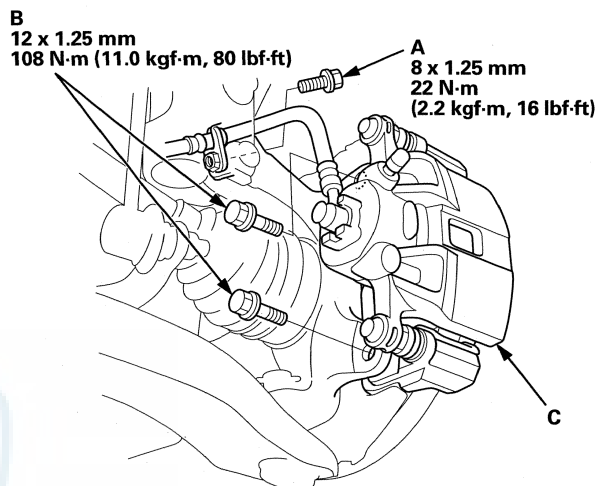
5. If the brake disc is beyond the service limit for parallelism, refinish the brake disc with a Honda-approved commercially available on-car brake lathe.

NOTE: If the brake disc is beyond the service limit for refinishing, replace it (see page 19-17).

6. Install the brake pads (see page 19-13).
7. Clean the mating surfaces between the brake disc and the inside of the wheel, then install the front wheels.

NOTE: Keep any grease off the brake disc and brake pads.

1. Raise and support the vehicle (see page 1-14).
2. Remove the front wheel.
3. Remove the brake hose mounting bolt (A).



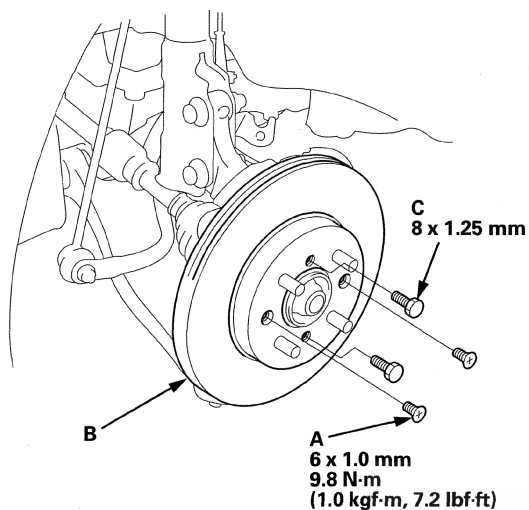
4. Remove the brake caliper bracket mounting bolts (B), then remove the caliper assembly (C) from the knuckle. To prevent damage to the caliper assembly or the brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.

(cont'd)

Conventional Brake Components

Front Brake Disc Replacement (cont'd)

5. Remove the brake disc flathead screws (A).



6. Remove the brake disc (B) from the front hub.

NOTE: If the brake disc is stuck to the front hub, thread two 8 x 1.25 mm bolts (C) into the brake disc to push it away from the front hub. Turn each bolt 90 degrees at a time to prevent the brake disc from binding.

7. Install the brake disc in the reverse order of removal.

NOTE: Before installing the brake disc, clean the mating surfaces between the front hub and the inside of the brake disc.

8. Inspect the brake disc runout (see page 19-16).

9. Clean the mating surfaces between the brake disc and the inside of the wheel, then install the front wheel.



Front Brake Caliper Overhaul

⚠ CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

NOTICE

Do not spill brake fluid on the vehicle; it may damage the paint; if brake fluid gets on the paint, wash it off immediately with water.

Remove, disassemble, inspect, reassemble, and install the caliper, and note these items:

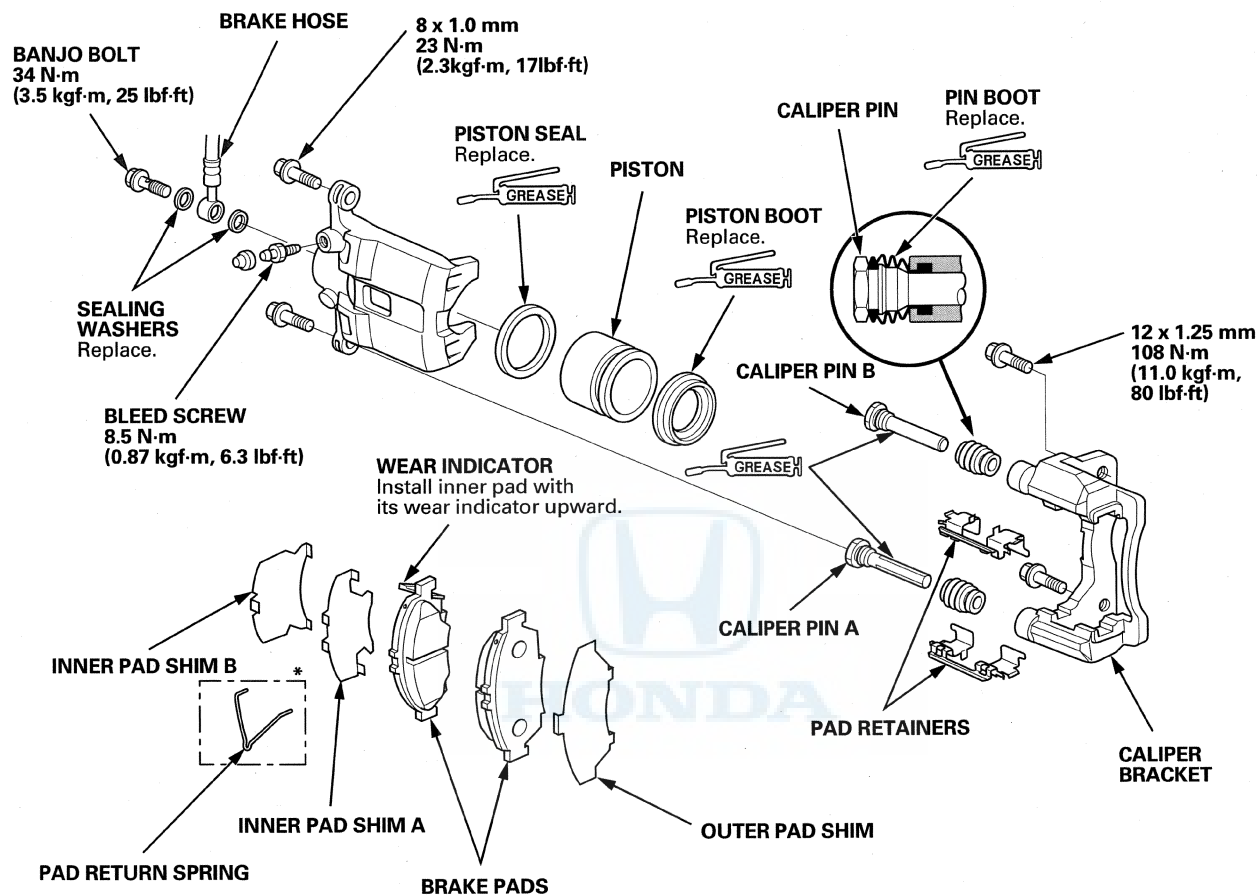
- Make sure that the caliper pins are installed correctly. Upper caliper pin B and lower caliper pin A are different. If these caliper pins are installed in the wrong location, it will cause vibration, uneven or rapid pad wear, and possibly uneven tire wear.
- To prevent dripping brake fluid, cover disconnected hose joints with rags or shop towels.
- Clean all parts in brake fluid and air dry; blow out all passages with compressed air.
- Before reassembling, check that all parts are free of dirt and other foreign particles.
- Replace parts with new ones as specified in the illustration.
- Make sure no dirt or other foreign matter gets in the brake fluid.
- Make sure no grease or oil gets on the brake discs or the pads.
- When reusing brake pads, always reinstall them in their original positions to prevent loss of braking efficiency.
- Do not reuse drained brake fluid. Use only new Honda DOT 3 Brake Fluid from an unopened container. Using a non-Honda brake fluid can cause corrosion and shorten the life of the system.
- Coat the piston, the piston seal groove, and the caliper bore with clean brake fluid.
- Use recommended greases in the front caliper set.
- After installing the caliper, check the brake hose and line for leaks, interference, and twisting.
- Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands or gloves.
- Refer to the Exploded View as needed during this procedure.

(cont'd)

Conventional Brake Components

Front Brake Caliper Overhaul (cont'd)

 : Honda silicone grease (P/N 08C30-B0234M)



*: 09-11 models



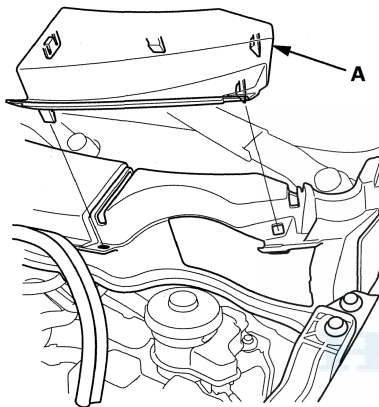
Master Cylinder Replacement

NOTICE

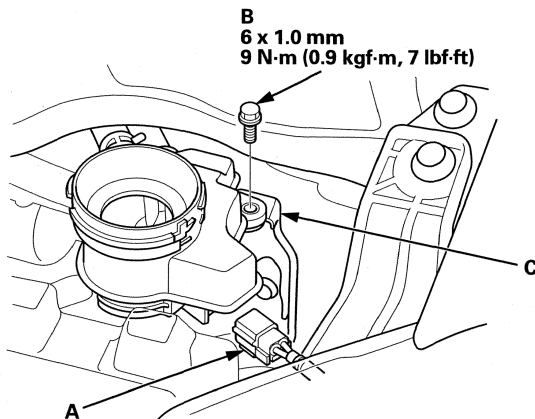
Do not spill brake fluid on the vehicle; it may damage the paint. If brake fluid gets on the paint, wash it off immediately with water.

NOTE:

- Be careful not to damage or bend the brake lines during removal and installation.
 - After removal, plug the ends of the hoses and the joints to prevent spilling brake fluid.
1. Remove the air cleaner cover and the air cleaner case (see page 11-307).
 2. Remove the dashboard lid (A).

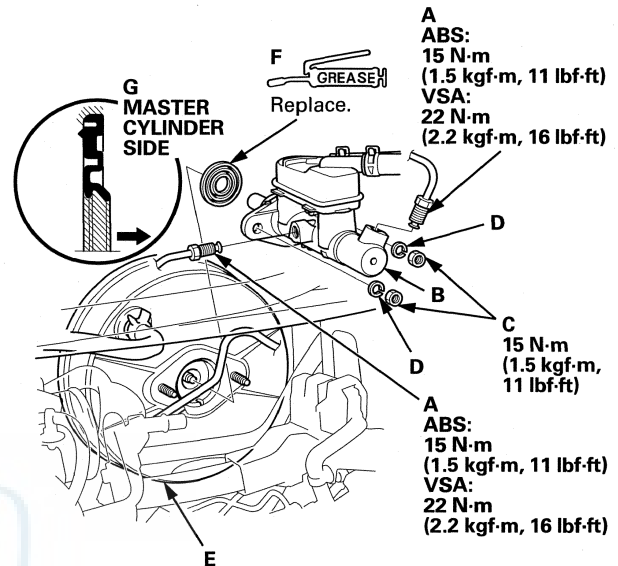


3. Remove the reservoir cap, then remove the brake fluid from the master cylinder reservoir with a syringe.
4. Disconnect the brake fluid level switch connector (A).



5. Remove the reservoir tank mounting bolt (B) from the bracket (C).

6. Disconnect the brake lines (A) from the master cylinder (B). To prevent spills, cover the hose joints with clean rags or shop towels.



7. Remove the master cylinder mounting nuts (C) and the washers (D).
8. Remove the master cylinder from the brake booster (E). Be careful not to bend or damage the brake lines when removing the master cylinder.
9. Remove the rod seal (F).

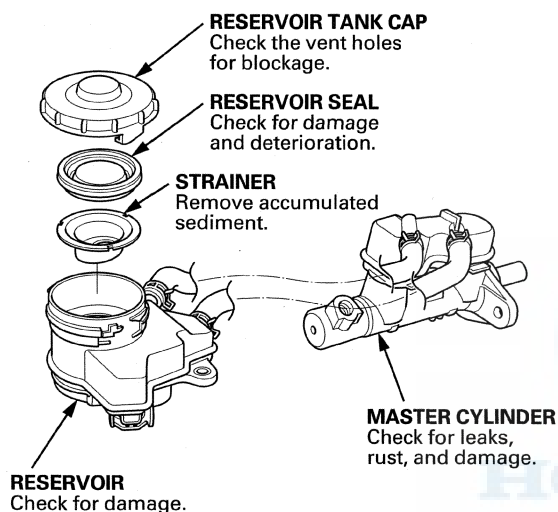
NOTE: During installation, set the new rod seal onto the master cylinder with its grooved side (G) toward the master cylinder.

10. Install the master cylinder in the reverse order of removal, and note these items:
 - Coat the inner bore lip and the outer circumference of the new rod seal with the shin-etsu silicone grease (P/N 08798-9013).
 - Make sure not to get any silicone grease on the terminal part of the connectors and switches, especially if you have silicone grease on your hands or gloves.
 - Check the brake pedal height and free play after installing the master cylinder, and adjust it if necessary (see page 19-6).
11. Bleed the brake system (see page 19-8).
12. Spin the wheels to check for brake drag.

Conventional Brake Components

Master Cylinder Inspection

1. Remove the master cylinder (see page 19-21).
2. Inspect and note these items:
 - Before reassembling, check that all parts are free of dirt and other foreign particles.
 - Do not try to disassemble the master cylinder assembly. Replace the master cylinder assembly with a new part, if necessary.
 - Do not allow dirt or foreign matter to contaminate the brake fluid.



3. Install the master cylinder (see page 19-21).

Brake Booster Test

Functional Test

1. With the ignition switch in LOCK (0), press the brake pedal several times to deplete the vacuum reservoir, then press the brake pedal hard and hold it for 15 seconds. If the brake pedal sinks, either the master cylinder is bypassing internally or the brake system is leaking. Inspect the brake hoses and lines (see page 19-33).
2. Start the engine with the brake pedal pressed. If the brake pedal sinks slightly, the vacuum booster is operating normally. If the brake pedal height does not vary, do the brake system test (see page 19-4).

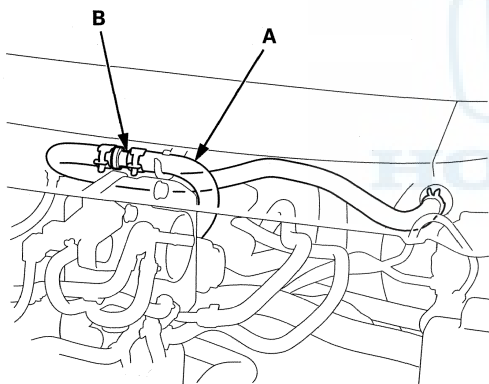


Leak Test

1. Press the brake pedal with the engine running, then turn the ignition switch to LOCK (0). The brake pedal height should not vary while pressed for 30 seconds.
 - If the pedal height rises, go to step 6.
 - If it does not rise, go to step 2.
2. Start the engine, and let it idle for 30 seconds. Turn the ignition switch to LOCK (0), and wait 30 seconds. Press the brake pedal several times using normal pressure. When the pedal is first pressed, it should be low. On consecutive applications, the pedal height should gradually rise.
 - If it rises, the booster is OK.
 - If it does not rise, go to step 3.

3. Disconnect the brake booster vacuum hose (A) at the booster. The check valve (B) is built into the hose.

NOTE: If the check valve is faulty, replace the brake booster vacuum hose/check valve as an assembly.

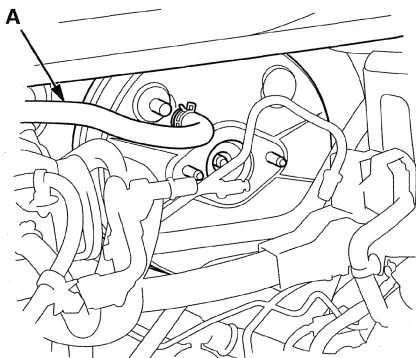


4. Start the engine, and let it idle. There should be vacuum available.
 - If no vacuum is available, the check valve is not working properly. Replace the brake booster vacuum hose and the check valve as an assembly, and retest.
 - If vacuum is found, go to step 5.
5. With the ignition switch in LOCK (0), reconnect the vacuum hose to the brake booster.
6. Start the engine, and then pinch the brake booster vacuum hose between the check valve and the booster.
7. Turn the ignition switch to LOCK (0), and wait 30 seconds. Press the brake pedal several times using normal pressure. When the pedal is first pressed, it should be low. On consecutive applications, the pedal height should gradually rise.
 - If the pedal position does not vary, inspect the seal between the master cylinder and the booster. If the seal is OK, replace the brake booster.
 - If the pedal position varies, replace the brake booster vacuum hose/check valve as an assembly.

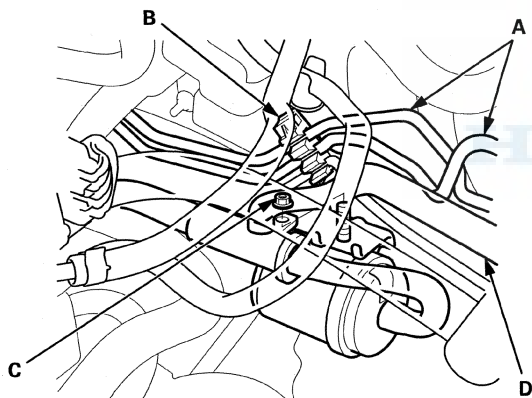
Conventional Brake Components

Brake Booster Replacement

1. Remove the air cleaner cover and the air cleaner case (see page 11-307).
2. Remove the master cylinder (see page 19-21).
3. Disconnect the brake booster vacuum hose (A) from the brake booster.

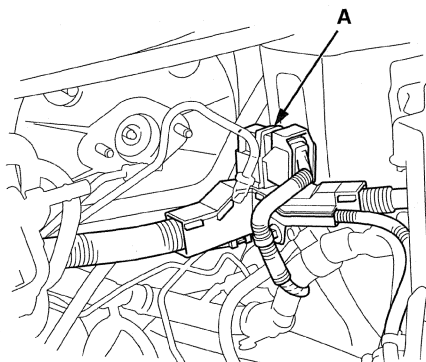


4. Remove the brake lines (A) from the clamp (B).

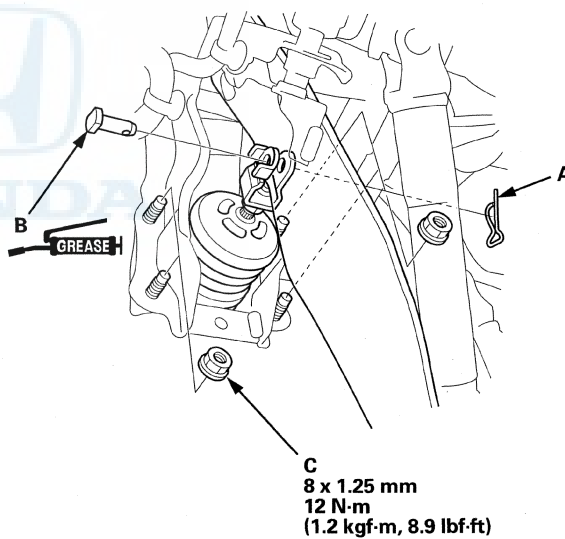


5. Remove the nut (C) on the canister and move the hose (D) out of the way.

6. Remove the engine wire harness clamp (A).



7. Remove the driver's dashboard undercover (see page 20-98).
8. Remove the lock pin (A) and the clevis pin (B), then disconnect the clevis from the brake pedal.



9. Remove the brake booster mounting nuts (C).

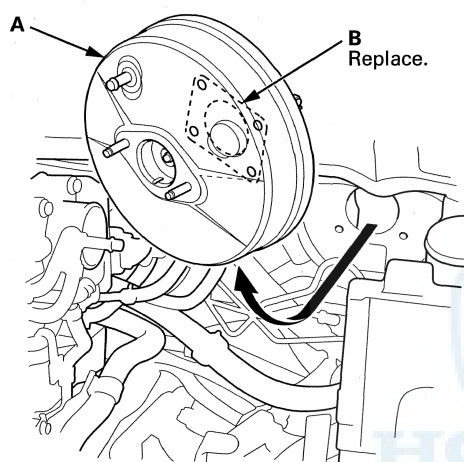


10. Remove the brake booster (A) from the engine compartment.

NOTICE

- Be careful not to damage the booster surfaces and threads of the booster stud bolts.
- Be careful not to bend or damage the brake lines or other components hoses and lines.

NOTE: Use new booster gasket (B) during reassembly.



11. Install the brake booster in the reverse order of removal, and note these items:

- Install the master cylinder after installing the brake booster (see page 19-21).
- Check the brake pedal height and free play after installing the master cylinder, and adjust it if necessary (see page 19-6).
- Bleed the brake system (see page 19-8).

Conventional Brake Components

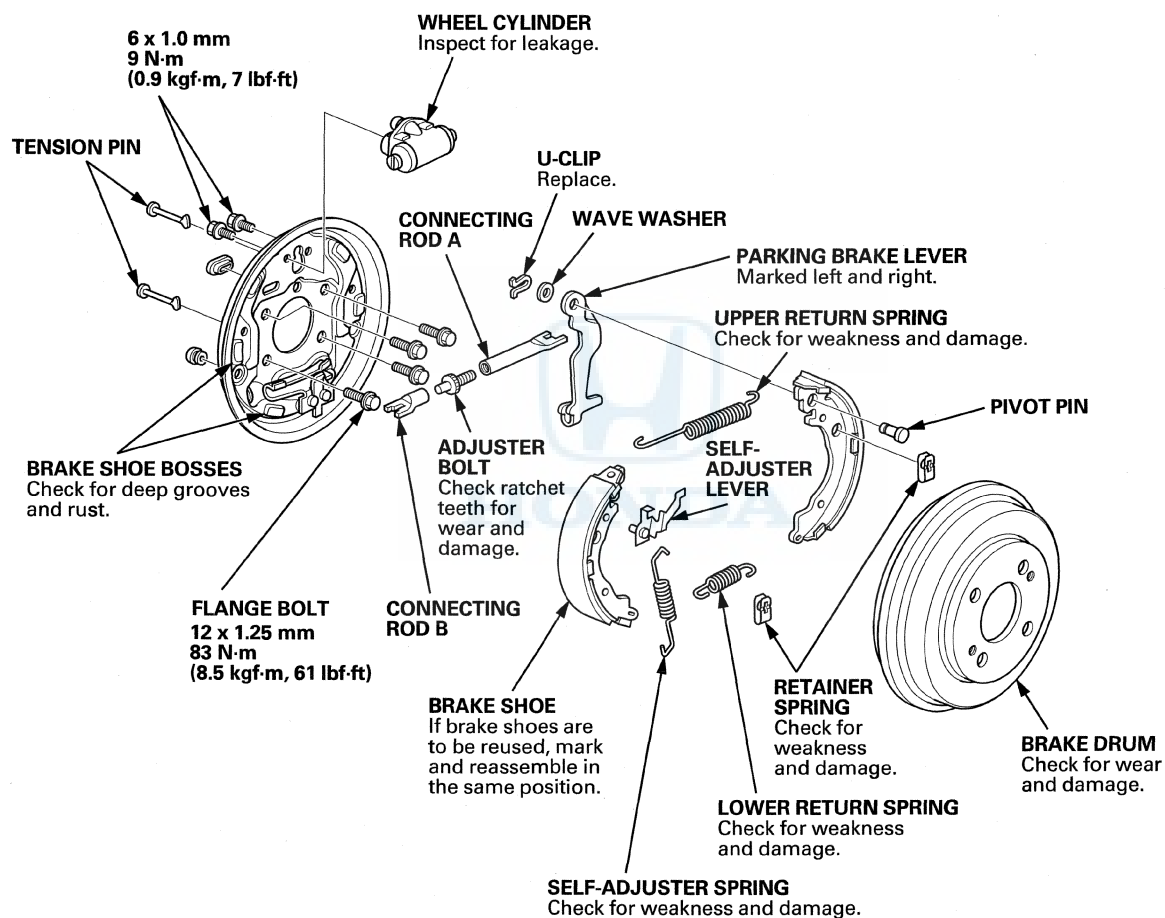
Rear Drum Brake Inspection

⚠ CAUTION

Frequent inhalation of brake shoe dust, regardless of material composition, could be hazardous to your health.

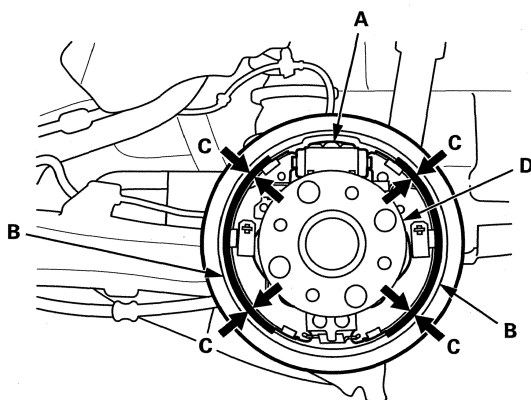
- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

1. Raise and support the vehicle (see page 1-14).
2. Remove the rear wheels.
3. Release the parking brake, and remove the brake drum (see page 19-28).





4. Check the wheel cylinder (A) for leakage.



5. Check the brake linings (B) for cracking, glazing, wear, and contamination.

NOTE: Contaminated brake linings or drums reduce stopping ability.

6. Measure the brake lining thickness (C). Measurement does not include brake shoe thickness.

Brake lining thickness:

Standard: 4.5 mm (0.177 in)

Service limit: 1.0 mm (0.039 in)

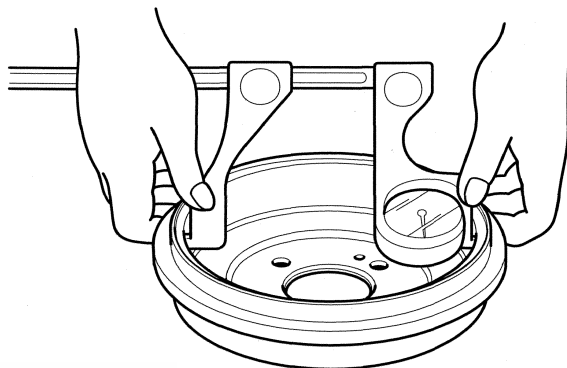
7. If any part of the brake lining thickness is less than the service limit, replace the brake shoes.
8. Check the hub (D) for smooth operation. If it requires servicing, replace the hub bearing unit (see page 18-32).

9. Measure the inside diameter of the brake drum with inside vernier calipers.

Drum inside diameter:

Standard: 200 mm (7.87 in)

Service limit: 201 mm (7.91 in)



10. If the inside diameter of the brake drum is more than the service limit, replace the brake drum.

11. Check the brake drum for scoring, grooves, corrosion, and cracks.

12. Install the brake drum (see page 19-28).

NOTE: Before installing the brake drum, clean the mating surfaces between the rear hub and the inside of the brake drum.

13. Clean the mating surfaces between the brake drum and the inside of the wheel, then install the rear wheels.

Conventional Brake Components

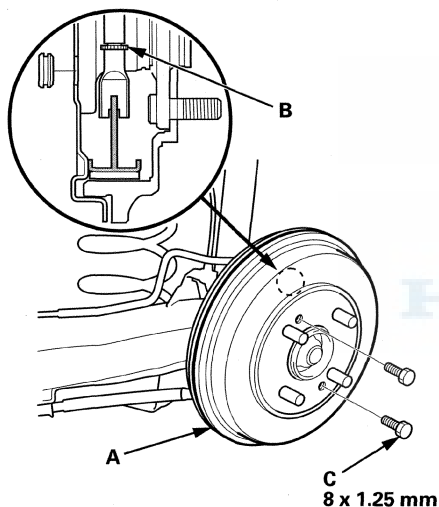
Rear Brake Drum Replacement

NOTE: Keep any grease off the brake drum and brake shoes.

1. Raise and support the vehicle (see page 1-14).
2. Remove the rear wheel.
3. Release the parking brake, and remove the brake drum (A) from the hub bearing unit.

NOTE:

- If necessary, turn the adjuster bolt (B) with a flat-tip screwdriver until the shoes become loose.
- If the brake drum has clung to the hub bearing unit. Thread two 8 x 1.25 mm bolts (C) into the brake drum to push it away from the hub bearing unit. Turn each bolt 90 degrees at a time to prevent cocking the brake drum.



4. Install the brake drum in the reverse order of removal.

NOTE:

- Before installing the brake drum, clean the mating surfaces between the rear hub and the inside of the brake drum.
 - After installation, press the brake pedal several times to make sure the brakes work and self-adjust the brake shoes.
5. Clean the mating surfaces between the brake drum and the inside of the wheel, then install the rear wheel.

Rear Brake Shoe Replacement

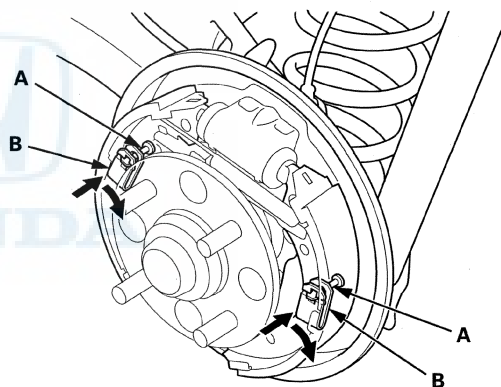
CAUTION

Frequent inhalation of brake pad dust, regardless of material composition, could be hazardous to your health.

- Avoid breathing dust particles.
- Never use an air hose or brush to clean brake assemblies. Use an OSHA-approved vacuum cleaner.

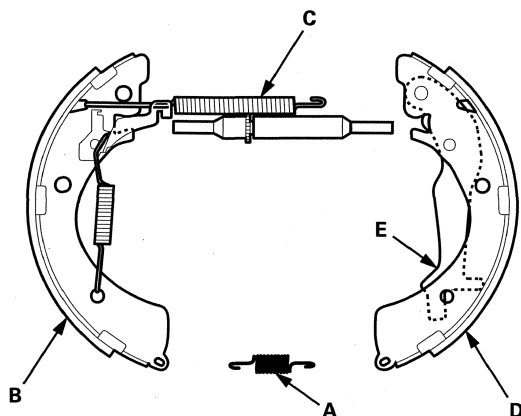
Disassembly

1. Raise and support the vehicle (see page 1-14).
2. Remove the rear wheels.
3. Release the parking brake, and remove the brake drum (see page 19-28).
4. Remove the tension pins (A) by pushing respective retainer spring (B) and turning the pin.





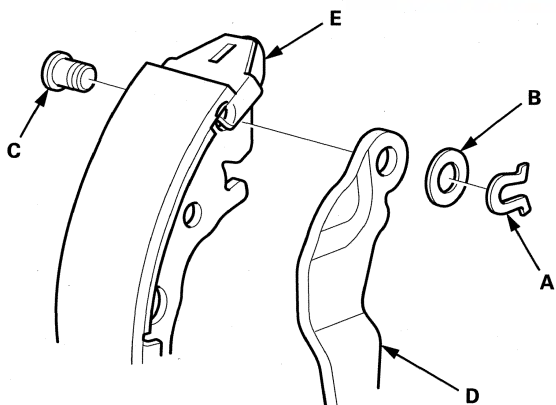
5. Remove the lower return spring (A), and remove the brake shoe assembly over the hub.



6. Remove the forward brake shoe (B) by removing the upper return spring (C), and disassemble the brake shoe assembly.

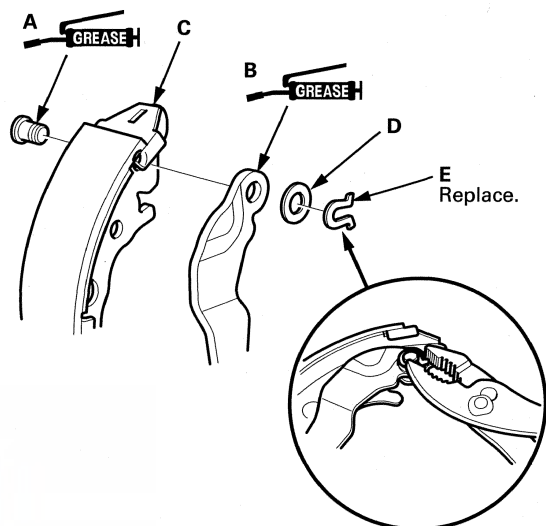
7. Remove the rearward brake shoe (D) by disconnecting the parking brake cable from the parking brake lever (E).

8. Remove the U-clip (A), the wave washer (B), and the pivot pin (C), and separate the parking brake lever (D) from the brake shoe (E).



Reassembly

1. Apply Molykote 44MA grease to the sliding surface of the pivot pin (A) and the parking brake lever (B) for the rearward brake shoe (C).



2. Install the parking brake lever and the wave washer (D) on the pivot pin, and secure with a new U-clip (E).

NOTE: Pinch the U-clip securely to prevent the parking brake lever from coming out of the brake shoe.

3. Connect the parking brake cable to the parking brake lever.

(cont'd)

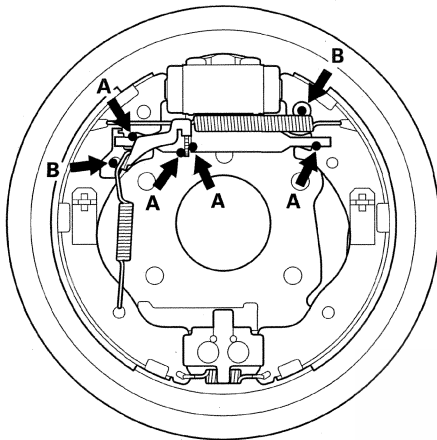
Conventional Brake Components

Rear Brake Shoe Replacement (cont'd)

4. Apply a thin coat of Molykote 44MA grease to the connecting rod ends (A) and the sliding surfaces (B) as shown. Wipe off any excess. Keep grease off the brake linings.

Greasing symbols:

➡● Connecting rod ends sliding surfaces

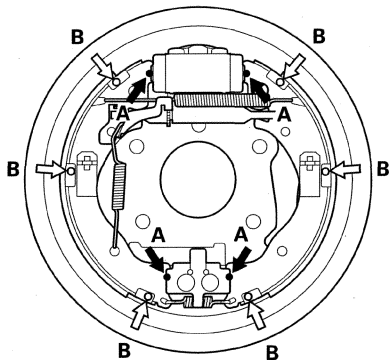


5. Apply a thin coat of Molykote 44MA grease to the shoe ends (A) and the edge of the shoe surfaces (B) that contact the backing plate as shown. Wipe off any excess. Keep grease off the brake linings.

Greasing shoe symbols:

➡● Brake shoe ends

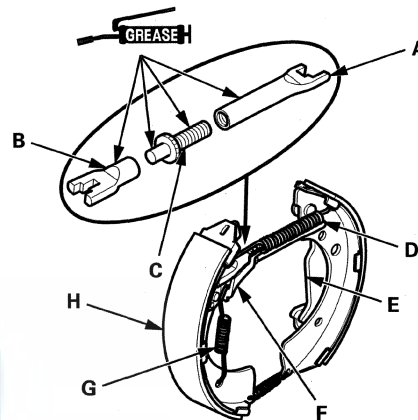
➡○ Edge of the shoe surfaces



6. Install connecting rods A and B on the adjuster bolt (C).

NOTE:

- Clean the threaded portions of connecting rod A and the sliding surface of connecting rod B, then coat them with Molykote 44MA grease.
- Shorten connecting rod A by fully turning in the adjuster bolt.

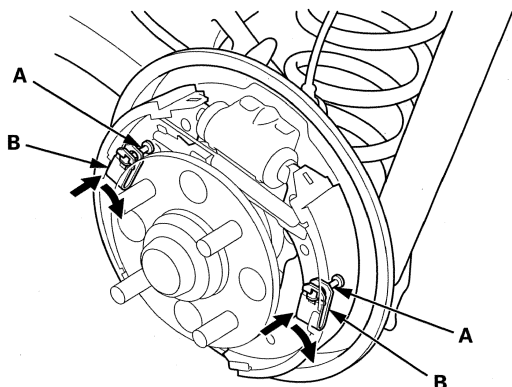


7. Assemble the brake shoes with the upper return spring (D), and with the connecting rods and the adjuster bolt onto the backing plate. Reconnect the parking brake cable to the parking brake lever (E), then install the self-adjuster lever (F) and the self-adjuster spring (G) on the forward brake shoe (H).



Rear Wheel Cylinder Replacement

8. Install the tension pins (A) and the retainer springs (B) by pushing in the respective spring and turning each pin.



9. Install the lower return spring.

NOTE: Make sure the brake shoes are positioned on the brake shoe bosses on the backing plate, and the fittings on the top of the brake shoes are fitted into the wheel cylinder pistons.

10. Install the brake drum (see page 19-28).

NOTE: Before installing the brake drum, clean the mating surfaces between the rear hub and the inside of the brake drum.

11. Clean the mating surfaces between the brake drum and the inside of the wheel, then install the rear wheels.

12. Press the brake pedal several times to make sure the brakes work and to set the self-adjusting brake.

NOTE: Engagement of the brakes may require a greater pedal stroke immediately after the brake shoes have been replaced. Several applications of the brake pedal will restore the normal pedal stroke.

13. Do the parking brake adjustment (see page 19-7).

NOTICE

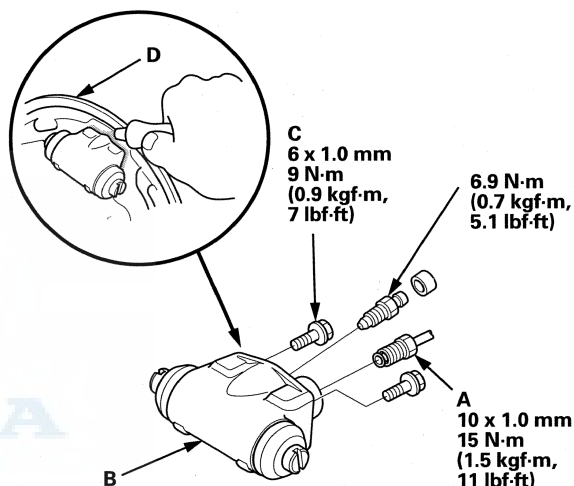
Do not spill brake fluid on the vehicle; it may damage the paint. If brake fluid does contact the paint, wash it off immediately with water.

NOTE:

- To prevent spills, cover the hose joints with rags or shop towels.

1. Remove the brake shoes (see page 19-28).

2. Disconnect the brake line (A) from the wheel cylinder (B).



3. Remove the bolts (C) and the wheel cylinder from the backing plate.

NOTE: Use the special bolts on reassembly.

4. Apply Cemedine 366E sealant or equivalent between the wheel cylinder and backing plate (D), and install the wheel cylinder, then connect the brake line.

5. Install the brake shoes (see page 19-28).

6. Bleed the brake system (see page 19-8).

7. Do the parking brake inspection and adjustment (see page 19-7).

8. Spin the wheels to check for brake drag.

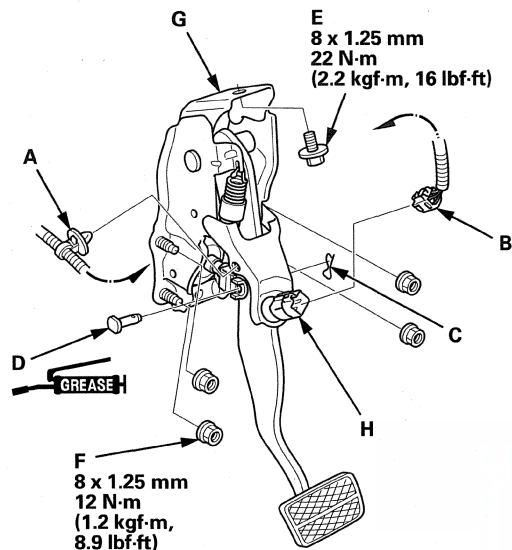
9. After installation, check for leaks at hose and line joints or connections, and retighten if necessary.

Test-drive the vehicle, then check for leaks (see page 19-33).

Conventional Brake Components

Brake Pedal Replacement

1. Remove the driver's dashboard undercover (see page 20-98).
2. Remove the harness clip (A).



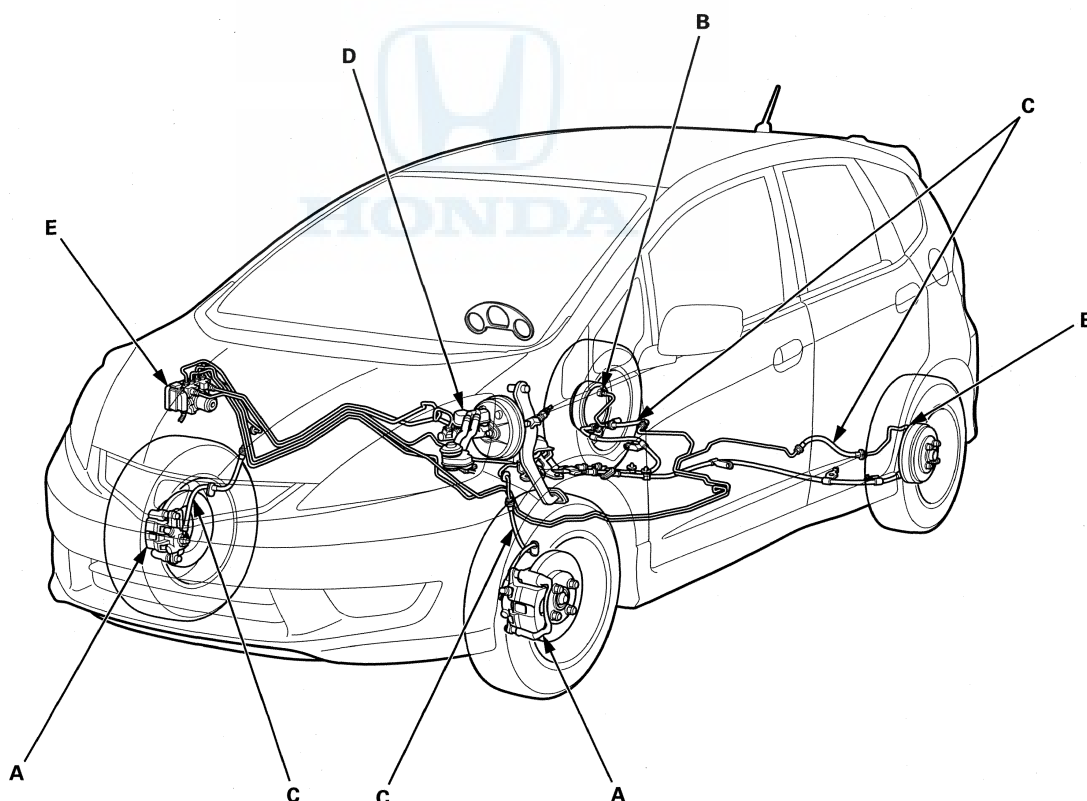
3. Disconnect the brake pedal position switch connector (B).
4. Remove the lock pin (C) and clevis pin (D).
NOTE: During installation, apply multipurpose grease to the clevis pin in the brake pedal.
5. Remove the brake pedal bracket mounting bolt (E) and nuts (F).
6. Remove the brake pedal with bracket (G).
7. Remove the brake pedal position switch (H) by turning it counter clockwise.
8. Install in the reverse order of removal.
9. Do the brake pedal and brake pedal position switch adjustment (see page 19-6).



Brake Hose and Line Inspection

1. Inspect the brake hoses for damage, deterioration, leaks, interference, and twisting.
2. Check the brake lines for damage, rusting, and leaks. Also check for bent brake lines.
3. Check for leaks at hose and line joints and connections, and retighten if necessary.
4. Check the master cylinder and the ABS or VSA modulator-control unit for damage and leaks.

Connection Point	Component	Connected to	Specified Torque Value	Note
A	Front brake caliper	Brake hose	34 N·m (3.5 kgf·m, 25 lbf·ft)	Banjo bolt
		Bleed screw	8.5 N·m (0.87 kgf·m, 6.3 lbf·ft)	
B	Rear wheel cylinder	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
		Bleed screw	6.9 N·m (0.7 kgf·m, 5.1 lbf·ft)	
C	Brake hose	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
D	Master cylinder (ABS)	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
	Master cylinder (VSA)		22 N·m (2.2 kgf·m, 16 lbf·ft)	
E	ABS modulator-control unit	Brake line	15 N·m (1.5 kgf·m, 11 lbf·ft)	Flare nut
	VSA modulator-control unit	Brake line (10 mm nut)	15 N·m (1.5 kgf·m, 11 lbf·ft)	
		Brake line (12 mm nut)	22 N·m (2.2 kgf·m, 16 lbf·ft)	



Conventional Brake Components

Brake Hose Replacement

NOTICE

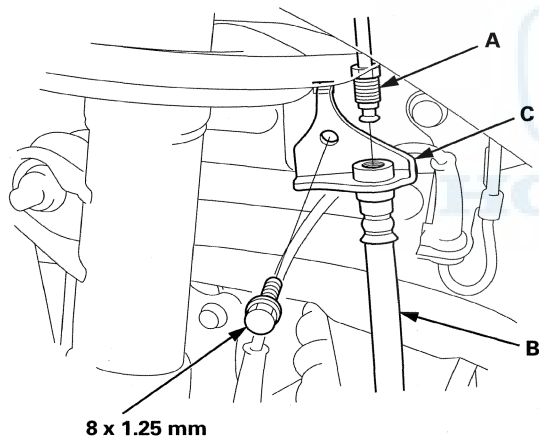
Do not spill brake fluid on the vehicle; it may damage the paint. If brake fluid gets on the paint, wash it off immediately with water.

NOTE:

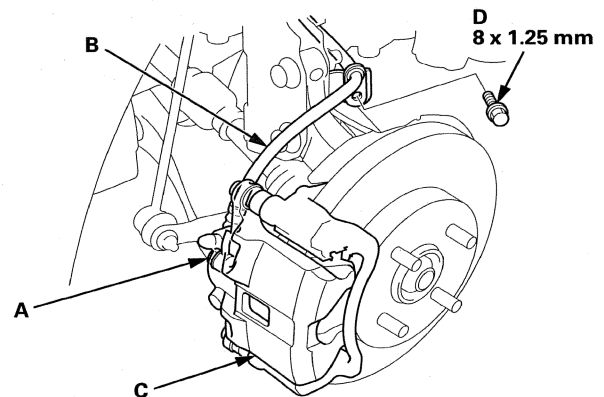
- Before reassembling, check that all parts are free of dirt and other foreign particles.
- Replace parts with new ones whenever specified to do so.
- After removal, plug the ends of the hoses and the joints to prevent spilling brake fluid.

Front

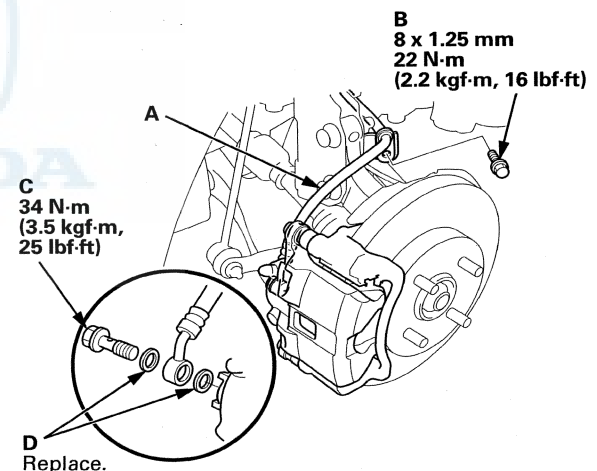
1. Raise and support the vehicle (see page 1-14).
2. Remove the front wheel.
3. Disconnect the brake line (A) from the brake hose (B), then remove the brake hose bracket (C).



4. Remove the banjo bolt (A), and disconnect the brake hose (B) from the caliper (C).



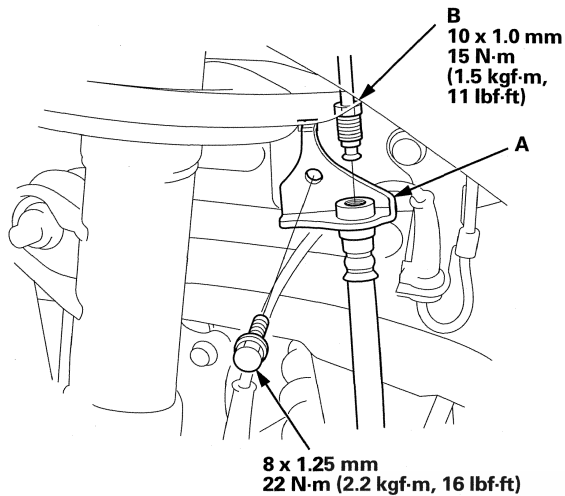
5. Remove the brake hose mounting bolt (D), then remove the brake hose.
6. Install the brake hose (A) with the mounting bolt (B).



7. Connect the brake hose to the caliper with the banjo bolt (C) and new sealing washers (D).



8. Install the brake hose bracket (A) to the body, then connect the brake line (B). Do not twist the brake hose.



9. After installing the brake hose, bleed the brake system (see page 19-8).

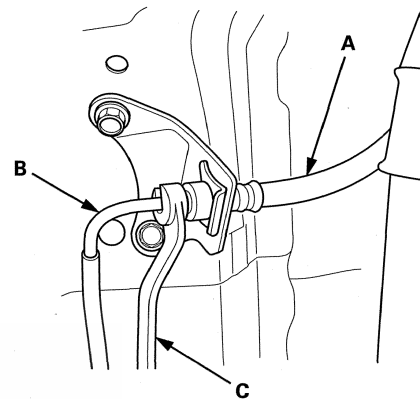
10. Do the following checks:

- Check the brake hose and line joint for leaks, and tighten if necessary.
- Check the brake hoses for interference and twisting.

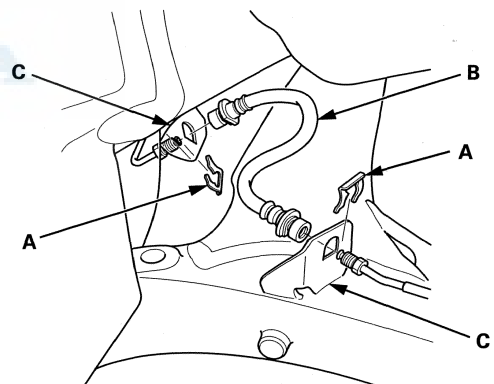
11. Clean the mating surfaces between the brake disc and the inside of the wheel, then install the front wheel.

Rear

1. Raise and support the vehicle (see page 1-14).
2. Remove the rear wheel.
3. Disconnect the brake hose (A) from the brake line (B) using a 10 mm flare-nut wrench (C).



4. Remove the brake hose clips (A) from the brake hose (B).



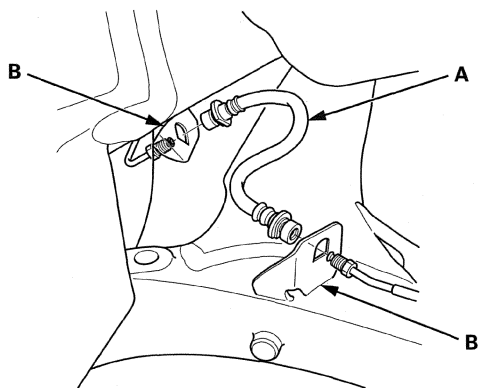
5. Remove the brake hose from the brake hose brackets (C).

(cont'd)

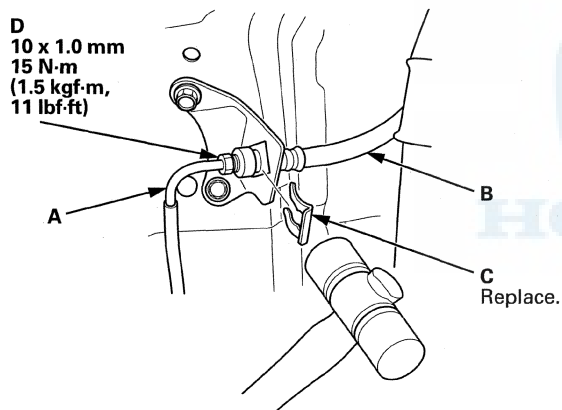
Conventional Brake Components

Brake Hose Replacement (cont'd)

6. Insert the brake hose (A) through the brake hose brackets (B).



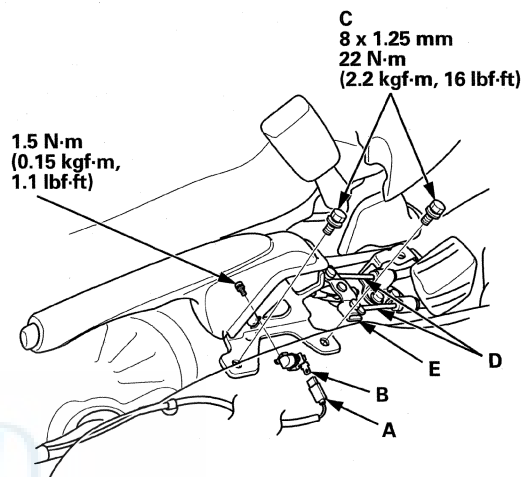
7. Connect the brake line (A) to the brake hose (B) loosely.



8. Install the new brake hose clips (C) on the brake hose.
9. Tighten the 10 mm flare nut (D) to the specified torque.
10. After installing the brake hose, bleed the brake system (see page 19-8).
11. Do the following checks:
- Check the brake hose and line joint for leaks, and tighten if necessary.
 - Check the brake hoses for interference and twisting.
12. Clean the mating surfaces between the brake drum and the inside of the wheel, then install the rear wheel.

Parking Brake Lever Replacement

1. Release the parking brake lever fully.
2. Remove the center console (see page 20-93).
3. Disconnect the parking brake switch connector (A) from the parking brake switch (B).

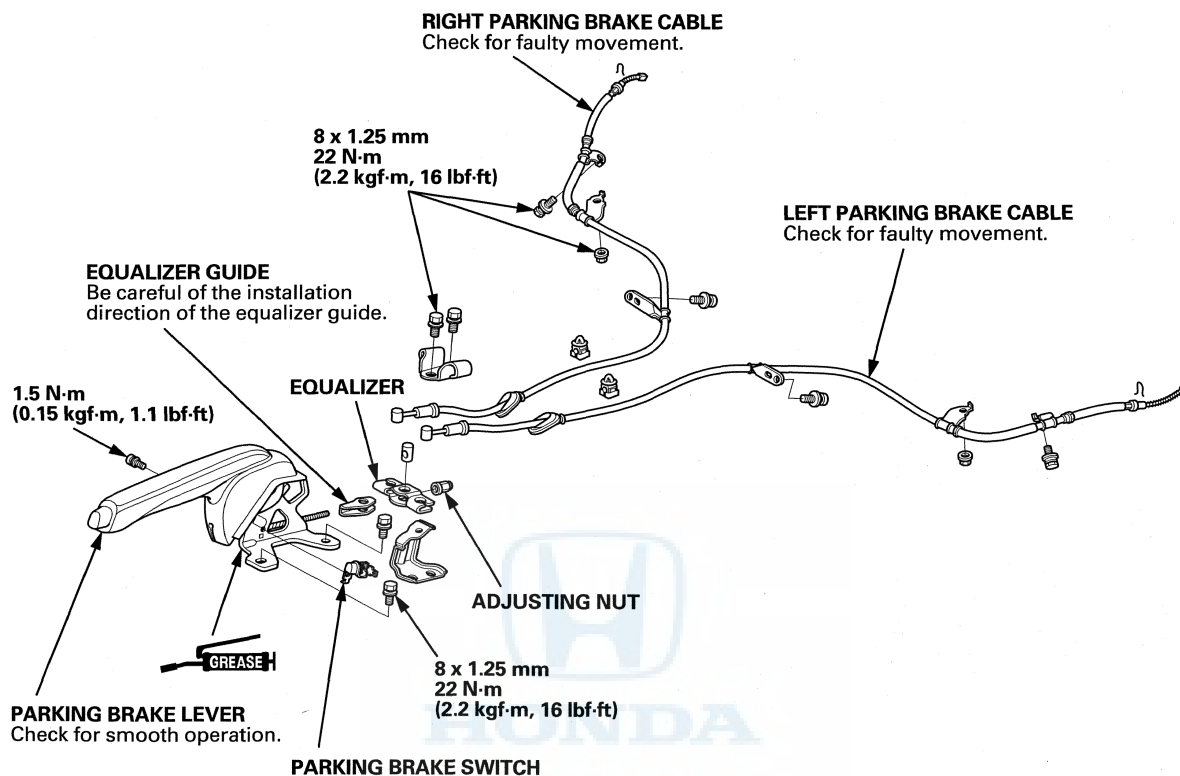


4. Remove the parking brake lever mounting bolts (C).
5. Disconnect the parking brake cables (D) from the equalizer (E).
6. Remove the parking brake switch.
7. Install the parking brake lever in the reverse order of removal.
8. Adjust the parking brake (see page 19-8).



Parking Brake Cable Replacement

Exploded View



(cont'd)

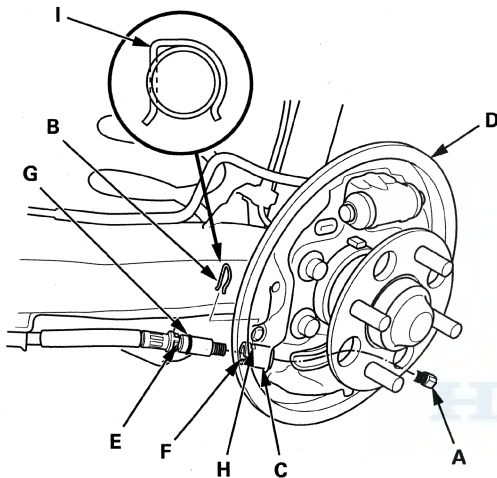
Conventional Brake Components

Parking Brake Cable Replacement (cont'd)

NOTE:

- The parking brake cables must not be bent or distorted. This will lead to stiff operation and premature failure.
- Refer to the Exploded View as needed during these procedure.

1. Loosen the parking brake cable adjusting nut (see page 19-8).
2. Remove the brake drum and shoes, and disconnect the parking brake cable (A) from the parking brake lever (see page 19-28).



3. Remove the cable clip (B) from the cable insertion part (C) at the reverse side of the backing plate (D).
4. Pull the parking brake cable, and remove it from the backing plate.
5. Reinstall the parking brake cable in the reverse order of removal, and note these items:
 - Be careful not to bend or distort the cable.
 - Align the projection (E) of the parking cable holder with the cutout (F) at the backing plate insertion part.
 - Insert until the groove (G) in the cable holder aligns with the cutout (H) at the cable insertion part.
 - Install the cable clip by inserting the straight end (I) of the clip into the cutout at the cable insertion part, and secure the parking cable holder securely.
 - Connect the parking brake cable to the brake lever, and install the brake shoes and drum (see page 19-28).
 - Do the parking brake adjustment (see page 19-8). Apply the parking brake firmly 10 times then adjust it again.

ABS Components - 09-11 Models

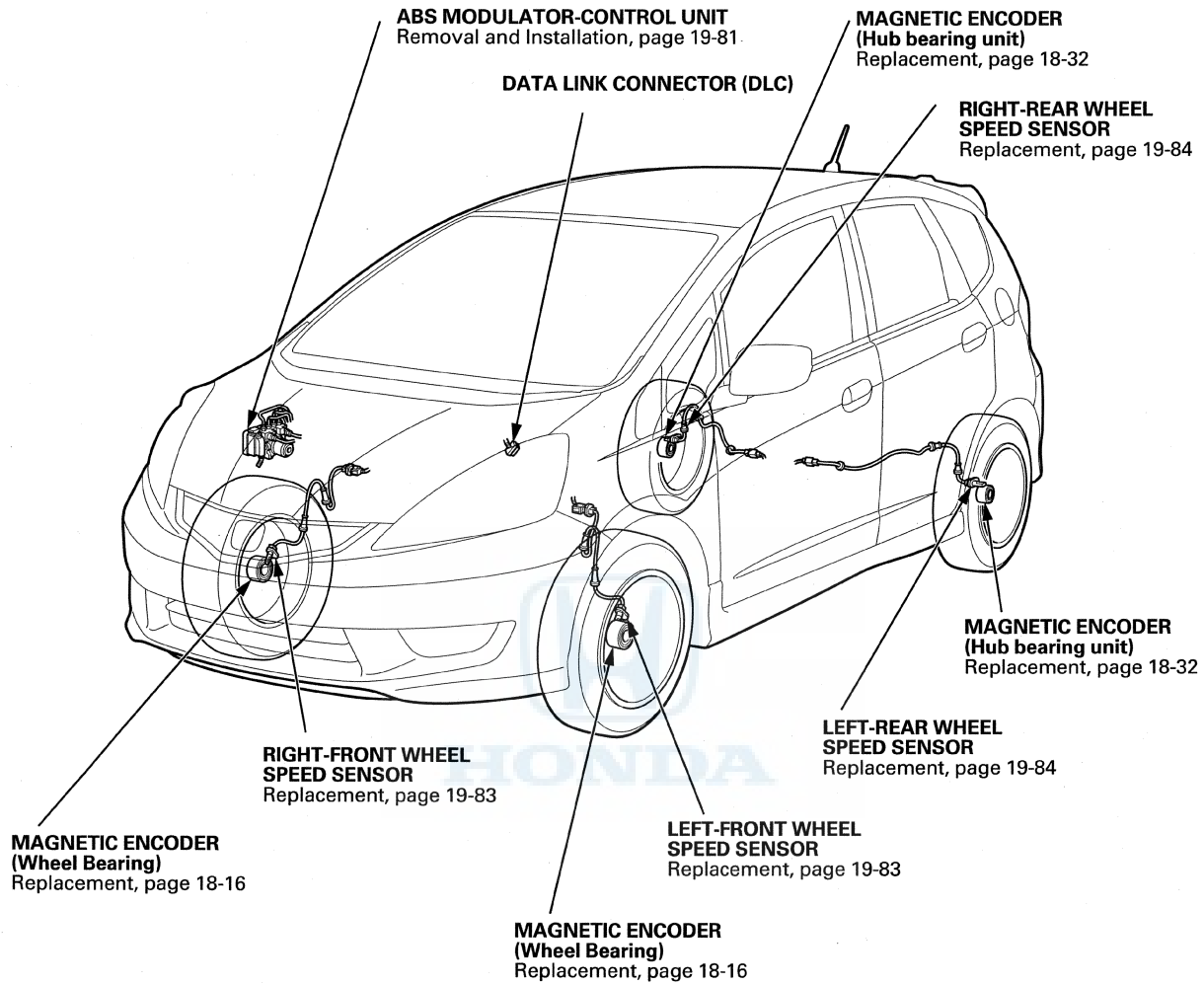
ABS Components

Component Location Index	19-40
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DTC Troubleshooting Index	19-44
Symptom Troubleshooting Index	19-47
System Description	19-48
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ABS Components

Component Location Index

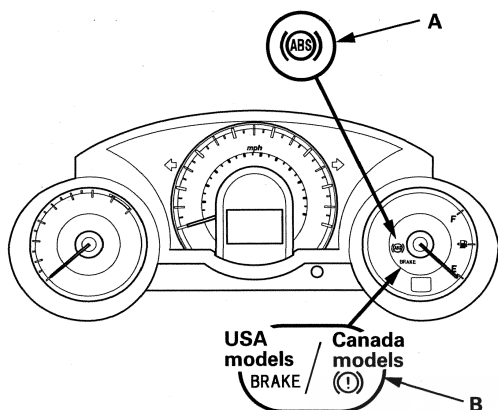


General Troubleshooting Information

System Indicator

This system has two indicators:

- ABS indicator (A)
- Brake system indicator (B)



When the system is OK, each indicator comes on for about 2 seconds after turning the ignition switch to ON (II), then goes off.

When the system detects a problem, a DTC will set and, depending upon the failure, the ABS modulator-control unit determines which indicator(s) will turn on. If the problem goes away (system returns to normal), the indicator(s) will be controlled in the following way depending upon the DTC that was set:

- The indicator(s) will come on and stay on when the ignition switch is ON (II).
- The indicator(s) will automatically go off.
- The indicator(s) will go off after the vehicle is driven.

ABS Indicator

The ABS indicator comes on when the ABS function is lost. The brakes still work like a conventional system.

Brake System Indicator

The brake system indicator comes on when the electronic brake distribution (EBD) function is lost, the parking brake is applied, and/or the brake fluid level is low.

NOTE: If two or more wheel speed sensors fail, the brake system indicator will come on.

Diagnostic Trouble Code (DTC)

- The memory can hold all DTCs. However, when the same DTC is detected more than once, the more recent DTC is written over the earlier one. Therefore, when the same problem is detected repeatedly, it is memorized as a single DTC.
- The DTCs are indicated in the order they occur.
- The DTCs are memorized in an EEPROM in the ABS modulator-control unit. Therefore, the memorized DTCs cannot be erased by disconnecting the battery. Do the specified procedures to clear the DTCs.

Self-diagnosis

- Self-diagnosis can be classified into two categories:
 - Initial diagnosis: Done right after the ignition switch is turned to ON (II) and until the ABS indicator goes off.
 - Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned to LOCK (0).
- When the system detects a problem, the ABS modulator-control unit shifts to fail-safe mode.

Kickback

The pump motor operates when the ABS modulator-control unit is functioning, and the fluid in the reservoir is forced out to the master cylinder, causing kickback at the brake pedal.

Pump Motor

- The pump motor operates when the ABS modulator-control unit is functioning.
- The ABS modulator-control unit checks the pump motor operation one time after completing initial diagnosis during regular diagnosis when the vehicle is driven over 10 mph (15 km/h).

Brake Fluid Replacement/Air Bleeding

Brake fluid replacement and air bleeding procedures are identical to the procedures used on vehicles without the ABS (see page 19-8).

(cont'd)

ABS Components

General Troubleshooting Information (cont'd)

How to Troubleshoot DTCs

The troubleshooting procedures assume that the cause of the problem is still present and the ABS indicator is still on. Following a troubleshooting procedure for a DTC that has been cleared but does not reset can result in incorrect diagnosis.

NOTE: Always troubleshoot powertrain DTCs first.

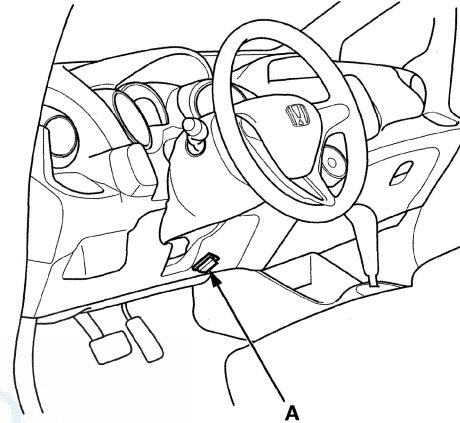
1. Question the customer about the conditions when the problem occurred, and try to reproduce the same conditions for troubleshooting. Find out when the ABS indicator came on, such as during activation, after activation, when the vehicle was traveling at a certain speed, etc. If necessary, have the customer demonstrate the concern.
2. When the ABS indicators does not come on during the test-drive, but troubleshooting is done based on the DTC, check for loose connectors, poor contact of the terminals, etc. before you start troubleshooting.
3. After troubleshooting, or the repairs are done, clear the DTCs, and test-drive the vehicle under the same conditions that originally set the DTCs. Make sure the ABS indicator does not come on.

Intermittent Failures

The term "intermittent failure" means a system may have had a failure, but it checks OK now. If the indicator(s) of the system does not come on, check for loose connectors or poor contacts in the terminals related to the circuit that you are troubleshooting.

How to Use the HDS (Honda Diagnostic System)

1. If the system indicators stay on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the ABS modulator-control unit. If it does not, troubleshoot the DLC circuit (see page 11-193).
4. Check the diagnostic trouble code (DTC) and note it. Then refer to the indicated DTC's troubleshooting, and do the appropriate troubleshooting procedure.

NOTE:

- Freeze data indicates the ABS conditions when the first system malfunction that activated the indicator was detected.
- The HDS can read the DTC, the current data, and other system data.
- For specific operations, refer to the Help menu that came with the HDS.



How to Retrieve DTCs

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the ABS modulator-control unit. If it does not, troubleshoot the DLC circuit (see page 11-193).
4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC troubleshooting.
5. Turn the ignition switch to LOCK (0).

How to Clear DTCs

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the ABS modulator-control unit. If it does not, troubleshoot the DLC circuit (see page 11-193).
4. Clear the DTC(s) by following the screen prompts on the HDS.
5. Turn the ignition switch to LOCK (0).

ABS Components

DTC Troubleshooting Index

DTC		Detection Item	Note
11	-13	Right-front Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-57)
12	-11	Right-front Wheel Speed Sensor Electrical Noise or Intermittent Interruption	DTC Troubleshooting (see page 19-61)
	-12	Right-front Wheel Speed Sensor Short to the Other Sensor Circuit	DTC Troubleshooting (see page 19-62)
	-21	Right-front Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-64)
	-22	Right-front Wheel Speed Sensor Installation Error (19 mph (30 km/h) or More)	DTC Troubleshooting (see page 19-64)
	-23	Right-front Wheel Speed Sensor Installation Error (0 to 9 mph (0 to 15 km/h))	DTC Troubleshooting (see page 19-65)
13	-13	Left-front Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-57)
14	-11	Left-front Wheel Speed Sensor Electrical Noise or Intermittent Interruption	DTC Troubleshooting (see page 19-61)
	-12	Left-front Wheel Speed Sensor Short to the Other Sensor Circuit	DTC Troubleshooting (see page 19-62)
	-21	Left-front Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-64)
	-22	Left-front Wheel Speed Sensor Installation Error (19 mph (30 km/h) or More)	DTC Troubleshooting (see page 19-64)
	-23	Left-front Wheel Speed Sensor Installation Error (0 to 9 mph (0 to 15 km/h))	DTC Troubleshooting (see page 19-65)
15	-13	Right-rear Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-57)
16	-11	Right-rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption	DTC Troubleshooting (see page 19-61)
	-12	Right-rear Wheel Speed Sensor Short to the Other Sensor Circuit	DTC Troubleshooting (see page 19-62)
	-21	Right-rear Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-64)
	-22	Right-rear Wheel Speed Sensor Installation Error (19 mph (30 km/h) or More)	DTC Troubleshooting (see page 19-64)
	-23	Right-rear Wheel Speed Sensor Installation Error (0 to 9 mph (0 to 15 km/h))	DTC Troubleshooting (see page 19-65)
17	-13	Left-rear Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-57)
18	-11	Left-rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption	DTC Troubleshooting (see page 19-61)
	-12	Left-rear Wheel Speed Sensor Short to the Other Sensor Circuit	DTC Troubleshooting (see page 19-62)
	-21	Left-rear Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-64)
	-22	Left-rear Wheel Speed Sensor Installation Error (19 mph (30 km/h) or More)	DTC Troubleshooting (see page 19-64)
	-23	Left-rear Wheel Speed Sensor Installation Error (0 to 9 mph (0 to 15 km/h))	DTC Troubleshooting (see page 19-65)
21	-11	Right-front Magnetic Encoder (Wheel Bearing) Malfunction (Pulse Missing)	DTC Troubleshooting (see page 19-65)
22	-11	Left-front Magnetic Encoder (Wheel Bearing) Malfunction (Pulse Missing)	DTC Troubleshooting (see page 19-65)
23	-11	Right-rear Magnetic Encoder (Wheel Bearing) Malfunction (Pulse Missing)	DTC Troubleshooting (see page 19-65)
24	-11	Left-rear Magnetic Encoder (Wheel Bearing) Malfunction (Pulse Missing)	DTC Troubleshooting (see page 19-65)
31	-01	ABS Right-front Inlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-66)
	-21	ABS Right-front Inlet Solenoid Valve Malfunction (Solenoid Pulse)	DTC Troubleshooting (see page 19-66)
	-22	ABS Right-front Inlet Solenoid Valve Malfunction (Solenoid Speculative)	DTC Troubleshooting (see page 19-66)
	-23	ABS Right-front Inlet Solenoid Valve Malfunction (Solenoid Stuck ON)	DTC Troubleshooting (see page 19-66)
32	-01	ABS Right-front Outlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-66)
	-21	ABS Right-front Outlet Solenoid Valve Malfunction (Solenoid Pulse)	DTC Troubleshooting (see page 19-66)
	-22	ABS Right-front Outlet Solenoid Valve Malfunction (Solenoid Speculative)	DTC Troubleshooting (see page 19-66)
	-23	ABS Right-front Outlet Solenoid Valve Malfunction (Solenoid Stuck ON)	DTC Troubleshooting (see page 19-66)



DTC		Detection Item	Note
31	-01	ABS Right-front Inlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-66)
	-21	ABS Right-front Inlet Solenoid Valve Malfunction (Solenoid Pulse)	DTC Troubleshooting (see page 19-66)
	-22	ABS Right-front Inlet Solenoid Valve Malfunction (Solenoid Speculative)	DTC Troubleshooting (see page 19-66)
	-23	ABS Right-front Inlet Solenoid Valve Malfunction (Solenoid Stuck ON)	DTC Troubleshooting (see page 19-66)
32	-01	ABS Right-front Outlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-66)
	-21	ABS Right-front Outlet Solenoid Valve Malfunction (Solenoid Pulse)	DTC Troubleshooting (see page 19-66)
	-22	ABS Right-front Outlet Solenoid Valve Malfunction (Solenoid Speculative)	DTC Troubleshooting (see page 19-66)
	-23	ABS Right-front Outlet Solenoid Valve Malfunction (Solenoid Stuck ON)	DTC Troubleshooting (see page 19-66)
33	-01	ABS Left-front Inlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-66)
	-21	ABS Left-front Inlet Solenoid Valve Malfunction (Solenoid Pulse)	DTC Troubleshooting (see page 19-66)
	-22	ABS Left-front Inlet Solenoid Valve Malfunction (Solenoid Speculative)	DTC Troubleshooting (see page 19-66)
	-23	ABS Left-front Inlet Solenoid Valve Malfunction (Solenoid Stuck ON)	DTC Troubleshooting (see page 19-66)
34	-01	ABS Left-front Outlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-66)
	-21	ABS Left-front Outlet Solenoid Valve Malfunction (Solenoid Pulse)	DTC Troubleshooting (see page 19-66)
	-22	ABS Left-front Outlet Solenoid Valve Malfunction (Solenoid Speculative)	DTC Troubleshooting (see page 19-66)
	-23	ABS Left-front Outlet Solenoid Valve Malfunction (Solenoid Stuck ON)	DTC Troubleshooting (see page 19-66)
35	-01	ABS Right-rear Inlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-66)
	-21	ABS Right-rear Inlet Solenoid Valve Malfunction (Solenoid Pulse)	DTC Troubleshooting (see page 19-66)
	-22	ABS Right-rear Inlet Solenoid Valve Malfunction (Solenoid Speculative)	DTC Troubleshooting (see page 19-66)
	-23	ABS Right-rear Inlet Solenoid Valve Malfunction (Solenoid Stuck ON)	DTC Troubleshooting (see page 19-66)
36	-01	ABS Right-rear Outlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-66)
	-21	ABS Right-rear Outlet Solenoid Valve Malfunction (Solenoid Pulse)	DTC Troubleshooting (see page 19-66)
	-22	ABS Right-rear Outlet Solenoid Valve Malfunction (Solenoid Speculative)	DTC Troubleshooting (see page 19-66)
	-23	ABS Right-rear Outlet Solenoid Valve Malfunction (Solenoid Stuck ON)	DTC Troubleshooting (see page 19-66)
37	-01	ABS Left-rear Inlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-66)
	-21	ABS Left-rear Inlet Solenoid Valve Malfunction (Solenoid Pulse)	DTC Troubleshooting (see page 19-66)
	-22	ABS Left-rear Inlet Solenoid Valve Malfunction (Solenoid Speculative)	DTC Troubleshooting (see page 19-66)
	-23	ABS Left-rear Inlet Solenoid Valve Malfunction (Solenoid Stuck ON)	DTC Troubleshooting (see page 19-66)

(cont'd)

ABS Components

DTC Troubleshooting Index (cont'd)

DTC		Detection Item	Note
38	-01	ABS Left-rear Outlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-66)
	-21	ABS Left-rear Outlet Solenoid Valve Malfunction (Solenoid Pulse)	DTC Troubleshooting (see page 19-66)
	-22	ABS Left-rear Outlet Solenoid Valve Malfunction (Solenoid Speculative)	DTC Troubleshooting (see page 19-66)
	-23	ABS Left-rear Outlet Solenoid Valve Malfunction (Solenoid Stuck ON)	DTC Troubleshooting (see page 19-66)
41	-21	Right-front Wheel Lock	DTC Troubleshooting (see page 19-67)
42	-21	Left-front Wheel Lock	DTC Troubleshooting (see page 19-67)
43	-21	Right-rear Wheel Lock	DTC Troubleshooting (see page 19-67)
44	-21	Left-rear Wheel Lock	DTC Troubleshooting (see page 19-67)
51	-11	Motor Lock	DTC Troubleshooting (see page 19-68)
	-12	Motor Drive Circuit Malfunction	DTC Troubleshooting (see page 19-69)
	-13	Motor Drive Circuit Malfunction	DTC Troubleshooting (see page 19-68)
52	-12	Motor Stuck OFF	DTC Troubleshooting (see page 19-70)
53	-01	Motor Relay Stuck ON 1	DTC Troubleshooting (see page 19-70)
	-12	Motor Relay Stuck ON 2	DTC Troubleshooting (see page 19-70)
54	-03	Fail-safe Relay 1 Stuck ON	DTC Troubleshooting (see page 19-71)
	-04	Fail-safe Relay 1 Stuck OFF (Initial)	DTC Troubleshooting (see page 19-71)
	-21	Fail-safe Relay 1 Stuck OFF (Main)	DTC Troubleshooting (see page 19-71)
61	-01	ABS Modulator-control Unit Initial IG Low Voltage	DTC Troubleshooting (see page 19-73)
	-21	ABS Modulator-control Unit Power Source Low Voltage 1	DTC Troubleshooting (see page 19-73)
	-22	ABS Modulator-control Unit Power Source Low Voltage 2	DTC Troubleshooting (see page 19-73)
	-23	ABS Modulator-control Unit Power Source Low Voltage 3	DTC Troubleshooting (see page 19-73)
62	-21	ABS Modulator-control Unit IG High Voltage	DTC Troubleshooting (see page 19-73)
71	-21	Right-front or Left-rear Different Diameter Tire Malfunction	DTC Troubleshooting (see page 19-74)
	-22	Left-front or Right-rear Different Diameter Tire Malfunction	DTC Troubleshooting (see page 19-74)
	-23	Right-front and Right-rear Different Diameter Tire Malfunction	DTC Troubleshooting (see page 19-74)
	-24	Left-front and Left-rear Different Diameter Tire Malfunction	DTC Troubleshooting (see page 19-74)
	-25	Right-front and Left-front Different Diameter Tire Malfunction	DTC Troubleshooting (see page 19-74)
	-26	Right-rear and Left-rear Different Diameter Tire Malfunction	DTC Troubleshooting (see page 19-74)
81	-01	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-74)
	-05	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-74)
	-06	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-74)
	-08	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-74)
	-11	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-75)
	-14	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-74)
	-23	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-74)
	-30	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-74)
	-31	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-74)
	-32	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-74)
	-51	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-75)
	-52	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-75)
86	-71	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-74)
	-01	F-CAN Bus-off Malfunction	DTC Troubleshooting (see page 19-75)
	-24	F-CAN Communication with Engine Malfunction	DTC Troubleshooting (see page 19-76)
	-25	F-CAN Communication with Engine Malfunction	DTC Troubleshooting (see page 19-76)
	-FF	F-CAN Communication with ABS Malfunction	DTC Troubleshooting (see page 19-78)



Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check for ABS diagnostic trouble code (DTC) with the HDS. If there is no DTC, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

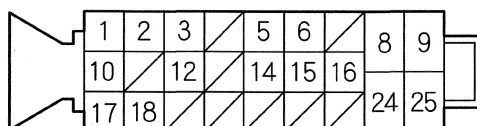
Symptom	Diagnostic procedure
HDS does not communicate with the ABS modulator-control unit or the vehicle	Troubleshoot the DLC circuit (see page 11-193).
ABS indicator and brake system indicator do not come on	1. Do the gauge control module troubleshooting (see page 22-274). 2. Replace the original ABS modulator-control unit (see page 19-81).
ABS indicator and brake system indicator do not go off	1. Check for F-CAN DTCs, and troubleshoot and repair those first. 2. Symptom Troubleshooting (see page 19-78).



ABS Components

System Description

ABS Modulator-control Unit Inputs and Outputs for 25P Connector



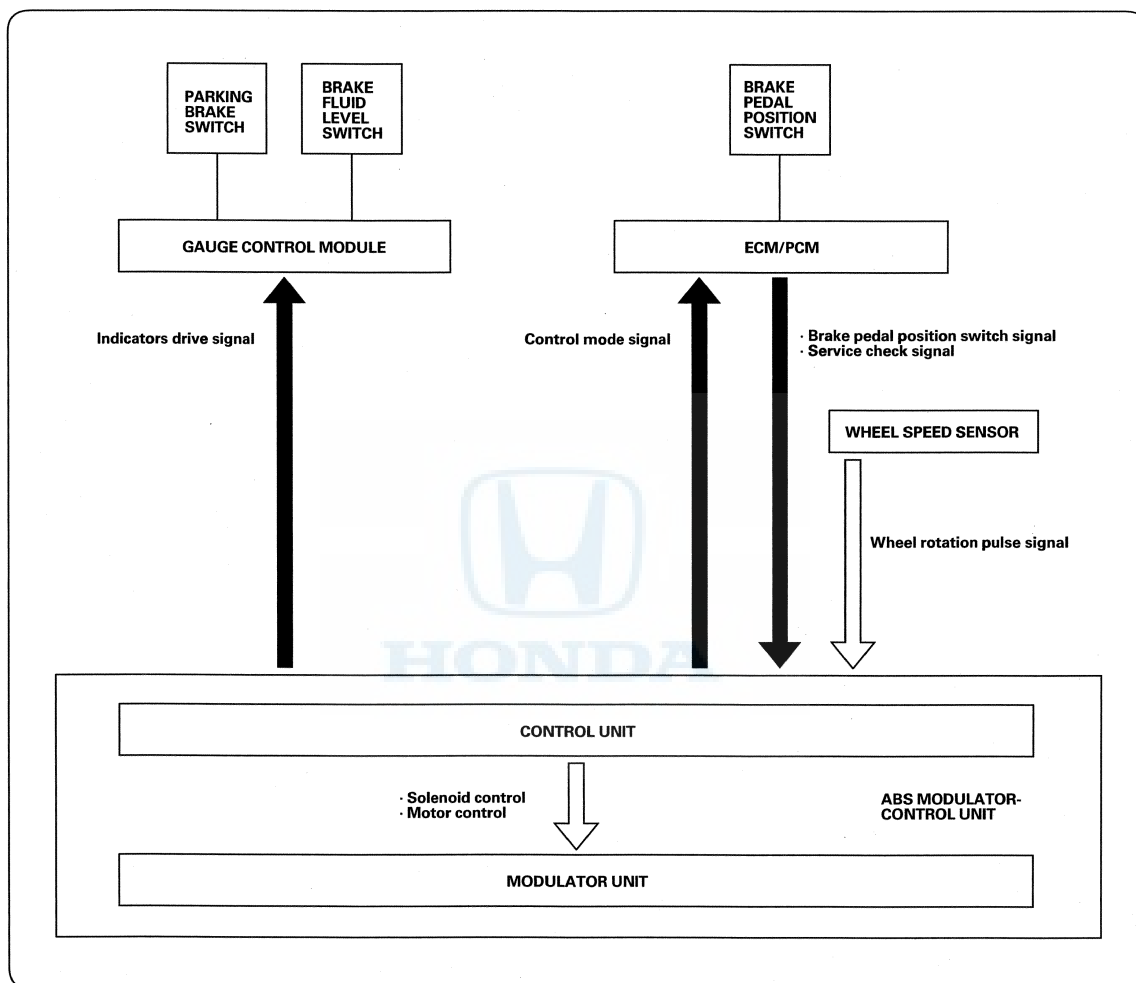
Wire side of female terminals

Terminal number	Wire color	Terminal sign	Description	Signal
1	WHT	F-CAN H	F-CAN communication circuit	—
2	GRN	FR + B	Detects right-front wheel speed sensor signal	—
3	GRY	FL-GND	Detects left-front wheel speed sensor signal	—
5	RED	RL-GND	Detects left-rear wheel speed sensor signal	—
6	LT BLU	RR + B	Detects right-rear wheel speed sensor signal	—
8	WHT	FSR + B	Power source for the fail-safe relay	Battery voltage (about 12 V) at all times
9	RED	MR + B	Power source for the motor relay	Battery voltage (about 12 V) at all times
10	BLU	K-LINE	Communication with HDS	—
12	ORN	FL + B	Detects left-front wheel speed sensor signal	—
14	YEL	RL + B	Detects left-rear wheel speed sensor signal	—
15	GRY	RR-GND	Detects right-rear wheel speed sensor signal	—
16	PUR	IG1	Power source for activating the system	With ignition switch ON (II): battery voltage (about 12 V)
17	RED	F-CAN L	F-CAN communication circuit	—
18	PNK	FR-GND	Detects right-front wheel speed sensor signal	—
24	BLK	GND	Ground for the ABS modulator-control unit	Less than 0.2 V at all times
25	BLK	MR-GND	Ground for the pump motor	Less than 0.2 V at all times



System Outline

This system is composed of the ABS modulator-control unit, the wheel speed sensors, and the system indicators in the gauge control module. The ABS modulator-control unit controls the anti-lock brake and the brake distribution functions.



← Communication via F-CAN

(cont'd)

ABS Components

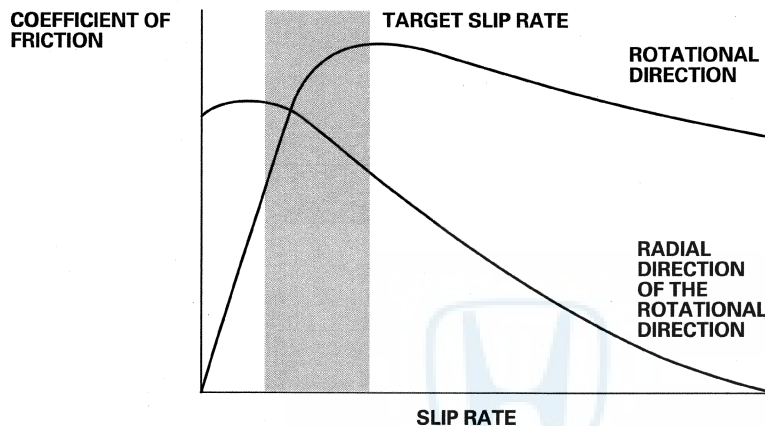
System Description (cont'd)

ABS (Anti-lock Brake System) Features

Anti-lock Control

Without ABS, when the brake pedal is pressed while driving, the wheels sometimes lock before the vehicle comes to a stop. In such an event, the maneuverability of the vehicle is reduced if the front wheels are locked, and the stability of the vehicle is reduced if the rear wheels are locked, creating an extremely unstable condition. With ABS, the system precisely controls the slip rate of the wheels to ensure maximum grip force from the tires, and it thereby ensures maneuverability and stability of the vehicle. The ABS calculates the slip rate of the wheels based on the four wheel speeds, and then it controls the brake fluid pressure to reach the target slip rate.

Grip force of tire and road surface

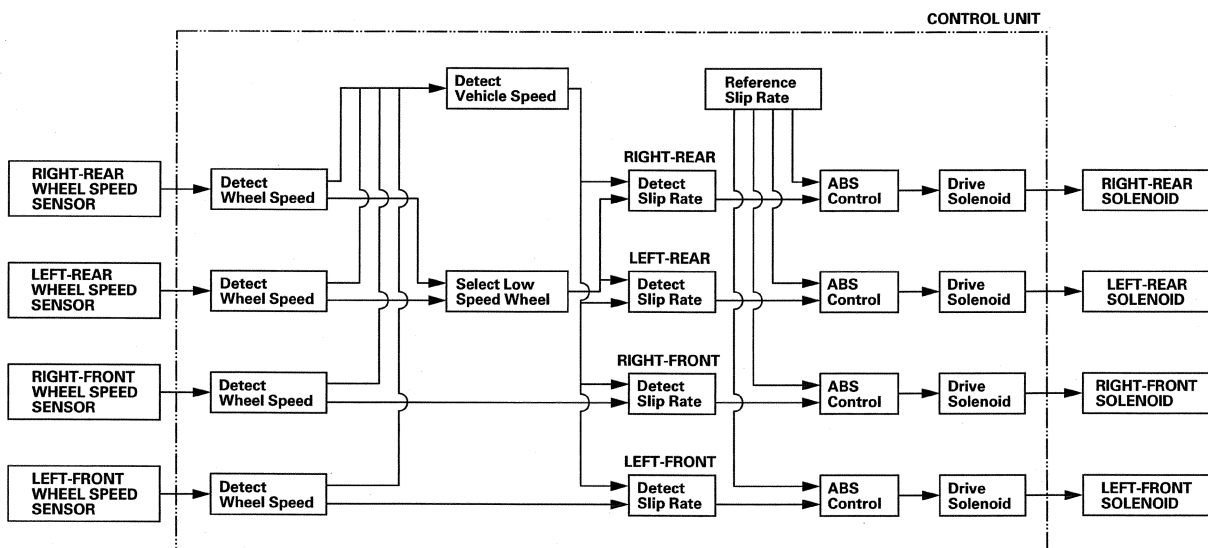


Main Control

The control unit detects the wheel speed based on the wheel speed sensor signals it receives, then it calculates the vehicle speed based on the detected wheel speed. The control unit detects the vehicle speed during deceleration based on the wheel speeds.

The control unit calculates the slip rate of each wheel, and transmits the control signal to the modulator unit solenoid valve when the slip rate is high.

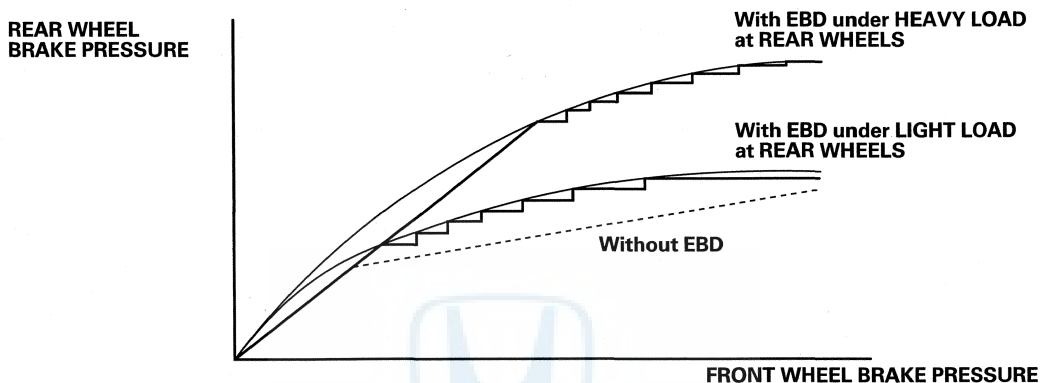
The hydraulic control has three modes: Pressure intensifying, pressure reducing, and pressure retaining.





EBD (Electronic Brake Distribution) Features

The EBD feature helps control vehicle braking by adjusting the rear brake force in accordance with the rear wheel load before the ABS operates. Based on the wheel speed sensor signals, the control unit uses the modulator to control the rear brakes individually. When the rear wheel speed is less than the front wheel speed, the ABS modulator-control unit retains the current rear brake fluid pressure by closing the inlet valve in the modulator. As the rear wheel speed increases and approaches the front wheel speed, the ABS modulator-control unit increases the rear brake fluid pressure by momentarily opening the inlet valve. This whole process is repeated very rapidly. While this is happening, kickback may be felt at the brake pedal, you may also hear a muted buzzing sound from the ABS modulator-control unit. This is normal.



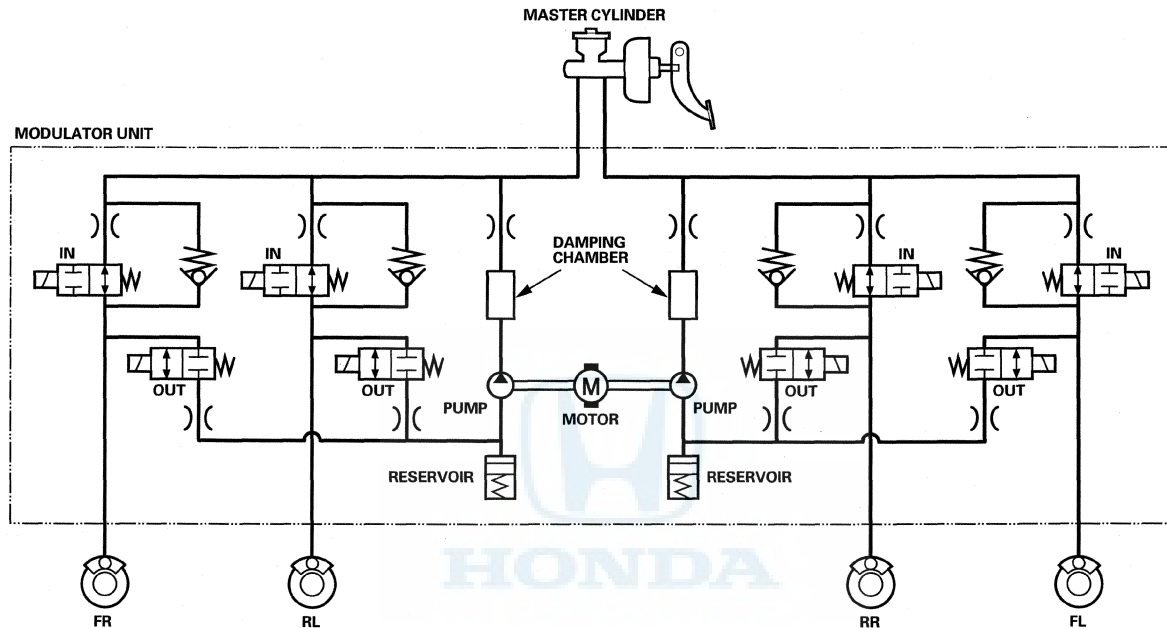
(cont'd)

ABS Components

System Description (cont'd)

Modulator Unit

The ABS modulator consists of the inlet solenoid valve, the outlet solenoid valve, the reservoir, the pump, the pump motor, and the damping chamber. The modulator reduces the caliper fluid pressure directly. It is a circulating-type modulator because the brake fluid circulates through the caliper, the reservoir, and the master cylinder. The hydraulic control has three modes: pressure intensifying, pressure retaining, and pressure reducing. The hydraulic circuit is an independent four channel type, one channel for each wheel.



IN: INLET SOLENOID VALVE (NORMALLY OPEN)
OUT: OUTLET SOLENOID VALVE (NORMALLY CLOSED)

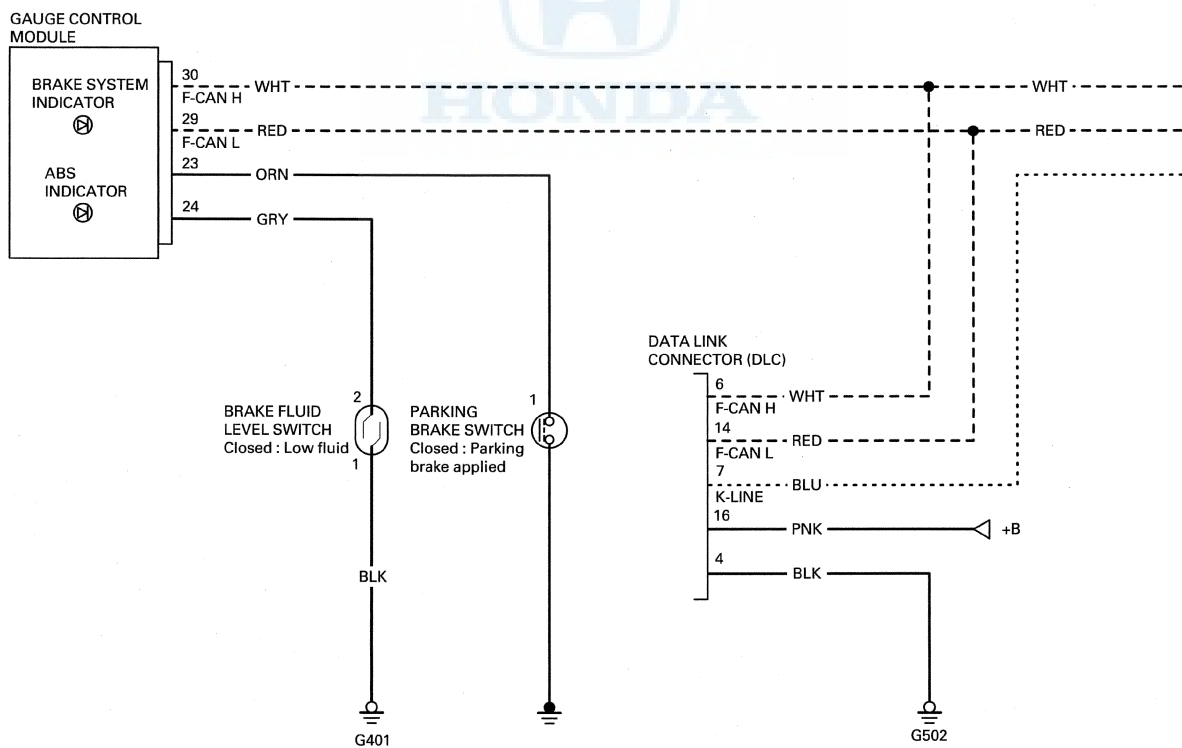
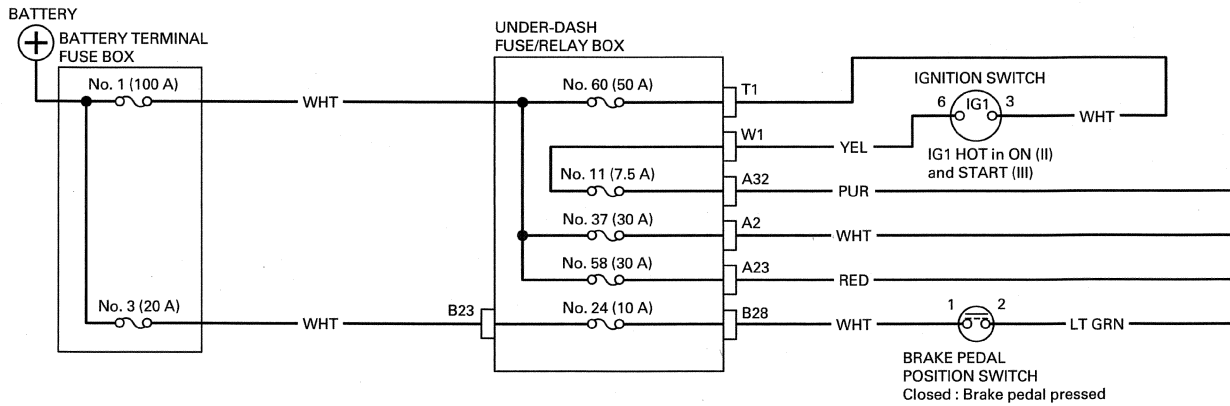
Mode	Inlet Solenoid Valve	Outlet Solenoid Valve	Brake Fluid
Pressure intensifying mode	open	closed	Master cylinder fluid is pumped out to the caliper.
Pressure retaining mode	closed	closed	Caliper fluid is retained by the inlet and outlet valves.
Pressure reducing mode	closed	open	<ul style="list-style-type: none">Caliper fluid flows through the outlet valve to the reservoir.The motor pumps the reservoir fluid through the damping chamber to the master cylinder*.

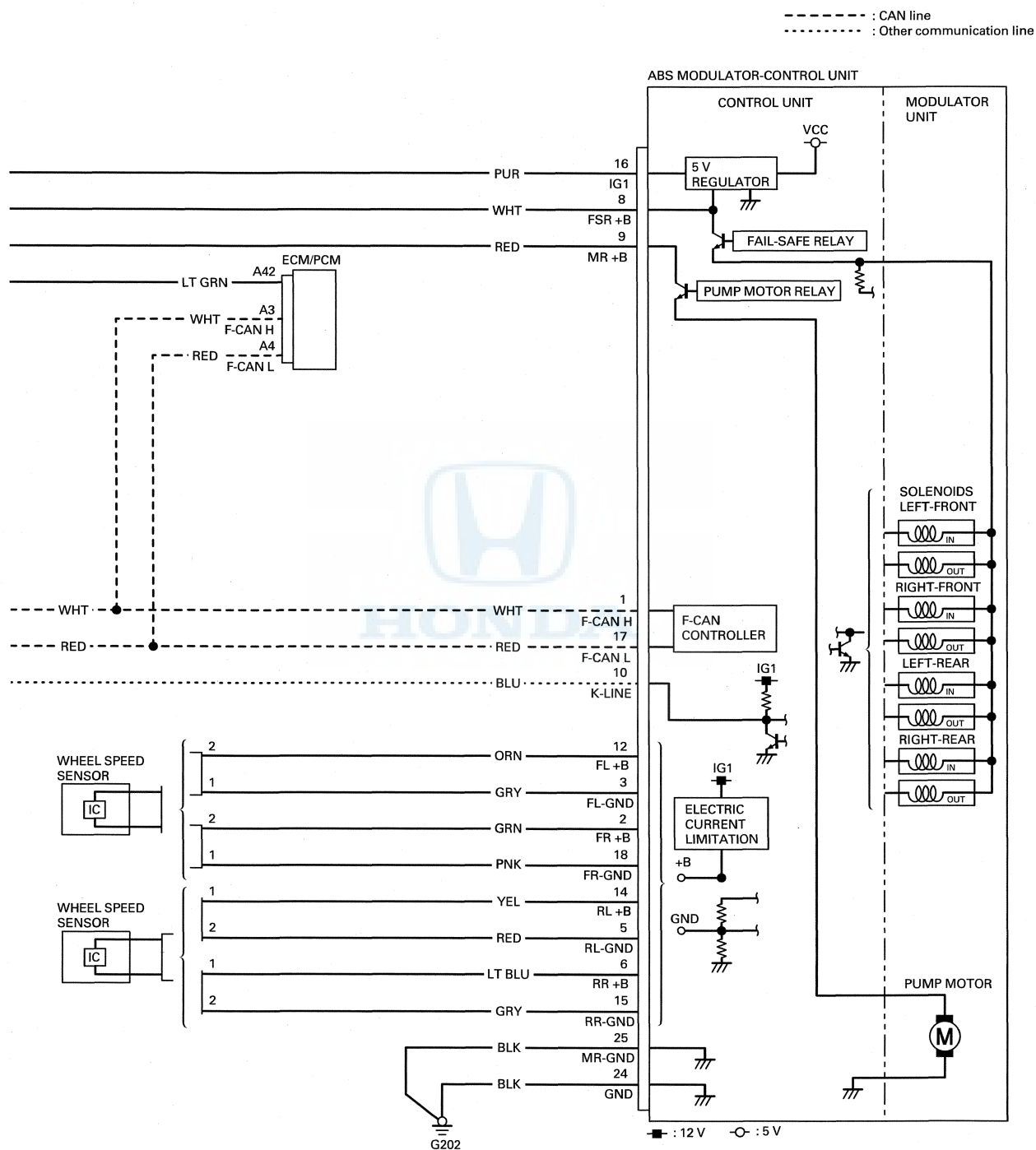
*: The motor will keep running until the operation of the one anti-lock brake control is finished with the first pressure reducing mode.



ABS Components

Circuit Diagram



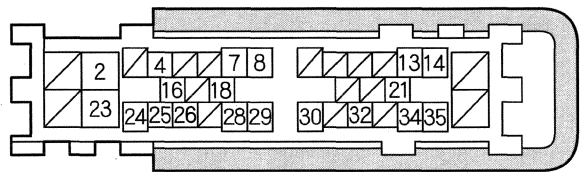


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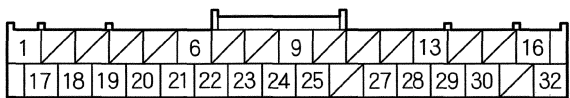
ABS Components

Circuit Diagram (cont'd)

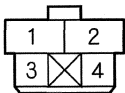
UNDER-DASH FUSE/RELAY BOX CONNECTOR A (36P)



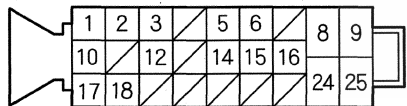
GAUGE CONTROL MODULE 32P CONNECTOR



BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



PARKING BRAKE SWITCH 1P CONNECTOR

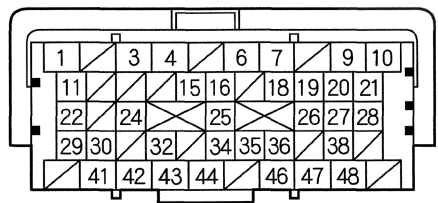


BRAKE FLUID LEVEL SWITCH 2P CONNECTOR

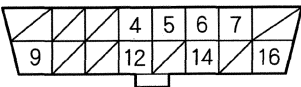


Wire side of female terminals

ECM/PCM CONNECTOR A (49P)



DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

WHEEL SPEED SENSOR 2P CONNECTOR

FRONT



REAR



Wire side of female terminals

Terminal side of male terminals



DTC Troubleshooting

DTC 11-13: Right-front Wheel Speed Sensor Circuit Malfunction

DTC 13-13: Left-front Wheel Speed Sensor Circuit Malfunction

DTC 15-13: Right-rear Wheel Speed Sensor Circuit Malfunction

DTC 17-13: Left-rear Wheel Speed Sensor Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 11-13, 13-13, 15-13, or 17-13 indicated?

YES—Go to step 5.

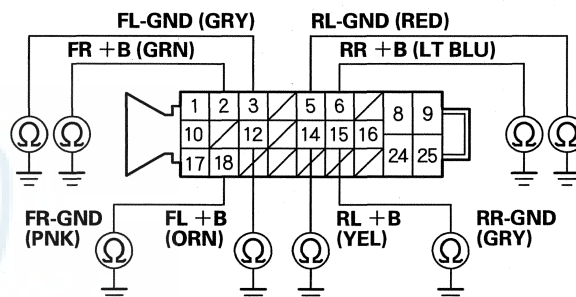
NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the ABS modulator-control unit 25P connector (see step 3 on page 19-81).

7. Check for continuity between body ground and the appropriate wheel speed sensor +B and GND terminals of the ABS modulator-control unit 25P connector individually (see table).

DTC	Appropriate Terminal	
	+B	GND
11-13 Right-front	FR +B: No. 2	FR-GND: No. 18
13-13 Left-front	FL +B: No. 12	FL-GND: No. 3
15-13 Right-rear	RR +B: No. 6	RR-GND: No. 15
17-13 Left-rear	RL +B: No. 14	RL-GND: No. 5

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

NO—Go to step 10.

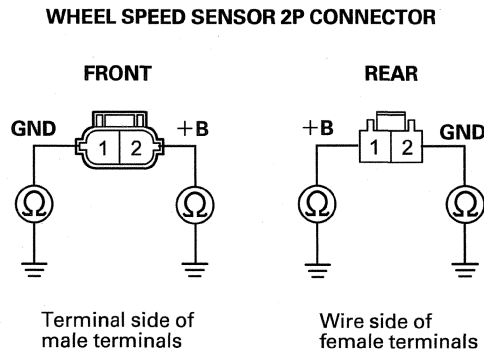
8. Disconnect the appropriate wheel speed sensor 2P connector (see page 19-83).

(cont'd)

ABS Components

DTC Troubleshooting (cont'd)

9. On the sensor side, check for continuity between body ground and wheel speed sensor 2P connector terminals No. 1 and No. 2 individually.



Is there continuity?

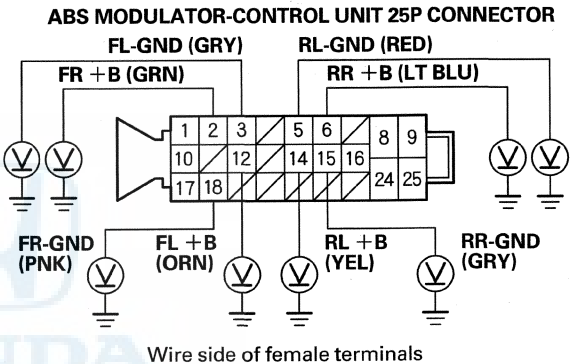
YES—Replace the appropriate wheel speed sensor (see page 19-83).■

NO—Repair a short to body ground in the wire between the ABS modulator-control unit and the wheel speed sensor.■

10. Turn the ignition switch to ON (II).

11. Measure the voltage between body ground and the appropriate wheel speed sensor +B and GND terminals of the ABS modulator-control unit 25P connector individually (see table).

DTC	Appropriate Terminal	
	+B	GND
11-13 Right-front	FR +B: No. 2	FR-GND: No. 18
13-13 Left-front	FL +B: No. 12	FL-GND: No. 3
15-13 Right-rear	RR +B: No. 6	RR-GND: No. 15
17-13 Left-rear	RL +B: No. 14	RL-GND: No. 5



Is there 0.1 V or more?

YES—Go to step 12.

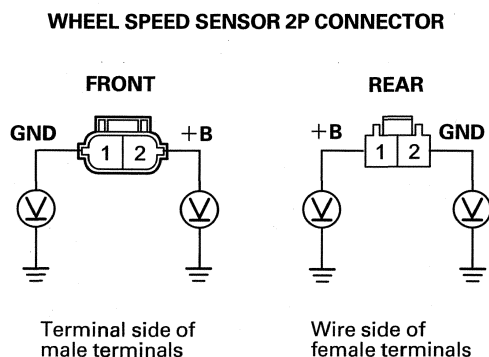
NO—Go to step 16.

12. Turn the ignition switch to LOCK (0).

13. Disconnect the appropriate wheel speed sensor 2P connector (see page 19-83).

14. Turn the ignition switch to ON (II).

15. On the sensor side, measure the voltage between body ground and wheel speed sensor 2P connector terminals No. 1 and No. 2 individually.



Is there 0.1 V or more?

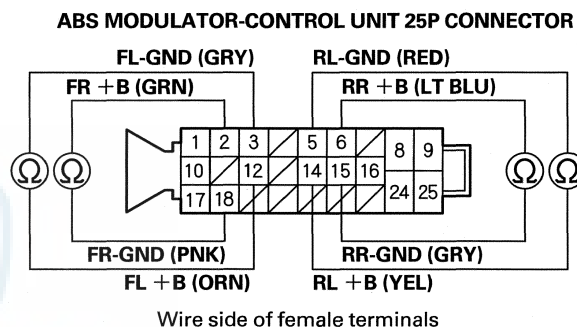
YES—Replace the appropriate wheel speed sensor (see page 19-83). ■

NO—Repair a short to power in the wire between the ABS modulator-control unit and the appropriate wheel speed sensor. ■

16. Turn the ignition switch to LOCK (0).
17. Disconnect the appropriate wheel speed sensor 2P connector (see page 19-83).

18. Check for continuity between the appropriate ABS modulator-control unit 25P connector wheel speed sensor +B and GND terminals (see table).

DTC	Appropriate Terminal	
	+B	GND
11-13 Right-front	FR +B: No. 2	FR-GND: No. 18
13-13 Left-front	FL +B: No. 12	FL-GND: No. 3
15-13 Right-rear	RR +B: No. 6	RR-GND: No. 15
17-13 Left-rear	RL +B: No. 14	RL-GND: No. 5



Is there continuity?

YES—Repair a short in the wire between the appropriate wheel speed sensor and the ABS modulator-control unit. ■

NO—Go to step 19.

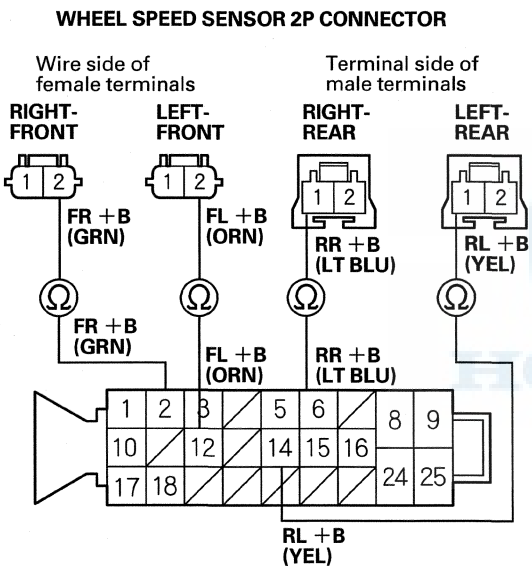
(cont'd)

ABS Components

DTC Troubleshooting (cont'd)

19. Check for continuity between the appropriate ABS modulator-control unit 25P connector terminal and the wheel speed sensor 2P connector terminal (see table).

DTC	ABS Modulator-control Unit 25P Connector Terminal	Appropriate Wheel Speed Sensor 2P Connector Terminal
11-13	No. 2	Right-front
13-13	No. 12	Left-front
15-13	No. 6	Right-rear
17-13	No. 14	Left-rear



ABS MODULATOR-CONTROL UNIT 25P CONNECTOR
Wire side of female terminals

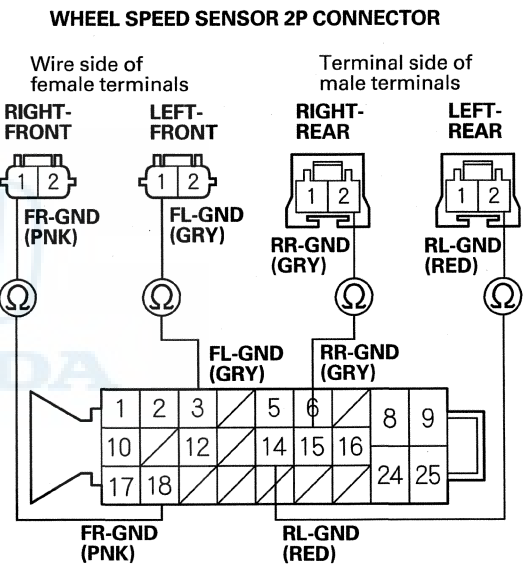
Is there continuity?

YES—Go to step 20.

NO—Repair an open in the wire between the appropriate wheel speed sensor and the ABS modulator-control unit.■

20. Check for continuity between the appropriate ABS modulator-control unit 25P connector terminal and the wheel speed sensor 2P connector terminal (see table).

DTC	ABS Modulator-control Unit 25P Connector Terminal	Appropriate Wheel Speed Sensor 2P Connector Terminal
11-13	No. 18	Right-front
13-13	No. 3	Left-front
15-13	No. 15	Right-rear
17-13	No. 5	Left-rear



ABS MODULATOR-CONTROL UNIT 25P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—

- If a DTC is indicated for either one of the left and right wheels as described in step 4, go to step 21.
- If DTCs are indicated for both the left and right wheels as described in step 4, go to step 26.

NO—Repair an open in the wire between the appropriate wheel speed sensor and the ABS modulator-control unit.■

21. Swap the appropriate left and right wheel speed sensors (see page 19-83).
22. Reconnect all connectors.



23. Turn the ignition switch to ON (II).
24. Clear the DTC with the HDS.
25. Turn the ignition switch to LOCK (0). and then back to ON (II).
26. Check for DTCs with the HDS.

DTC Before Swapping	DTC After Swapping
11-13 (Right-front)	13-13 (Left-front)
13-13 (Left-front)	11-13 (Right-front)
15-13 (Right-rear)	17-13 (Left-rear)
17-13 (Left-rear)	15-13 (Right-rear)

Is the DTC indicated for the opposite wheel?

YES—Replace the original wheel speed sensor (see page 19-83). ■

NO—Go to step 27. ■

27. Substitute a known-good wheel speed sensor (see page 19-83).
28. Reconnect all connectors.
29. Turn the ignition switch to ON (II).
30. Clear the DTC with the HDS.
31. Turn the ignition switch to LOCK (0) and then back to ON (II).
32. Check for DTCs with the HDS.

Is DTC 11-13, 13-13, 15-13, or 17-13 indicated?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81). ■

NO—Replace the original wheel speed sensor (see page 19-83). ■

DTC 12-11: Right-front Wheel Speed Sensor Electrical Noise or Intermittent Interruption

DTC 14-11: Left-front Wheel Speed Sensor Electrical Noise or Intermittent Interruption

DTC 16-11: Right-rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption

DTC 18-11: Left-rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).
- If the ABS and other indicators come on because of electrical noise, the indicators will go off when you test-drive the vehicle speed at 9 mph (15 km/h) or more and the noise is gone.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

4. Check for DTCs with the HDS.

Is DTC 12-11, 14-11, 16-11, or 18-11 indicated?

YES—If the DTC 12-12, 14-12, 16-12, or 18-12 is indicated at the same time, do the DTC 12-12, 14-12, 16-12, or 18-12 troubleshooting (see page 19-62). If DTC 12-12, 14-12, 16-12, or 18-12 is not indicated, but 12-11, 14-11, 16-11, or 18-11 is indicated, go to step 5.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

(cont'd)

ABS Components

DTC Troubleshooting (cont'd)

5. Turn the ignition switch to LOCK (0).
6. Check that the appropriate wheel speed sensor is properly mounted (see page 19-83).

DTC	Appropriate Wheel Speed Sensor
12-11	Right-front
14-11	Left-front
16-11	Right-rear
18-11	Left-rear

Is the wheel speed sensor installation OK?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81). ■

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-83), go to step 2.

DTC 12-12: Right-front Wheel Speed Sensor Short to the Other Sensor Circuit

DTC 14-12: Left-front Wheel Speed Sensor Short to the Other Sensor Circuit

DTC 16-12: Right-rear Wheel Speed Sensor Short to the Other Sensor Circuit

DTC 18-12: Left-rear Wheel Speed Sensor Short to the Other Sensor Circuit

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).
- If the ABS and other indicators come on because of electrical noise, the indicators will go off when you test-drive the vehicle speed at 9 mph (15 km/h) or more and the noise is gone.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle. Drive the vehicle at 13 mph (20 km/h) or more, and go a distance of 328 ft (100 m) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 12-12, 14-12, 16-12, or 18-12 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

6. Turn the ignition switch to LOCK (0).
7. Disconnect the ABS modulator-control unit 25P connector (see step 3 on page 19-81).

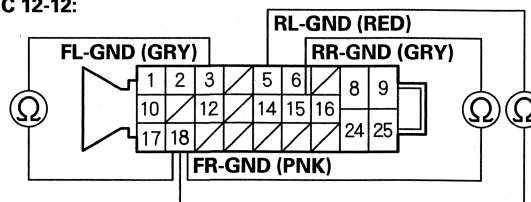


8. Check for continuity between the appropriate ABS modulator-control unit 25P connector wheel speed sensor GND terminals (see table).

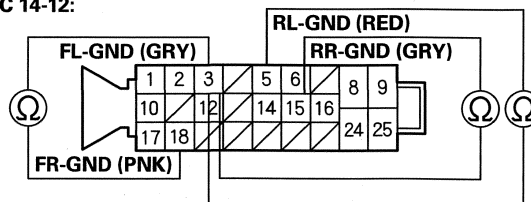
DTC	ABS Modulator-control Unit 25P Connector Terminal			
	Appropriate Terminal	Other Terminals		
12-12	FR-GND: No.18	No. 3	No. 15	No. 5
14-12	FL-GND: No. 3	No. 18	No. 15	No. 5
16-12	FL-GND: No.15	No. 18	No. 3	No. 5
18-12	FL-GND: No. 5	No. 18	No. 3	No. 15

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR

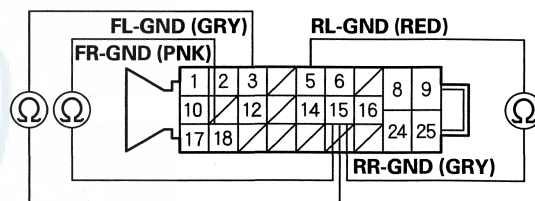
DTC 12-12:



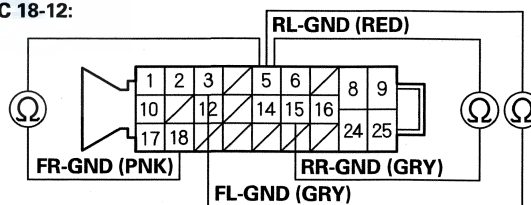
DTC 14-12:



DTC 16-12:



DTC 18-12:



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wires between the appropriate wheel speed sensor and the ABS modulator-control unit.■

NO—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81).■

(cont'd)

ABS Components

DTC Troubleshooting (cont'd)

DTC 12-21: Right-front Wheel Speed Sensor Installation Error

DTC 14-21: Left-front Wheel Speed Sensor Installation Error

DTC 16-21: Right-rear Wheel Speed Sensor Installation Error

DTC 18-21: Left-rear Wheel Speed Sensor Installation Error

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Test-drive the vehicle. Drive the vehicle at 7 mph (10 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

2. Check the RF, LF, RR, LR WHEEL SPEED in the ABS DATA LIST with the HDS.

Are all four values the same?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).

4. Check that the appropriate wheel speed sensor is properly mounted (see page 19-83).

DTC	Appropriate Wheel Speed Sensor
12-21	Right-front
14-21	Left-front
16-21	Right-rear
18-21	Left-rear

Is the wheel speed sensor installation OK?

YES—Replace the appropriate wheel speed sensor (see page 19-83). ■

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-83). ■

DTC 12-22: Right-front Wheel Speed Sensor Installation Error (19 mph (30 km/h) or More)

DTC 14-22: Left-front Wheel Speed Sensor Installation Error (19 mph (30 km/h) or More)

DTC 16-22: Right-rear Wheel Speed Sensor Installation Error (19 mph (30 km/h) or More)

DTC 18-22: Left-rear Wheel Speed Sensor Installation Error (19 mph (30 km/h) or More)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Test-drive the vehicle. Drive the vehicle between 19 mph (30 km/h) and 31 mph (50 km/h) for 70 seconds or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

2. Check the RF, LF, RR, LR WHEEL SPEED in the ABS DATA LIST with the HDS.

Are all four values the same?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).

4. Check that the appropriate wheel speed sensor is properly mounted (see page 19-83).

DTC	Appropriate Wheel Speed Sensor
12-22	Right-front
14-22	Left-front
16-22	Right-rear
18-22	Left-rear

Is the wheel speed sensor installation OK?

YES—Replace the appropriate wheel speed sensor (see page 19-83). ■

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-83). ■



DTC 12-23: Right-front Wheel Speed Sensor Installation Error (0 to 9 mph (0 to 15 km/h))

DTC 14-23: Left-front Wheel Speed Sensor Installation Error (0 to 9 mph (0 to 15 km/h))

DTC 16-23: Right-rear Wheel Speed Sensor Installation Error (0 to 9 mph (0 to 15 km/h))

DTC 18-23: Left-rear Wheel Speed Sensor Installation Error (0 to 9 mph (0 to 15 km/h))

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Test-drive the vehicle. Drive the vehicle between 1 mph (1 km/h) and 9 mph (15 km/h).

NOTE: Drive the vehicle on a straight section of road, not on a lift.

2. Check the RF, LF, RR, LR WHEEL SPEED in the ABS DATA LIST with the HDS.

Are all four values the same?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Check that the appropriate wheel speed sensor is properly mounted (see page 19-83).

DTC	Appropriate Wheel Speed Sensor
12-23	Right-front
14-23	Left-front
16-23	Right-rear
18-23	Left-rear

Is the wheel speed sensor installation OK?

YES—Replace the appropriate wheel speed sensor (see page 19-83). ■

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-83). ■

DTC 21-11: Right-front Magnetic Encoder (Wheel Bearing) Malfunction (Pulse Missing)

DTC 22-11: Left-front Magnetic Encoder (Wheel Bearing) Malfunction (Pulse Missing)

DTC 23-11: Right-rear Magnetic Encoder (Wheel Bearing) Malfunction (Pulse Missing)

DTC 24-11: Left-rear Magnetic Encoder (Wheel Bearing) Malfunction (Pulse Missing)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle. Drive the vehicle at 13 mph (20 km/h) or more, and go a distance of 328 ft (100 m) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 21-11, 22-11, 23-11, or 24-11 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

(cont'd)

ABS Components

DTC Troubleshooting (cont'd)

6. Turn the ignition switch to LOCK (0).
7. Inspect the appropriate magnetic encoder for dirt or debris.

DTC	Appropriate Magnetic Encoder	Note
21-11	Right-front	Remove the driveshaft outboard joint from the appropriate wheel hub (see page 18-16).
22-11	Left-front	
23-11	Right-rear	Remove the hub bearing unit (see page 18-32).
24-11	Left-rear	

Is the magnetic encoder surface OK?

YES—Remove the debris from the magnetic encoder, or replace the wheel bearing (front) or the hub bearing unit (rear):

- Front: Replace the front wheel bearing (see page 18-16). ■
- Rear: Replace the hub bearing unit (see page 18-32). ■

NO—Clean off dust or dirt from the appropriate magnetic encoder surface on the wheel bearing or the hub bearing unit, then go to step 1 and recheck. If the DTC is still present, replace the appropriate wheel bearing or hub bearing unit. ■

DTC 31-xx*: ABS Right-front Inlet Solenoid Valve Malfunction

DTC 32-xx*: ABS Right-front Outlet Solenoid Valve Malfunction

DTC 33-xx*: ABS Left-front Inlet Solenoid Valve Malfunction

DTC 34-xx*: ABS Left-front Outlet Solenoid Valve Malfunction

DTC 35-xx*: ABS Right-rear Inlet Solenoid Valve Malfunction

DTC 36-xx*: ABS Right-rear Outlet Solenoid Valve Malfunction

DTC 37-xx*: ABS Left-rear Inlet Solenoid Valve Malfunction

DTC 38-xx*: ABS Left-rear Outlet Solenoid Valve Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

*: Any two-character subcode (see table).

Subcode	Malfunction	Note (DTC)
01	Solenoid Initial Pulse	31-01, 32-01, 33-01, 34-01, 35-01, 36-01, 37-01, 38-01
21	Solenoid Pulse	31-21, 32-21, 33-21, 34-21, 35-21, 36-21, 37-21, 38-21
22	Solenoid Speculative	31-22, 32-22, 33-22, 34-22, 35-22, 36-22, 37-22, 38-22
23	Solenoid Stuck ON	31-23, 32-23, 33-23, 34-23, 35-23, 36-23, 37-23, 38-23



1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 31-xx, 32-xx, 33-xx, 34-xx, 35-xx, 36-xx, 37-xx, or 38-xx indicated?

YES—Replace the ABS modulator-control unit (see page 19-81). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

DTC 41-21: Right-front Wheel Lock

DTC 42-21: Left-front Wheel Lock

DTC 43-21: Right-rear Wheel Lock

DTC 44-21: Left-rear Wheel Lock

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

The DTCs may be indicated under these conditions:

- The vehicle goes into a spin.
- The ABS continues to operate for a long time.
- Snow, dirt, or debris build-up on the wheel speed sensor or magnetic encoder.
- Misadjusted brake switch.
- Contaminated brake fluid.

1. Drive the vehicle until the brakes drag or until the pedal is high and hard. This can take 20 or more brake pedal applications during an extended test-drive.
2. With the engine running, raise the vehicle on a lift (see page 1-14), and spin the appropriate wheel by hand.

DTC	Appropriate Wheel
41-21	Right-front
42-21	Left-front
43-21	Right-rear
44-21	Left-rear

Is there brake drag?

YES—Repair the brake drag (see page 19-5). ■

NO—Go to step 3.

3. Check that the appropriate wheel speed sensor is properly mounted (see page 19-83).

Is the wheel speed sensor installation OK?

YES—Go to step 4.

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-83). ■

(cont'd)

ABS Components

DTC Troubleshooting (cont'd)

4. Turn the ignition switch to ON (II).
5. Clear the DTC with the HDS.
6. Turn the ignition switch to LOCK (0).
7. Test-drive the vehicle. Drive the vehicle at 7 mph (10 km/h) for 20 seconds or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

8. Check for DTCs with the HDS.

Is DTC 41-21, 42-21, 43-21, or 44-21 indicated?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81). ■

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

DTC 51-11: Motor Lock

DTC 51-13: Motor Drive Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Wait 5 seconds.
5. Operate any one of the four solenoids, as listed, in the ABS FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

6. Check for DTCs with the HDS.

Is DTC 51-11 or 51-13 indicated?

YES—Replace the ABS modulator-control unit (see page 19-81). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■



DTC 51-12: Motor Drive Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).

4. Check for DTCs with the HDS.

Is DTC 51-12 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42).■

5. Turn the ignition switch to LOCK (0).

6. Check the No. 58 (30 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

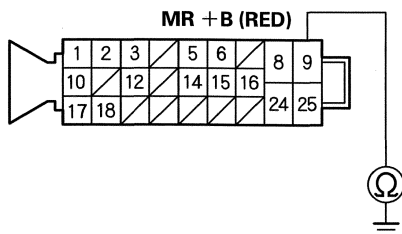
YES—Go to step 7.

NO—Reinstall the checked fuse, then go to step 14.

7. Disconnect the ABS modulator-control unit 25P connector (see step 3 on page 19-81).

8. Check for continuity between ABS modulator-control unit 25P connector terminal No. 9 and body ground.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the No. 58 (30 A) fuse in the under-dash fuse/relay box and the ABS modulator-control unit.■

NO—Install a new No. 58 (30 A) fuse in the under-dash fuse/relay box, then go to step 9.

9. Reconnect the ABS modulator-control unit 25P connector.

10. Turn the ignition switch to ON (II).

11. Clear the DTC with the HDS.

12. Turn the ignition switch to LOCK (0), then back to ON (II).

13. Check for DTCs with the HDS.

Is DTC 51-12 indicated?

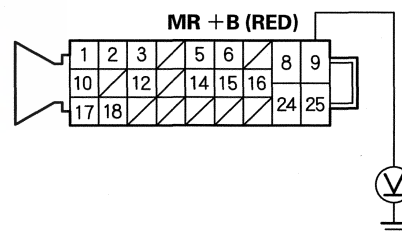
YES—Replace the ABS modulator-control unit (see page 19-81).■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42).■

14. Disconnect the ABS modulator-control unit 25P connector (see step 3 on page 19-81).

15. Measure the voltage between ABS modulator-control unit 25P connector terminal No. 9 and body ground.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81).■

NO—Repair an open in the wire between the No. 58 (30 A) fuse in the under-dash fuse/relay box and the ABS modulator-control unit.■

(cont'd)

ABS Components

DTC Troubleshooting (cont'd)

DTC 52-12: Motor Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Operate any one of the four solenoids, as listed, in the ABS FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

5. Check for DTCs with the HDS.

Is DTC 52-12 indicated?

YES—Replace the ABS modulator-control unit (see page 19-81). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

DTC 53-01: Motor Relay Stuck ON 1

DTC 53-12: Motor Relay Stuck ON 2

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

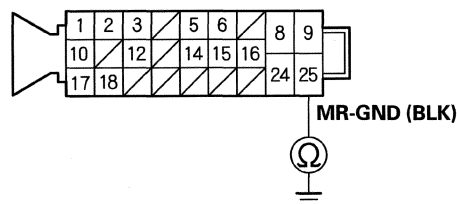
Is DTC 53-01 or 53-12 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the ABS modulator-control unit 25P connector (see step 3 on page 19-81).
7. Check for continuity between ABS modulator-control unit 25P connector terminal No. 25 and body ground.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81). ■

NO—Repair an open in the wire between the ABS modulator-control unit and body ground (G202). ■



DTC 54-03: Fail-safe Relay 1 Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 54-03 indicated?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

DTC 54-04: Fail-safe Relay 1 Stuck OFF (Initial)

DTC 54-21: Fail-safe Relay 1 Stuck OFF (Main)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 54-04 or 54-21 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

5. Turn the ignition switch to LOCK (0).
6. Check the No. 37 (30 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Go to step 7.

NO—Reinstall the checked fuse, then go to step 14.

7. Disconnect the ABS modulator-control unit 25P connector (see step 3 on page 19-81).

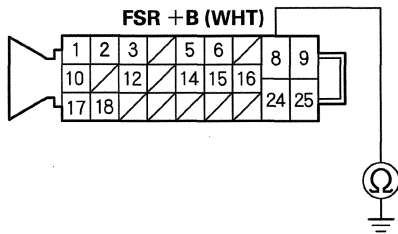
(cont'd)

ABS Components

DTC Troubleshooting (cont'd)

8. Check for continuity between ABS modulator-control unit 25P connector terminal No. 8 and body ground.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there continuity?

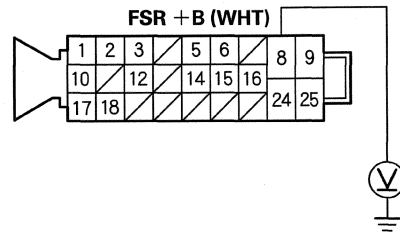
YES—Repair a short to body ground in the wire between the No. 37 (30 A) fuse in the under-dash fuse/relay box and the ABS modulator-control unit. ■

NO—Install a new No. 37 (30 A) fuse in the under-dash fuse/relay box, then go to step 9.

9. Reconnect the ABS modulator-control unit 25P connector.
10. Turn the ignition switch to ON (II).
11. Clear the DTC with the HDS.
12. Turn the ignition switch to LOCK (0) and then back to ON (II).
13. Check for DTCs with the HDS.
- Is DTC 54-04 or 54-21 indicated?*
- YES**—Replace the ABS modulator-control unit (see page 19-81). ■
- NO**—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■
14. Disconnect the ABS modulator-control unit 25P connector (see step 3 on page 19-81).

15. Measure the voltage between ABS modulator-control unit 25P connector terminal No. 8 and body ground.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81). ■

NO—Repair an open in the wire between the No. 37 (30 A) fuse in the under-dash fuse/relay box and the ABS modulator-control unit. ■



DTC 61-01: ABS Modulator-control Unit Initial IG Low Voltage

DTC 61-21: ABS Modulator-control Unit Power Source Low Voltage 1

DTC 61-22: ABS Modulator-control Unit Power Source Low Voltage 2

DTC 61-23: ABS Modulator-control Unit Power Source Low Voltage 3

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then start the engine.
4. Check for DTCs with the HDS.

Is DTC 61-01, 61-21, 61-22, or 61-23 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42).■

5. Check and note BATTERY voltage in the ABS DATA LIST with the HDS.
6. Using a voltmeter, measure and note the voltage between the battery terminals.

NOTE: If the voltage is below 9.5 V, check the battery (see page 22-68), and troubleshoot the alternator regulator circuit (see page 4-27).

7. Compare the voltage noted in step 5 to the voltage in step 6.

Is the difference between the two voltage readings less than 3 V?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). If the code resets after clearing, replace the ABS modulator-control unit (see page 19-81).■

NO—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81).■

DTC 62-21: ABS Modulator-control Unit IG High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then start the engine.
4. Check for DTCs with the HDS.

Is DTC 62-21 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42).■

5. Check and note BATTERY voltage in the ABS DATA LIST with the HDS.
6. Using a voltmeter, measure and note the voltage between the battery terminals.

NOTE: If the voltage is more than 15.1 V, troubleshoot the alternator regulator circuit (see page 4-27).

7. Compare the voltage noted in step 5 to the voltage in step 6.

Is the difference between the two voltage readings less than 3 V?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). If the code resets after clearing, replace the ABS modulator-control unit (see page 19-81).■

NO—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81).■

(cont'd)

ABS Components

DTC Troubleshooting (cont'd)

DTC 71-21: Right-front or Left-rear Different Diameter Tire Malfunction

DTC 71-22: Left-front or Right-rear Different Diameter Tire Malfunction

DTC 71-23: Right-front and Right-rear Different Diameter Tire Malfunction

DTC 71-24: Left-front and Left-rear Different Diameter Tire Malfunction

DTC 71-25: Right-front and Left-front Different Diameter Tire Malfunction

DTC 71-26: Right-rear and Left-rear Different Diameter Tire Malfunction

NOTE:

- NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).
- The DTC will be indicated when the vehicle has a different diameter tire(s) compared to the other tire(s).

1. Check the tires for proper inflation.
2. Turn the ignition switch to ON (II).
3. Clear the DTC with the HDS.
4. Turn the ignition switch to LOCK (0).
5. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

6. Check for DTCs with the HDS.

Is DTC 71-21, 71-22, 71-23, 71-24, 71-25, or 71-26 indicated?

YES—Replace tires as needed until all their diameters match. ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

DTC 81-xx*: Central Processing Unit (CPU) Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

*: Any two-character subcode (Except DTC 81-11, 81-51, and 81-52).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 81-xx indicated?

YES—If the DTC 81-11, 81-51, or 81-52 is indicated at the same time, do the DTC 81-11, 81-51, or 81-52 troubleshooting (see page 19-75). If DTC 81-11, 81-51, or 81-52 is not indicated, replace the ABS modulator-control unit (see page 19-81), and retest. ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■



**DTC 81-11: Central Processing Unit (CPU)
Internal Circuit Malfunction**

**DTC 81-51: Central Processing Unit (CPU)
Internal Circuit Malfunction**

**DTC 81-52: Central Processing Unit (CPU)
Internal Circuit Malfunction**

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 81-11, 81-51, or 81-52 indicated?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

DTC 86-01: F-CAN Bus-off Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 86-01 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42). ■

5. Turn the ignition switch to LOCK (0).
6. Short the SCS line with the HDS.
7. Disconnect ECM/PCM connector A (49P) (see page 11-215).
8. Disconnect the ABS modulator-control unit 25P connector (see step 3 on page 19-81).

(cont'd)

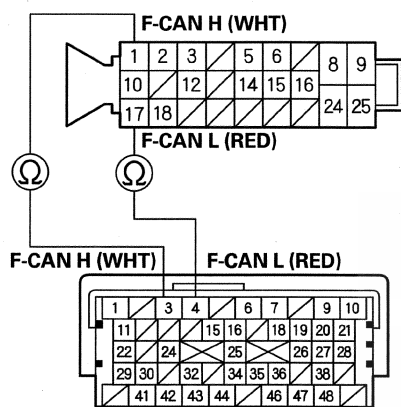
ABS Components

DTC Troubleshooting (cont'd)

9. Check for continuity between the ABS modulator-control unit 25P connector terminal and ECM/PCM connector A (49P) terminal (see table).

Sign	ABS Modulator-control Unit 25P Connector Terminal	ECM/PCM Connector A (49P) Terminal
F-CAN L	No. 17	A4
F-CAN H	No. 1	A3

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR
Wire side of female terminals



ECM/PCM CONNECTOR A (49P)
Terminal side of female terminals

Is there continuity?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81).■

NO—Repair an open in the wire between the ECM/PCM and the ABS modulator-control unit.■

DTC 86-24: F-CAN Communication With Engine Malfunction

DTC 86-25: F-CAN Communication With Engine Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle. Drive the vehicle at 7 mph (10 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 86-24 or 86-25 indicated?

YES—Go to step 6.

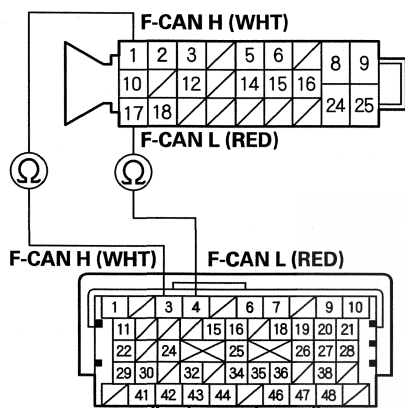
NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42).■

6. Turn the ignition switch to LOCK (0).
7. Short the SCS line with the HDS.
8. Disconnect ECM/PCM connector A (49P) (see page 11-215).
9. Disconnect the ABS modulator-control unit 25P connector (see step 3 on page 19-81).

10. Check for continuity between the ABS modulator-control unit 25P connector terminal and ECM/PCM connector A (49P) terminal (see table).

Sign	ABS Modulator-control Unit 25P Connector Terminal	ECM/PCM Connector A (49P) Terminal
F-CAN L	No. 17	A4
F-CAN H	No. 1	A3

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR
Wire side of female terminals



ECM/PCM CONNECTOR A (49P)
Terminal side of female terminals

Is there continuity?

YES—Go to step 11.

NO—Repair an open in the wire between the ECM/PCM and the ABS modulator-control unit. ■

11. Reconnect all connectors.

12. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

13. Clear the DTC with the HDS.

14. Test-drive the vehicle. Drive the vehicle at 7 mph (10 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

15. Check for DTCs with the HDS.

Is DTC 86-24 or 86-25 indicated?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81). ■

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). ■

(cont'd)

ABS Components

DTC Troubleshooting (cont'd)

DTC 86-FF: F-CAN Communication With ABS Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-41).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 86-FF indicated?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81).■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-42).■

Symptom Troubleshooting

ABS indicator and brake system indicator do not go off

1. Turn the ignition switch to LOCK (0).
2. Check the No. 11 (7.5 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Replace the fuse. Turn the ignition switch to ON (II), then turn it to LOCK (0) again. If the fuse blows again, repair the short to ground on the No. 11 (7.5 A) fuse circuit.■

NO—Reinstall the checked fuse, then go to step 3.

3. Check the No. 37 (30 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Replace the fuse. Turn the ignition switch to ON (II), then turn it to LOCK (0) again. If the fuse blows again, repair the short to ground on the No. 37 (30 A) fuse circuit.■

NO—Reinstall the checked fuse, then go to step 4.

4. Do the gauge control module self-diagnostic function (see page 22-274).

Is the gauge control module OK?

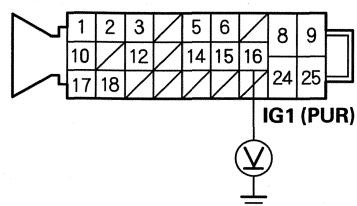
YES—Go to step 5.

NO—Replace the gauge control module (see page 22-294).

5. Turn the ignition switch to LOCK (0).
6. Disconnect the ABS modulator-control unit 25P connector (see step 3 on page 19-81).
7. Turn the ignition switch to ON (II).

8. Measure the voltage between ABS modulator-control unit 25P connector terminal No. 16 and body ground.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there battery voltage?

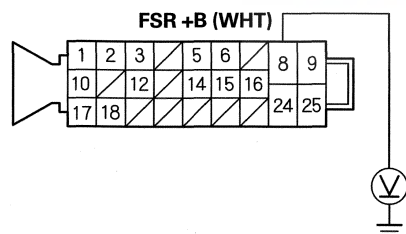
YES—Go to step 9.

NO—Repair an open in the wire between the No. 11 (7.5 A) fuse in the under-dash fuse/relay box and the ABS modulator-control unit. ■

9. Turn the ignition switch to LOCK (0).

10. Measure the voltage between ABS modulator-control unit 25P connector terminal No. 8 and body ground.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

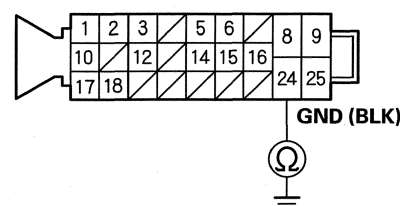
Is there battery voltage?

YES—Go to step 11.

NO—Repair an open in the wire between the No. 37 (30 A) fuse in the under-dash fuse/relay box and the ABS modulator-control unit. ■

11. Check for continuity between ABS modulator-control unit 25P connector terminal No. 24 and body ground.

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair an open in the wire between the ABS modulator-control unit and body ground (G202). ■

12. Disconnect the gauge control module 32P connector (see page 22-294).

(cont'd)

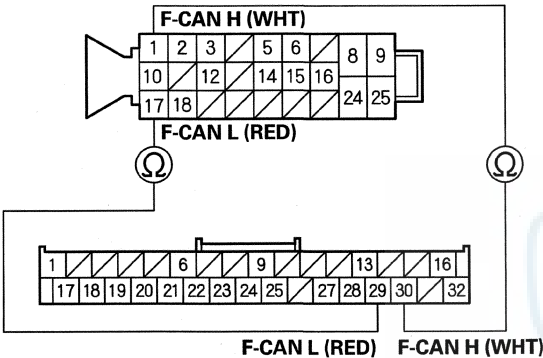
ABS Components

Symptom Troubleshooting (cont'd)

13. Check for continuity between the ABS modulator-control unit 25P connector terminal and gauge control module 32P connector terminal (see table).

Sign	ABS Modulator-control Unit 25P Connector Terminal	Gauge Control Module 32P Connector Terminal
F-CAN L	No. 17	No. 29
F-CAN H	No. 1	No. 30

ABS MODULATOR-CONTROL UNIT 25P CONNECTOR
Wire side of female terminals



GAUGE CONTROL MODULE 32P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Check for loose terminals in the ABS modulator-control unit 25P connector. If the symptom/indication is still present, replace the ABS modulator-control unit (see page 19-81).■

NO—Repair an open in the wire between the gauge control module and the ABS modulator-control unit.■

ABS Modulator-Control Unit Removal and Installation

NOTICE

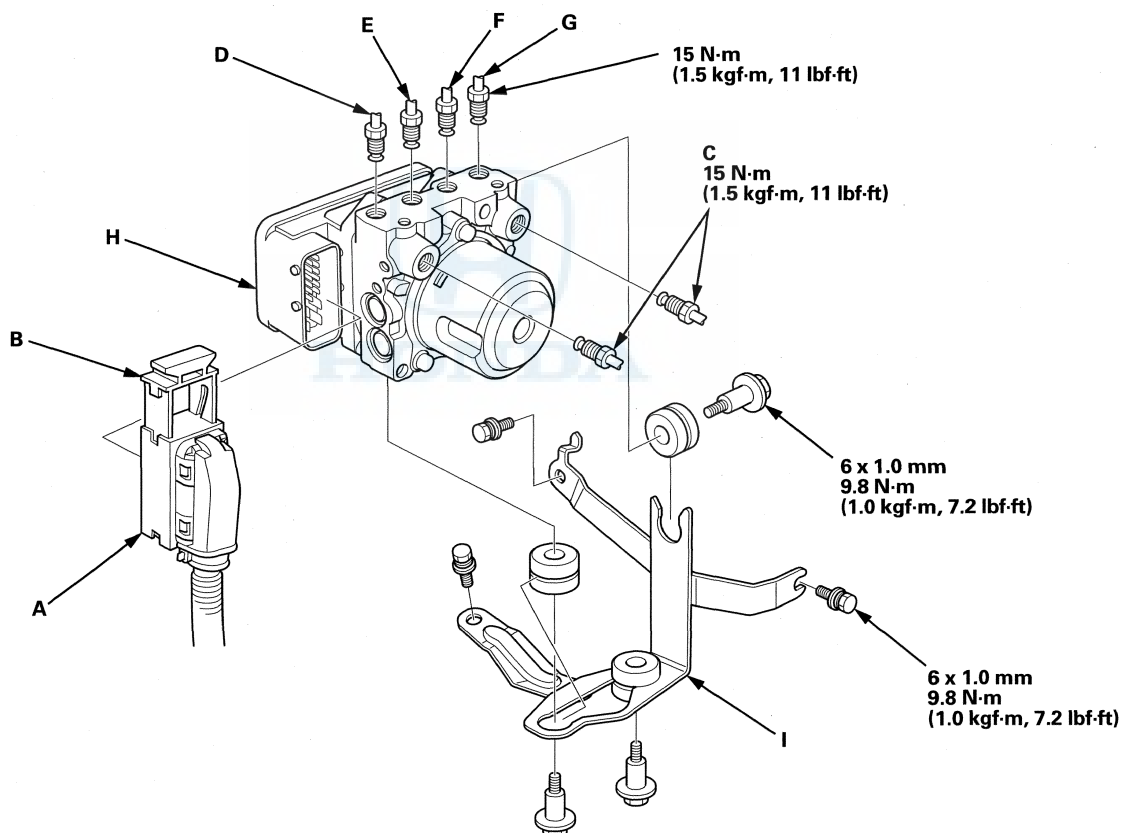
Do not spill brake fluid on the vehicle; it may damage the paint. If brake fluid gets on the paint, wash it off immediately with water.

NOTE:

- Be careful not to damage or bend the brake lines during removal and installation.
- To prevent the brake fluid from dripping, plug and cover the hose ends and joints with a shop towel.

Removal

1. Turn the ignition switch to LOCK (0).
2. Remove the washer reservoir (see page 22-264).
3. Disconnect the ABS modulator-control unit 25P connector (A) by pulling up the lock (B); the connector disconnects itself.



4. Disconnect the six brake lines from the ABS modulator-control unit.
NOTE: Brake lines are connected to the master cylinder (C) and to the right-front (D), the left-rear (E), the right-rear (F), and the left-front (G) brake systems.
5. Remove the ABS modulator-control unit (H) with the bracket (I) from the body.
6. Remove the ABS modulator-control unit from the bracket.

(cont'd)

ABS Components

ABS Modulator-Control Unit Removal and Installation (cont'd)

Installation

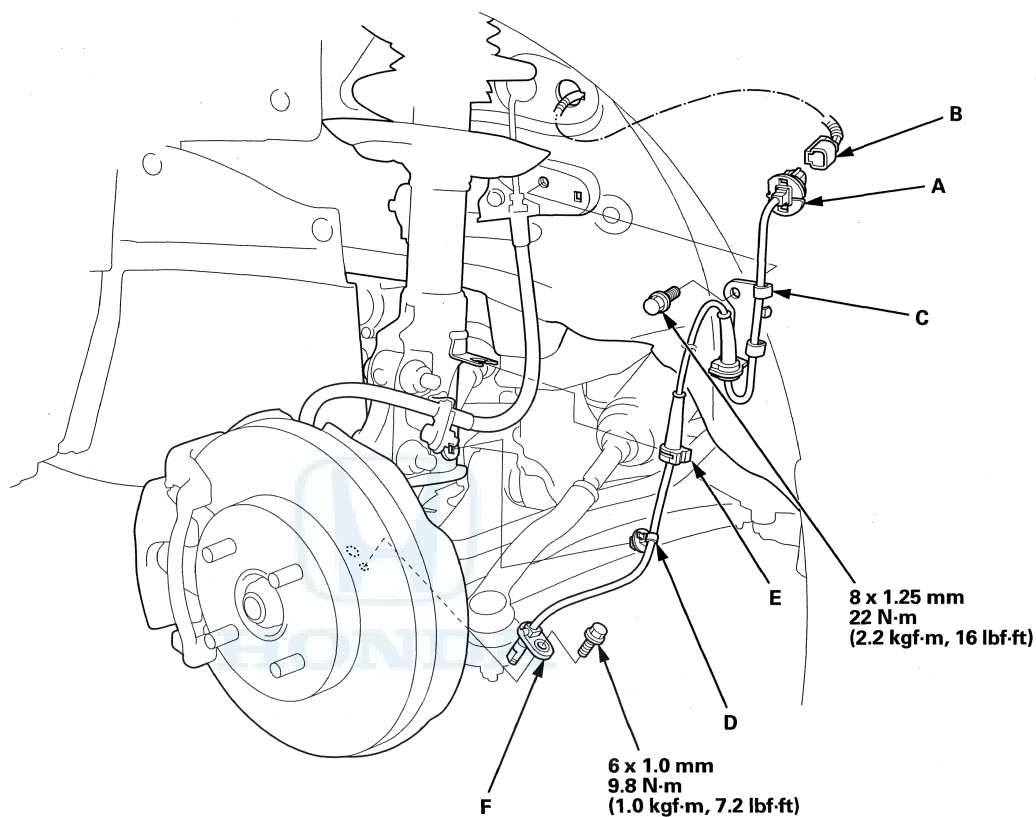
1. Install the ABS modulator-control unit onto the bracket.
2. Install the bracket with the ABS modulator-control unit to the body.
3. Reconnect the six brake lines, then tighten the flare nuts to the specified torque.
4. Align the connecting surface of the ABS modulator-control unit 25P connector to the ABS modulator-control unit.
5. Lower the lock of the ABS modulator-control unit 25P connector, then confirm the connector is fully seated.
6. Install the washer reservoir (see page 22-264).
7. Bleed the brake system (see page 19-8).



Wheel Speed Sensor Replacement

Front

1. Turn the ignition switch to LOCK (0).
2. Remove the grommet (A), then disconnect the wheel speed sensor connector (B).



3. Remove the bracket (C), the clip (D), and the wire guide rubber (E).
4. Remove the bolt and the wheel speed sensor (F).
5. Install the wheel speed sensor in the reverse order of removal, and note these items:
 - Do not twist the sensor wires.
 - If the wheel speed sensor comes in contact with the wheel bearing, it is faulty.
 - Make sure the grommet is installed properly.

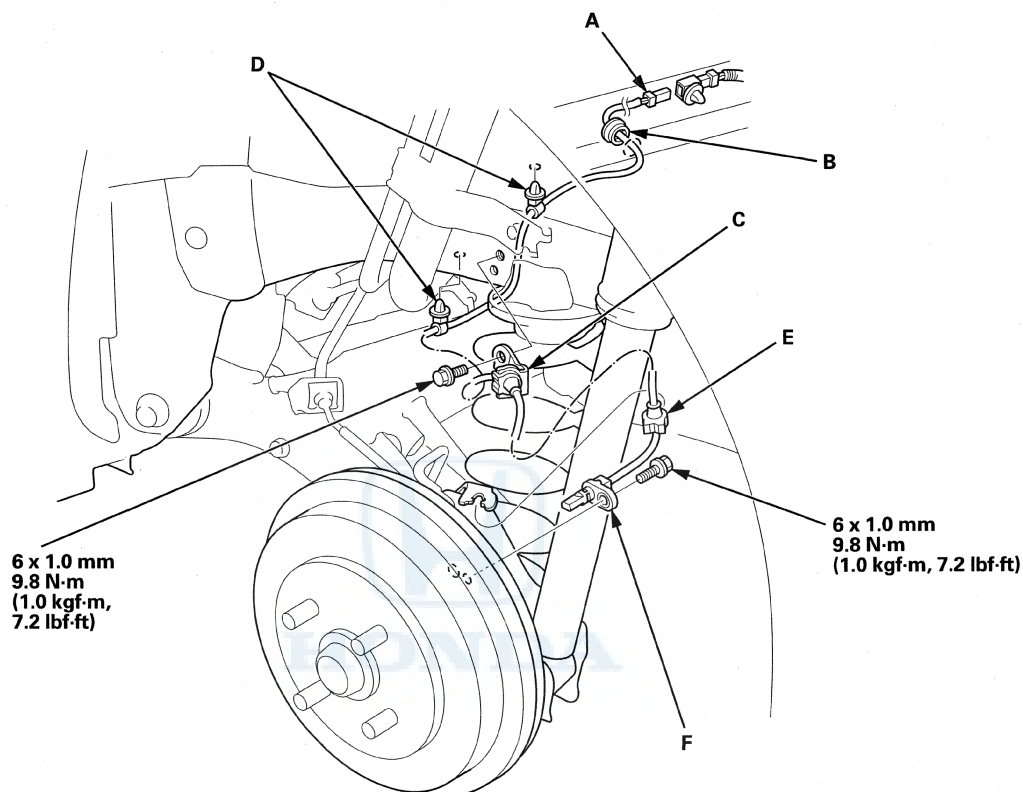
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ABS Components

Wheel Speed Sensor Replacement (cont'd)

Rear

1. Turn the ignition switch to LOCK (0).
2. Pull back the carpet under the rear seat, then disconnect the wheel speed sensor connector (A).



3. Remove the grommet (B), the bracket (C), the clips (D), and the wire guide rubber (E).
4. Remove the bolt and the wheel speed sensor (F).
5. Install the wheel speed sensor in the reverse order of removal, and note these items:
 - Do not twist the sensor wires.
 - If the wheel speed sensor comes in contact with the hub bearing unit, it is faulty.
 - Make sure the grommet is installed properly.

VSA System Components - 09-11 Models

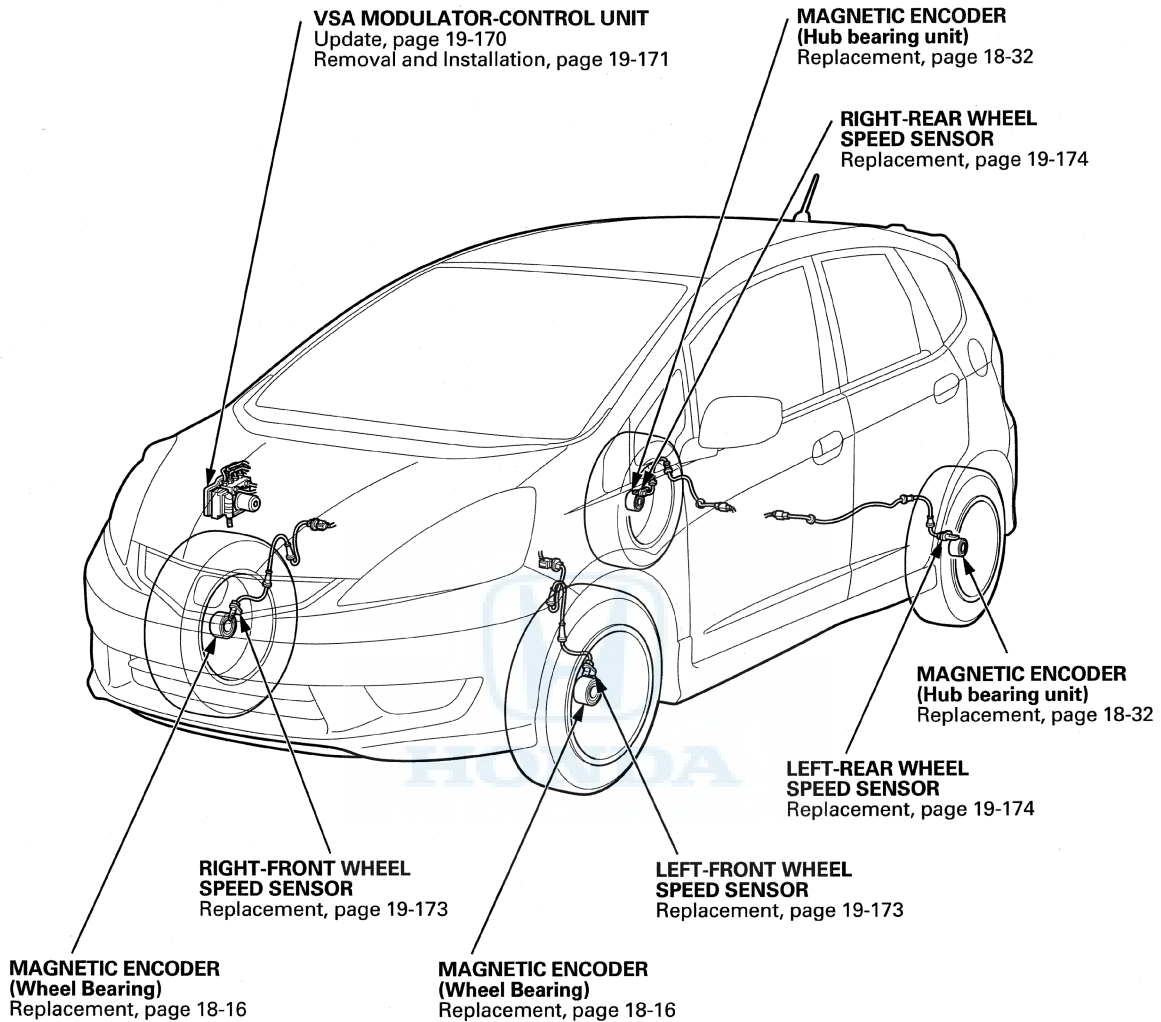
VSA System Components

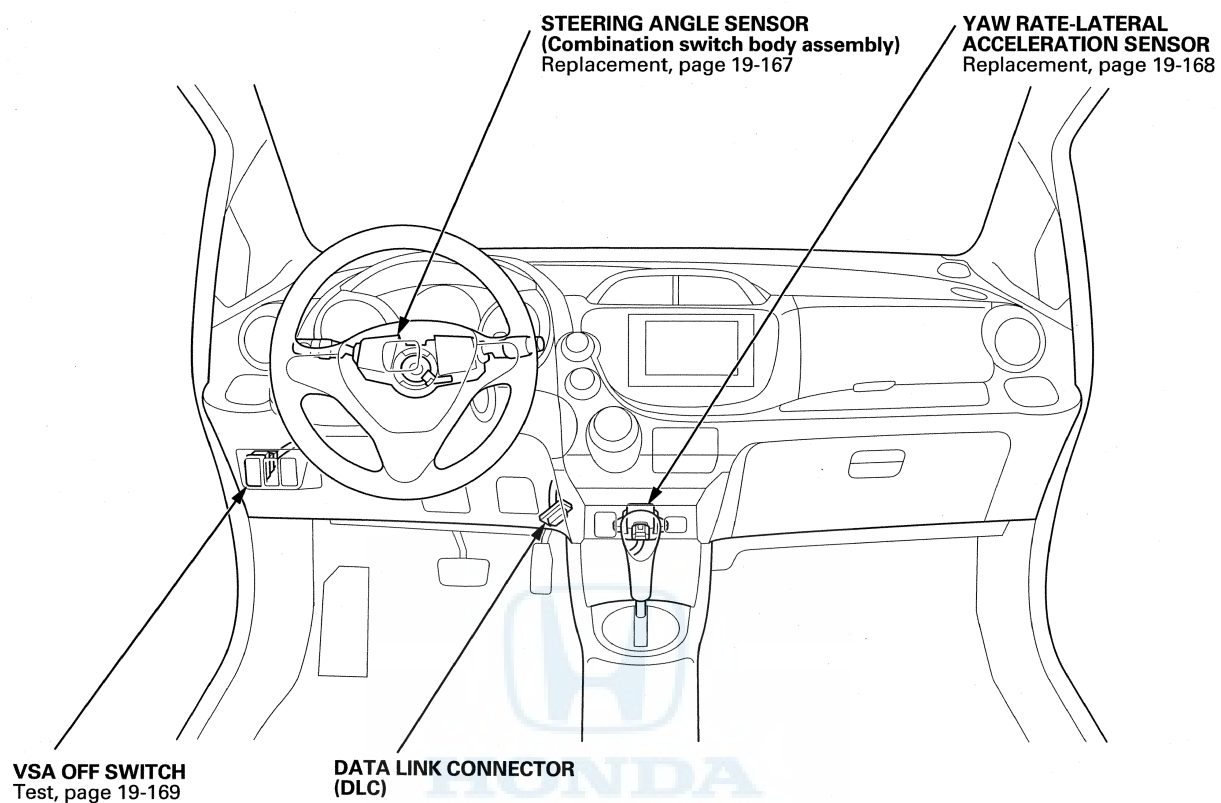
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VSA System Components

Component Location Index





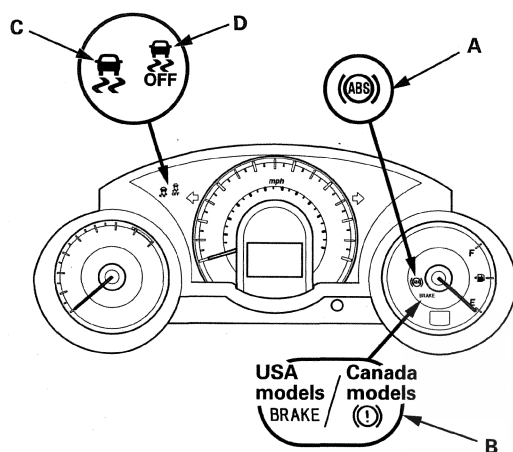
VSA System Components

General Troubleshooting Information

System Indicator

This system has four indicators:

- ABS indicator (A)
- Brake system indicator (B)
- VSA indicator (C)
- VSA OFF indicator (D)



When the system is OK, each indicator comes on for about 2 seconds after turning the ignition switch to ON (II), then goes off.

When the system detects a problem, a DTC will set and, depending upon the failure, the VSA modulator-control unit determines which indicator(s) will turn on. If the problem goes away (system returns to normal), the indicator(s) will be controlled in the following way depending upon the DTC that was set:

- The indicator(s) will come on and stay on when the ignition switch is ON (II).
- The indicator(s) will automatically go off.
- The indicator(s) will go off after the vehicle is driven.

ABS Indicator

The ABS indicator comes on when the ABS function is lost. The brakes still work like a conventional system.

Brake System Indicator

The brake system indicator comes on when the electronic brake distribution (EBD) function is lost, the parking brake is applied, and/or the brake fluid level is low.

NOTE: If two or more wheel speed sensors fail, the brake system indicator will come on.

VSA Indicator

The VSA indicator comes on when the VSA function is lost. The VSA indicator blinks when the VSA function is activating.

VSA OFF Indicator

The VSA OFF indicator comes on, when the VSA is turned OFF by using the VSA OFF switch.



Diagnostic Trouble Code (DTC)

- The memory can hold all DTCs. However, when the same DTC is detected more than once, the more recent DTC is written over the earlier one. Therefore, when the same problem is detected repeatedly, it is memorized as a single DTC, with the latest freeze data.
- The DTCs are indicated in ascending number order, not in the order they occur.
- The DTCs are memorized in an EEPROM in the VSA modulator-control unit. Therefore, the memorized DTCs cannot be erased by disconnecting the battery. Do the specified procedures to clear the DTCs.

Self-diagnosis

- Self-diagnosis can be classified into two categories:
 - Initial diagnosis: Done right after the ignition switch is turned to ON (II) and until the ABS and VSA indicators go off.
 - Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned to LOCK (0).
- When the system detects a problem, the VSA modulator-control unit shifts to fail-safe mode.

Kickback

The pump motor operates when the VSA modulator-control unit is functioning, and the fluid in the reservoir is forced out to the master cylinder, causing kickback at the brake pedal.

Pump Motor

- The pump motor operates when the VSA modulator-control unit is functioning.
- The VSA modulator-control unit checks the pump motor operation one time after completing initial diagnosis during regular diagnosis when the vehicle is driven over 10 mph (15 km/h).

Brake Fluid Replacement/Air Bleeding

Brake fluid replacement and air bleeding procedures are identical to the procedures used on vehicles without the VSA system (see page 19-8).

How to Troubleshoot DTCs

The troubleshooting procedures assume that the cause of the problem is still present and the ABS and/or VSA indicator is still on. Following a troubleshooting procedure for a DTC that has been cleared but does not reset can result in incorrect diagnosis.

NOTE: Always troubleshoot powertrain DTCs first.

1. Question the customer about the conditions when the problem occurred, and try to reproduce the same conditions for troubleshooting. Find out when the ABS and/or VSA indicator came on, such as during activation, after activation, when the vehicle was traveling at a certain speed, etc. If necessary, have the customer demonstrate the concern.
2. When the ABS or VSA indicators does not come on during the test-drive, check for loose connectors, poor contact of the terminals, etc. in the circuit indicated by the DTC before you start troubleshooting.
3. After troubleshooting, or the repairs are done, clear the DTCs, and test-drive the vehicle under the same conditions that originally set the DTCs. Make sure the ABS and VSA indicators do not come on.

Intermittent Failures

The term “intermittent failure” means a system may have had a failure, but it checks OK now. If you cannot reproduce the condition, check for loose connections and terminals. Also check for ground and power connections related to the circuit that you are troubleshooting.

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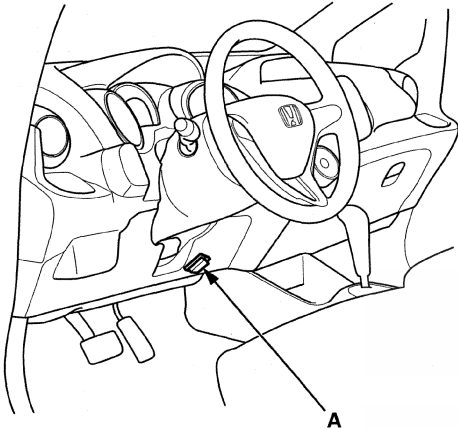
VSA System Components

General Troubleshooting Information (cont'd)

How to Use the HDS (Honda Diagnostic System)

NOTE: Make sure the battery is in good condition and fully charged.

1. If the system indicators stay on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it does not, troubleshoot the DLC circuit (see page 11-193).
4. Check the diagnostic trouble code (DTC) and note it. Then refer to the indicated DTC's troubleshooting, and do the appropriate troubleshooting procedure.

NOTE:

- Freeze data indicates the VSA conditions when the first system malfunction that activated the indicator was detected.
- The HDS can read the DTC, the current data, and other system data.
- For specific operations, refer to the Help menu that came with the HDS.

How to Retrieve DTCs

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it does not, troubleshoot the DLC circuit (see page 11-193).
4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC troubleshooting.
5. Turn the ignition switch to LOCK (0).

How to Clear DTCs

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it does not, troubleshoot the DLC circuit (see page 11-193).
4. Clear the DTC(s) by following the screen prompts on the HDS.
5. Turn the ignition switch to LOCK (0).



DTC Troubleshooting Index

DTC	Detection Item	Note
11	-13 Right-front Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-109)
	-14 Right-front Wheel Speed Sensor Power Source Malfunction	DTC Troubleshooting (see page 19-114)
12	-11 Right-front Wheel Speed Sensor Electrical Noise or Intermittent Interruption	DTC Troubleshooting (see page 19-114)
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13	-13 Left-front Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-109)
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34	-01 ABS Left-front Outlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-127)
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	-11	ABS Right-rear Inlet Solenoid Valve Malfunction (Feedback Signal)	DTC Troubleshooting (see page 19-127)
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	-24	ABS Right-rear Inlet Solenoid Valve Malfunction (Feedback Signal/Solenoid Stuck ON)	DTC Troubleshooting (see page 19-127)
36	-01	ABS Right-rear Outlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-127)
	-21	ABS Right-rear Outlet Solenoid Valve Malfunction (Solenoid Pulse)	DTC Troubleshooting (see page 19-127)
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37	-01	ABS Left-rear Inlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-127)
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	-22	ABS Left-rear Inlet Solenoid Valve Malfunction (Solenoid Speculative)	DTC Troubleshooting (see page 19-127)
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38	-01	ABS Left-rear Outlet Solenoid Valve Malfunction (Solenoid Initial Pulse)	DTC Troubleshooting (see page 19-127)
	-21	ABS Left-rear Outlet Solenoid Valve Malfunction (Solenoid Pulse)	DTC Troubleshooting (see page 19-127)
	-22	ABS Left-rear Outlet Solenoid Valve Malfunction (Solenoid Speculative)	DTC Troubleshooting (see page 19-127)
	-23	ABS Left-rear Outlet Solenoid Valve Malfunction (Solenoid Stuck ON)	DTC Troubleshooting (see page 19-127)
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42	-21	Left-front Wheel Lock	DTC Troubleshooting (see page 19-128)
43	-21	Right-rear Wheel Lock	DTC Troubleshooting (see page 19-128)
44	-21	Left-rear Wheel Lock	DTC Troubleshooting (see page 19-128)
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	-13	Motor Drive Circuit Malfunction	DTC Troubleshooting (see page 19-129)
52	-12	Motor Stuck OFF	DTC Troubleshooting (see page 19-132)
53	-01	Motor Relay Stuck ON 1	DTC Troubleshooting (see page 19-132)
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	-21	VSA Modulator-control Unit Power Source Low Voltage 1	DTC Troubleshooting (see page 19-135)
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	-42	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-148)

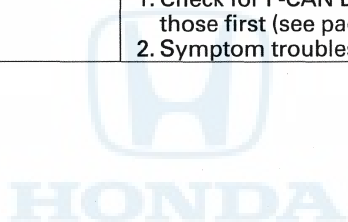
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	-21	F-CAN Communication with Engine Malfunction	DTC Troubleshooting (see page 19-154)
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	-23	F-CAN Communication with Engine Malfunction	DTC Troubleshooting (see page 19-154)
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	-31	F-CAN Communication with Gauge Control Module Malfunction	DTC Troubleshooting (see page 19-156)
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	-71	F-CAN Communication with Yaw Rate-Lateral Acceleration Sensor Malfunction	DTC Troubleshooting (see page 19-157)
107	-22	Central Processing Unit (CPU) Internal Circuit Malfunction	DTC Troubleshooting (see page 19-159)
108	-21	Steering Angle Sensor Malfunction	DTC Troubleshooting (see page 19-160)
117	-11	VSA OFF Switch Malfunction	DTC Troubleshooting (see page 19-161)
121	-01	VSA Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-162)
	-02	VSA Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-162)
	-11	VSA Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-162)
	-21	VSA Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-162)
	-24	VSA Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-162)
122	-01	VSA Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-162)
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	-23	VSA Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-162)
123	-01	VSA Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-162)
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	-23	VSA Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-162)

VSA System Components

Symptom Troubleshooting Index

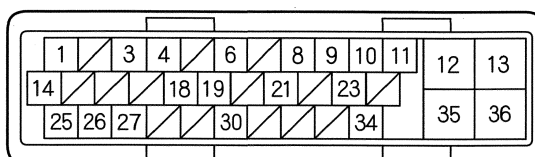
When the vehicle has one of these symptoms, check for VSA diagnostic trouble codes (DTCs) with the HDS. If there are no DTCs, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

Symptom	Diagnostic procedure
HDS does not communicate with the VSA modulator-control unit or the vehicle	Troubleshoot the DLC circuit (see page 11-193).
ABS indicator, brake system indicator, VSA indicator, or VSA OFF indicator does not come on at start-up (bulb check)	<ol style="list-style-type: none">1. Do the gauge control module self-diagnostic function (see page 22-274).2. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170), if the VSA modulator-control unit was updated and the symptom is still present, replace the VSA modulator-control unit (see page 19-171).
VSA cannot be turned OFF	<ol style="list-style-type: none">1. Symptom troubleshooting (see page 19-163).2. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170), if the VSA modulator-control unit was updated and the symptom is still present, replace the VSA modulator-control unit (see page 19-171).
VSA OFF indicator does not go off	<ol style="list-style-type: none">1. Do the VSA sensor neutral position memorization (see page 19-168).
ABS indicator, brake system indicator, and VSA indicator do not go off	<ol style="list-style-type: none">1. Check for F-CAN DTCs, and troubleshoot and repair those first (see page 11-3).2. Symptom troubleshooting (see page 19-164).



System Description

VSA Modulator-Control Unit Inputs and Outputs for 36P Connector



Wire side of female terminals

Terminal number	Wire color	Terminal sign	Description	Signal
1	RED	F-CAN L	F-CAN communication circuit	—
3	BLU	K-LINE	Communication with HDS	
4	GRY	RR-GND	Detects right-rear wheel speed sensor signal	
6	GRY	FL-GND	Detects left-front wheel speed sensor signal	
8	RED	RL-GND	Detects left-rear wheel speed sensor signal	
9	PUR	SVCC	Power source for the steering angle sensor	With ignition switch in ON (II): about 5.0 V
10	PNK	FR-GND	Detects right-front wheel speed sensor signal	—
11	BRN	STR-A	Detects steering angle sensor signal	
12	WHT	FSR +B	Power source for the fail-safe relay	Battery voltage (about 12 V) at all times
13	RED	MR +B	Power source for the motor relay	Battery voltage (about 12 V) at all times
14	WHT	F-CAN H	F-CAN communication circuit	—
18	LT BLU	RR +B	Detects right-rear wheel speed sensor signal	
19	ORN	FL +B	Detects left-front wheel speed sensor signal	
21	YEL	RL +B	Detects left-rear wheel speed sensor signal	
23	GRN	FR +B	Detects right-front wheel speed sensor signal	—
25	RED	WEN	Detects write enable signal	
26	LT BLU	STR-Z	Detects steering angle sensor signal	
27	GRN	STR-B	Detects steering angle sensor signal	
30	PUR	IG1	Power source for activating the system	With ignition switch in ON (II): battery voltage (about 12 V)
34	BLU	SGND	Ground for the steering angle sensor	—
35	BLK	GND	Ground for the VSA modulator-control unit	Continuity
36	BLK	MR-GND	Ground for the pump motor	Continuity

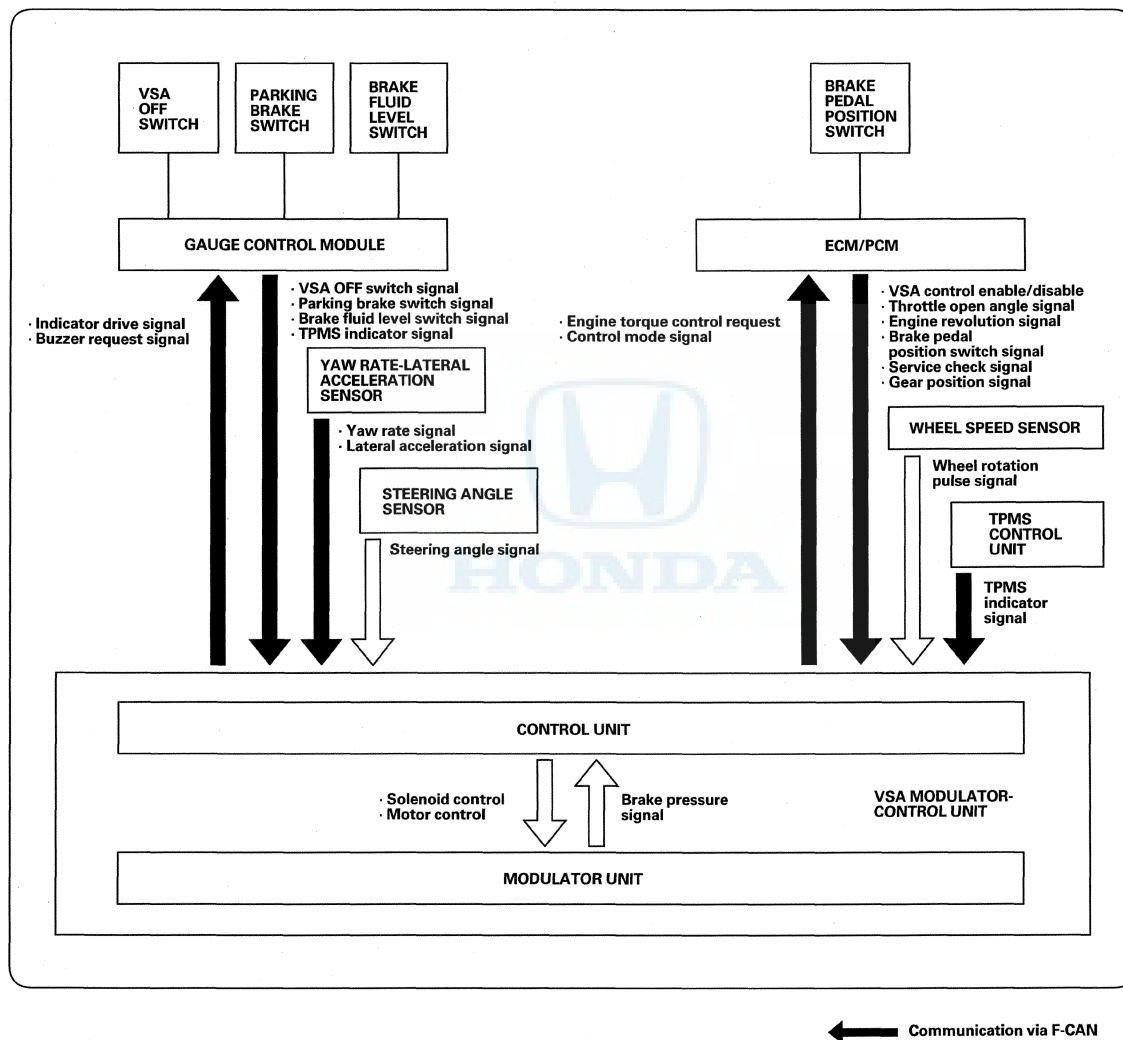
(cont'd)

VSA System Components

System Description (cont'd)

System Outline

This system is composed of the VSA modulator-control unit, the wheel speed sensors, the steering angle sensor, the yaw rate-lateral acceleration sensor, and the system indicators in the gauge control module. The VSA modulator-control unit controls the Anti-Lock Brake System (ABS), the Electronic Brake Distribution (EBD), the Traction Control System (TCS), the Vehicle Stability Assist (VSA), and brake assist with the brake pressure of each wheel and reduces engine torque.

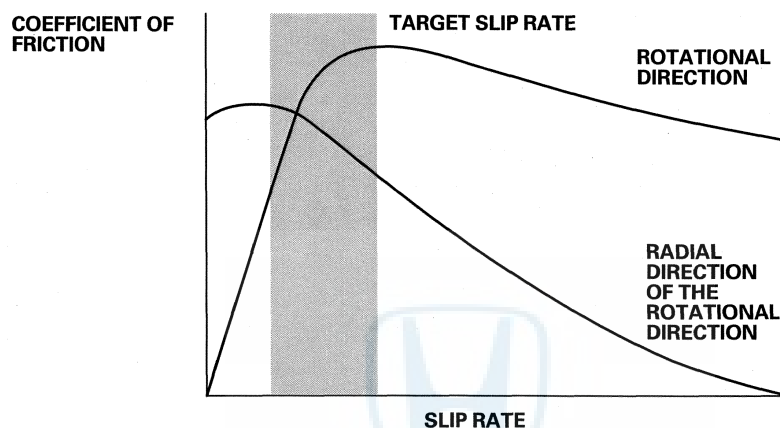


ABS (Anti-lock Brake System) Features

Anti-lock Control

Without ABS, when the brake pedal is pressed while driving, the wheels sometimes lock before the vehicle comes to a stop. In such an event, the maneuverability of the vehicle is reduced if the front wheels are locked, and the stability of the vehicle is reduced if the rear wheels are locked, creating an extremely unstable condition. With ABS, the system precisely controls the slip rate of the wheels to ensure maximum grip force from the tires, and it thereby ensures maneuverability and stability of the vehicle. The ABS calculates the slip rate of the wheels based on the four wheel speeds, and then it controls the brake fluid pressure to reach the target slip rate.

Grip force of tire and road surface

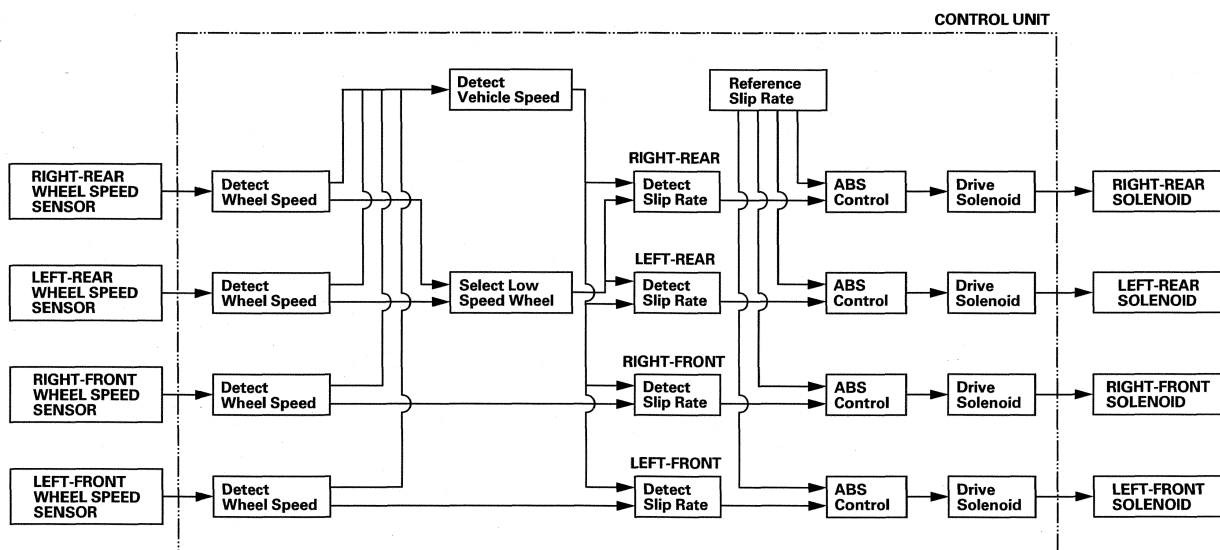


Main Control

The control unit detects the wheel speed based on the wheel speed sensor signals it receives, then it calculates the vehicle speed based on the detected wheel speed. The control unit detects the vehicle speed during deceleration based on the wheel speeds.

The control unit calculates the slip rate of each wheel, and transmits the control signal to the modulator unit solenoid valve when the slip rate is high.

The hydraulic control has three modes: Pressure intensifying, pressure reducing, and pressure retaining.



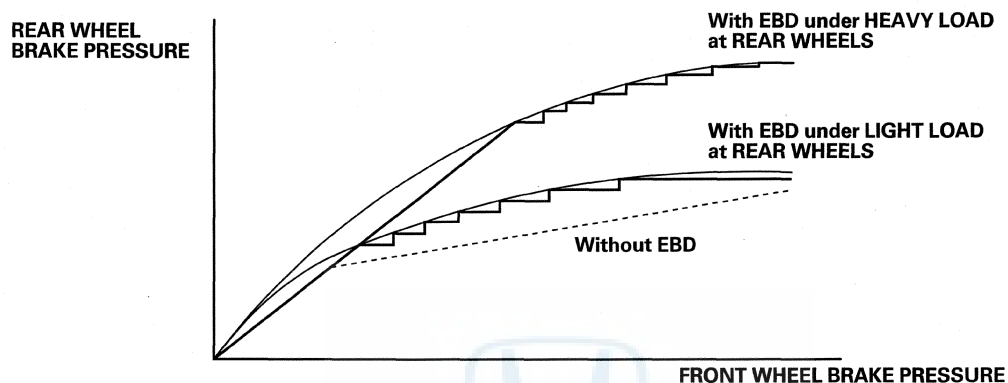
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VSA System Components

System Description (cont'd)

EBD (Electronic Brake Distribution) Features

The EBD feature helps control vehicle braking by adjusting the rear brake force in accordance with the rear wheel load before the ABS operates. Based on the wheel speed sensor signals, the control unit uses the modulator to control the rear brakes individually. When the rear wheel speed is less than the front wheel speed, the VSA modulator-control unit retains the current rear brake fluid pressure by closing the inlet valve in the modulator. As the rear wheel speed increases and approaches the front wheel speed, the VSA modulator-control unit increases the rear brake fluid pressure by momentarily opening the inlet valve. This whole process is repeated very rapidly. While this is happening, kickback may be felt at the brake pedal, you may also hear a muted buzzing sound from the VSA modulator-control unit. This is normal.



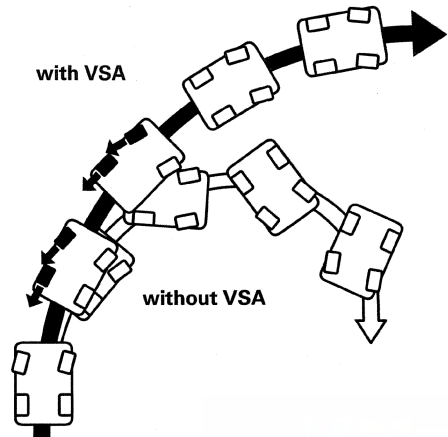
VSA System Components

System Description (cont'd)

VSA (Vehicle Stability Assist) System Features

Oversteer control

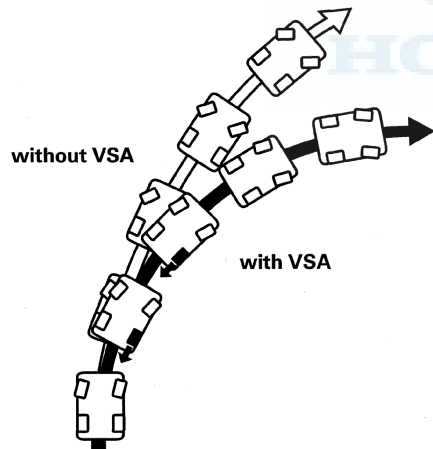
Applies the brake to the front and rear outside wheels



The brake makes the yaw rate opposite to the turning direction

Understeer control

- Applies the brake to the rear inside wheel
- Controls the engine torque when accelerating



The brake increases the yaw rate toward the turning direction

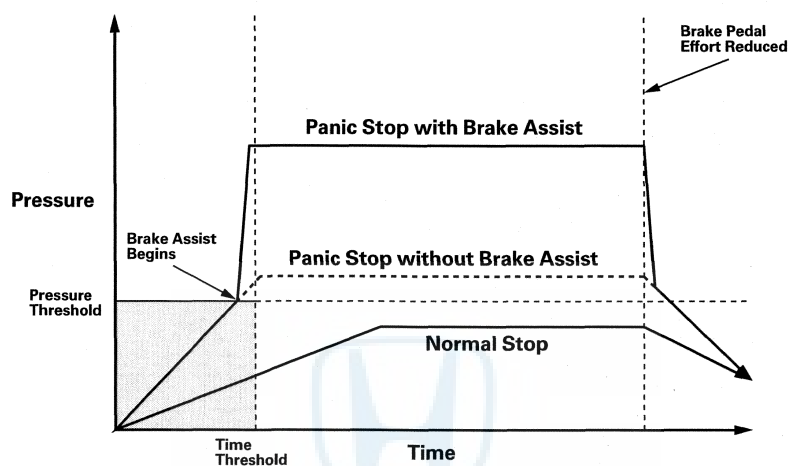
The throttle control effect;
· Reduces vehicle speed
· Increases cornering force

Brake Assist Features

Brake assist helps ensure that any driver can achieve the full braking potential of the vehicle by increasing brake system pressure in a panic situation, bringing the vehicle into a full ABS stop.

If during a panic stop the VSA modulator-control unit determines that the brake system pressure increases above a threshold in less than a certain amount of time, the VSA modulator-control unit engages brake assist.

Because the brake system pressure crossed the pressure threshold before the time threshold had expired, the VSA modulator-control unit goes into brake assist mode.



(cont'd)

VSA System Components

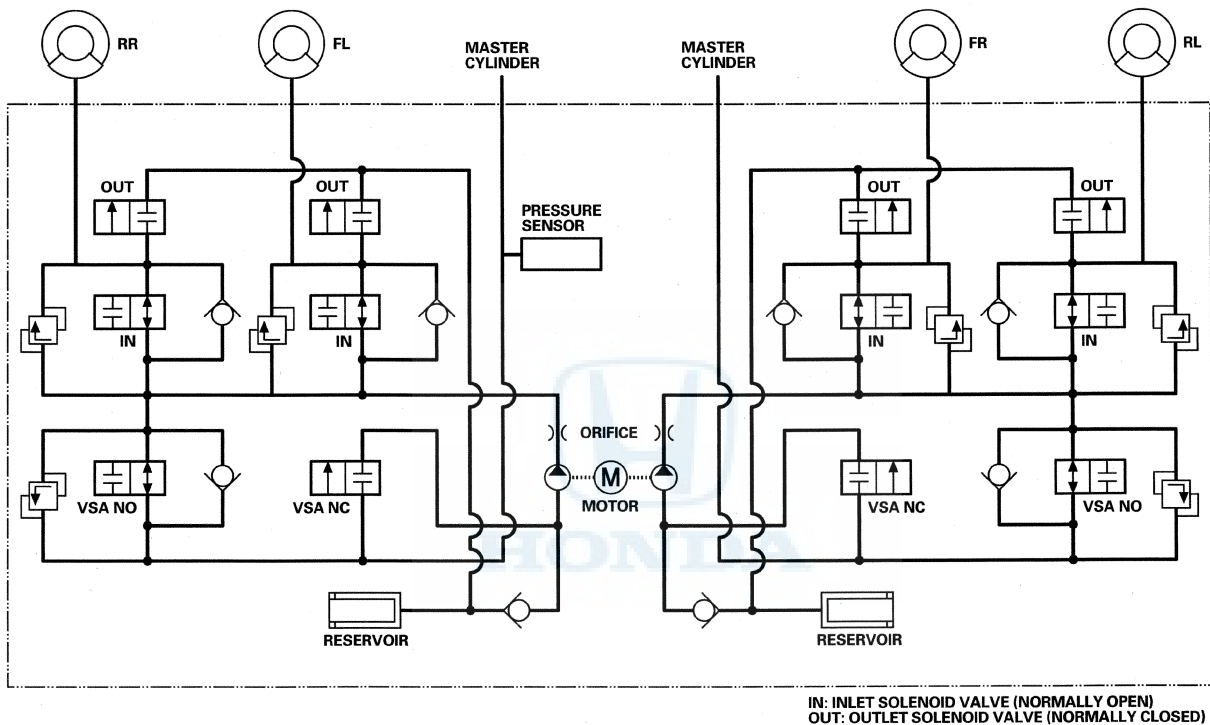
System Description (cont'd)

Modulator Unit

The modulator unit consists of the inlet solenoid valve, the outlet solenoid valve, the VSA NO (normally open) solenoid valve, the VSA NC (normally closed) solenoid valve, the reservoir, the pump, and the pump motor.

The hydraulic control has three modes of ABS action; pressure intensifying, pressure retaining, and pressure reducing. Pressure intensifying mode (VSA) is a combination of the TCS, VSA, and brake assist action.

The hydraulic circuit is an independent four channel type, one channel for each wheel.



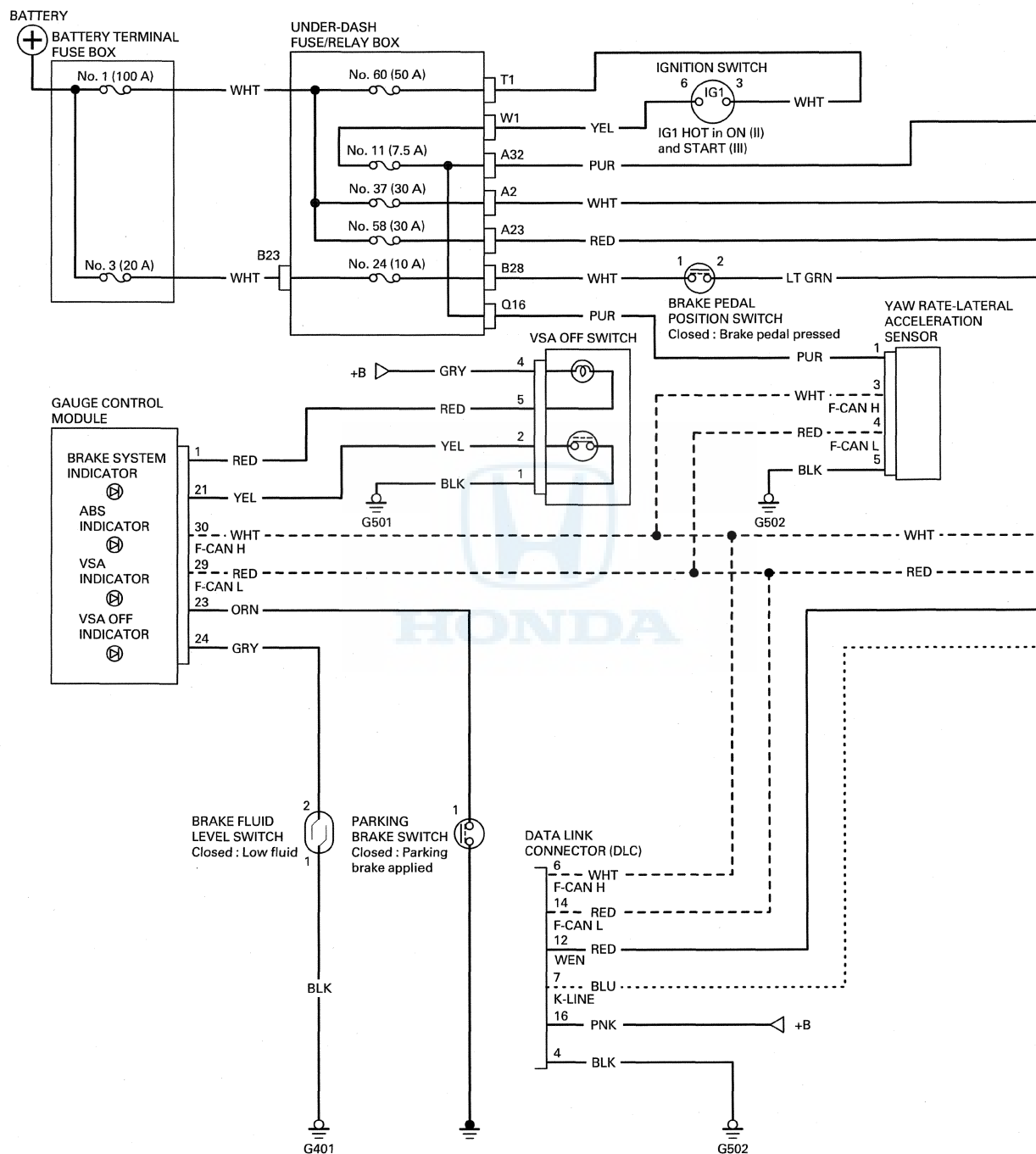
Mode	VSA NO Valve	VSA NC Valve	Inlet Solenoid Valve	Outlet Solenoid Valve	Brake Fluid
Pressure intensifying mode	open	closed	open	closed	Master cylinder fluid is pumped out to the caliper.
Pressure retaining mode	open	closed	closed	closed	Caliper fluid is retained by the inlet and outlet valves.
Pressure reducing mode	open	closed	closed	open	<ul style="list-style-type: none">Caliper fluid flows through the outlet valve to the reservoir.The motor pumps the reservoir fluid through the damping chamber to the master cylinder*.
Pressure intensifying mode (VSA)	closed	open	open	closed	<ul style="list-style-type: none">Master cylinder fluid is pumped out by the pump through the VSA NC valve to the caliper.Caliper fluid pressure exceeds master cylinder pressure.

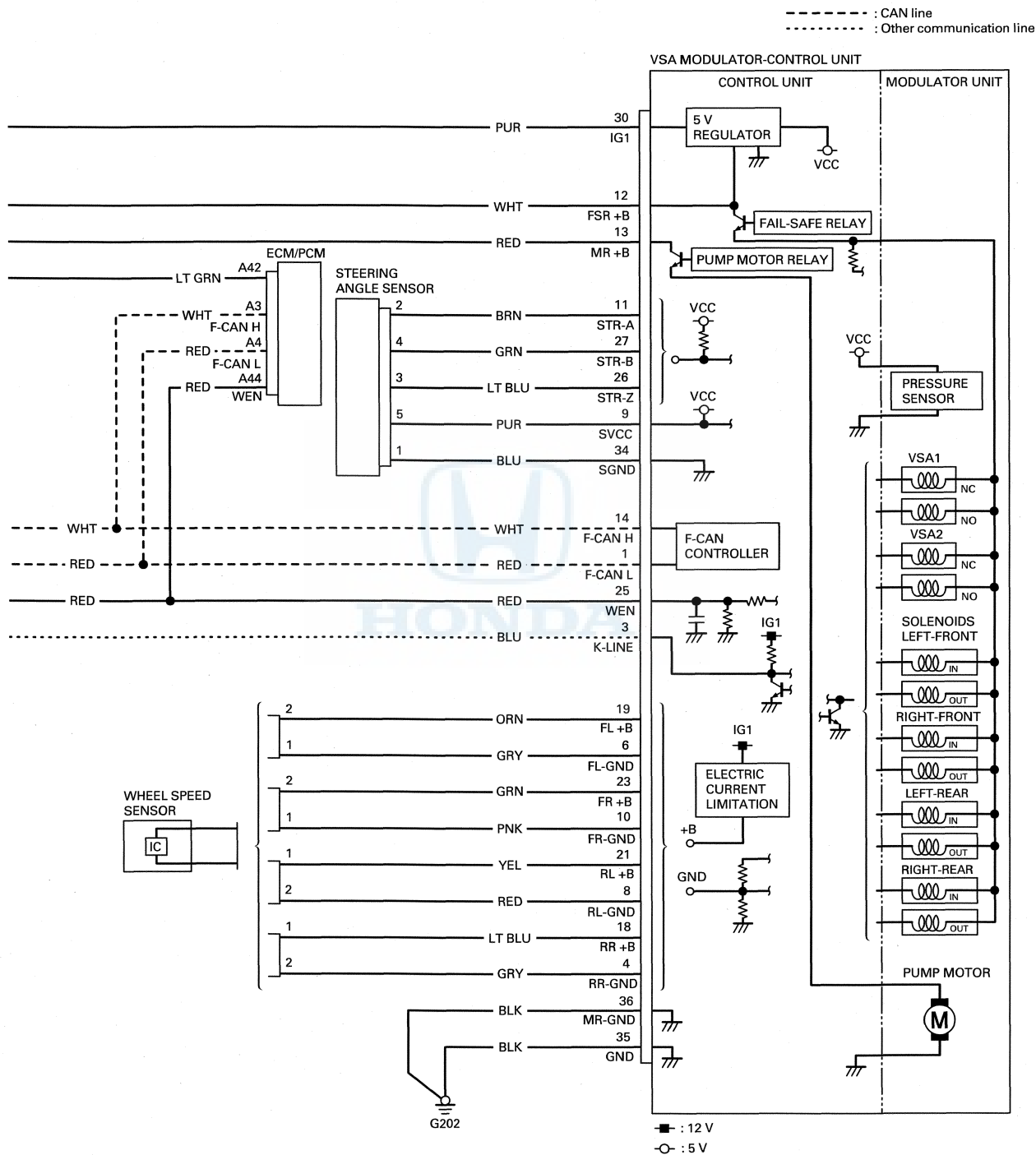
*: The motor will continue running until the operation of the one anti-lock brake control is finished with the first pressure reducing mode.



VSA System Components

Circuit Diagram



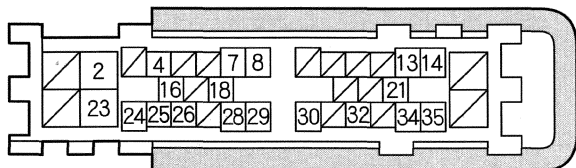


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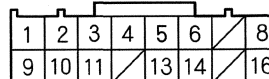
VSA System Components

Circuit Diagram (cont'd)

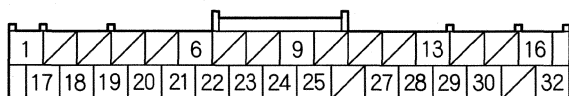
UNDER-DASH FUSE/RELAY BOX CONNECTOR A (36P)



UNDER-DASH FUSE/RELAY BOX CONNECTOR Q (16P)



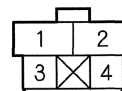
GAUGE CONTROL MODULE 32P CONNECTOR



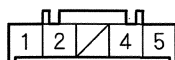
PARKING BRAKE SWITCH 1P CONNECTOR



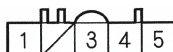
BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



VSA OFF SWITCH 5P CONNECTOR



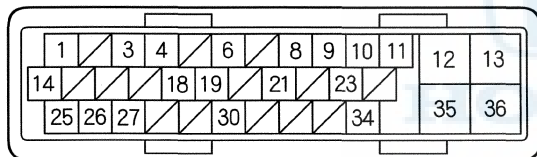
YAW RATE-LATERAL ACCELERATION SENSOR 5P CONNECTOR



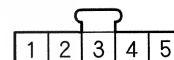
BRAKE FLUID LEVEL SWITCH 2P CONNECTOR



VSA MODULATOR-CONTROL UNIT 36P CONNECTOR

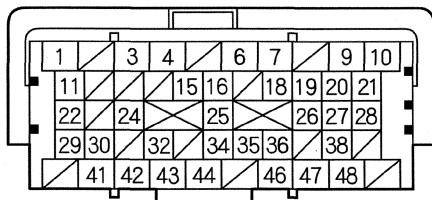


STEERING ANGLE SENSOR 5P CONNECTOR

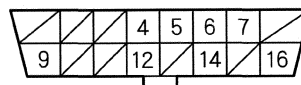


Wire side of female terminals

ECM/PCM CONNECTOR A (49P)



DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

WHEEL SPEED SENSOR 2P CONNECTOR

FRONT



REAR



Wire side of female terminals

Terminal side of male terminals

DTC Troubleshooting

DTC 11-13: Right-front Wheel Speed Sensor Circuit Malfunction

DTC 13-13: Left-front Wheel Speed Sensor Circuit Malfunction

DTC 15-13: Right-rear Wheel Speed Sensor Circuit Malfunction

DTC 17-13: Left-rear Wheel Speed Sensor Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 11-13, 13-13, 15-13 or 17-13 indicated?

YES—Go to step 5.

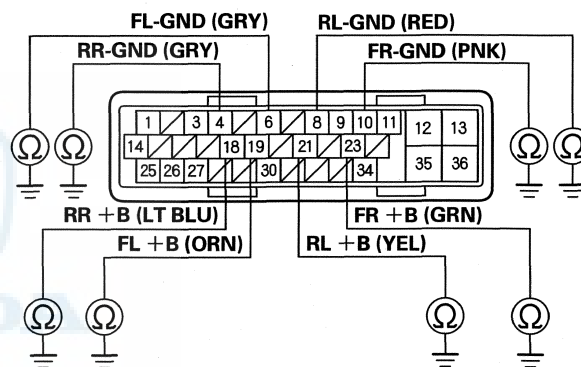
NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).

7. Check for continuity between body ground and the appropriate wheel speed sensor +B and GND terminals of the VSA modulator-control unit 36P connector individually (see table).

DTC	Appropriate Terminal	
	+B	GND
11-13 Right-front	FR +B: No. 23	FR-GND: No. 10
13-13 Left-front	FL +B: No. 19	FL-GND: No. 6
15-13 Right-rear	RR +B: No. 18	RR-GND: No. 4
17-13 Left-rear	RL +B: No. 21	RL-GND: No. 8

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

NO—Go to step 10.

8. Disconnect the appropriate wheel speed sensor 2P connector (see page 19-173).

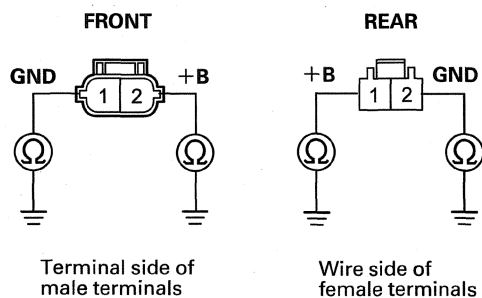
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VSA System Components

DTC Troubleshooting (cont'd)

9. On the sensor side, check for continuity between body ground and wheel speed sensor 2P connector terminals No. 1 and No. 2 individually.

WHEEL SPEED SENSOR 2P CONNECTOR



Is there continuity?

YES—Replace the appropriate wheel speed sensor (see page 19-173). ■

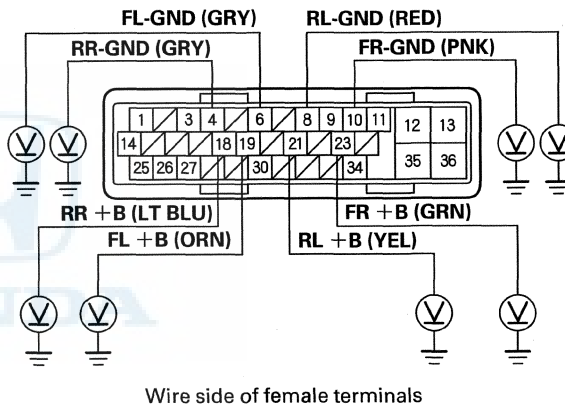
NO—Repair a short to body ground in the wire between the VSA modulator-control unit and the wheel speed sensor. ■

10. Turn the ignition switch to ON (II).

11. Measure the voltage between body ground and the appropriate wheel speed sensor +B and GND terminals of the VSA modulator-control unit 36P connector individually (see table).

DTC	Appropriate Terminal	
	+B	GND
11-13 Right-front	FR +B: No. 23	FR-GND: No. 10
13-13 Left-front	FL +B: No. 19	FL-GND: No. 6
15-13 Right-rear	RR +B: No. 18	RR-GND: No. 4
17-13 Left-rear	RL +B: No. 21	RL-GND: No. 8

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



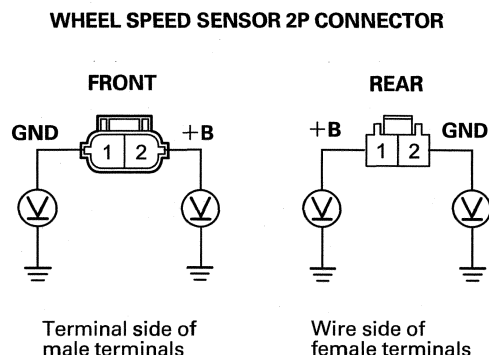
Is there 0.1 V or more?

YES—Go to step 12.

NO—Go to step 16.

12. Turn the ignition switch to LOCK (0).
13. Disconnect the appropriate wheel speed sensor 2P connector (see page 19-173).
14. Turn the ignition switch to ON (II).

15. On the sensor side, measure the voltage between body ground and wheel speed sensor 2P connector terminals No. 1 and No. 2 individually.



Is there 0.1 V or more?

YES—Replace the appropriate wheel speed sensor (see page 19-173). ■

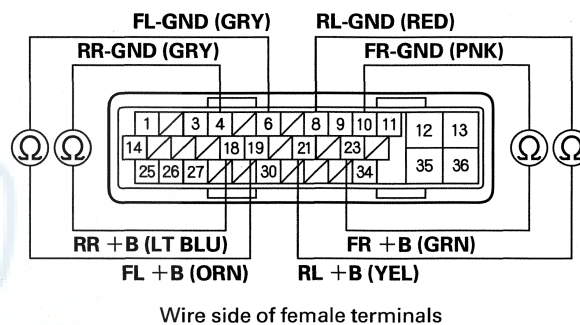
NO—Repair a short to power in the wire between the VSA modulator-control unit and the appropriate wheel speed sensor. ■

16. Turn the ignition switch to LOCK (0).
17. Disconnect the appropriate wheel speed sensor 2P connector (see page 19-173).

18. Check for continuity between the appropriate VSA modulator-control unit 36P connector wheel speed sensor +B and GND terminals (see table).

DTC	Appropriate Terminal	
	+B	GND
11-13 Right-front	FR +B: No. 23	FR-GND: No. 10
13-13 Left-front	FL +B: No. 19	FL-GND: No. 6
15-13 Right-rear	RR +B: No. 18	RR-GND: No. 4
17-13 Left-rear	RL +B: No. 21	RL-GND: No. 8

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Is there continuity?

YES—Repair a short in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit. ■

NO—Go to step 19.

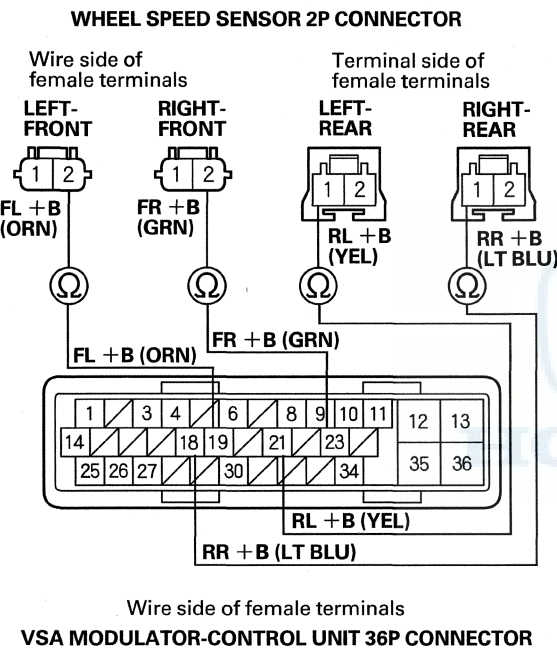
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VSA System Components

DTC Troubleshooting (cont'd)

19. Check for continuity between the appropriate VSA modulator-control unit 36P connector terminal and the wheel speed sensor 2P connector terminal.

DTC	VSA Modulator-control Unit 36P Connector Terminal	Appropriate Wheel Speed Sensor 2P Connector Terminal
11-13	No. 23	Right-front
13-13	No. 19	Left-front
15-13	No. 18	Right-rear
17-13	No. 21	Left-rear



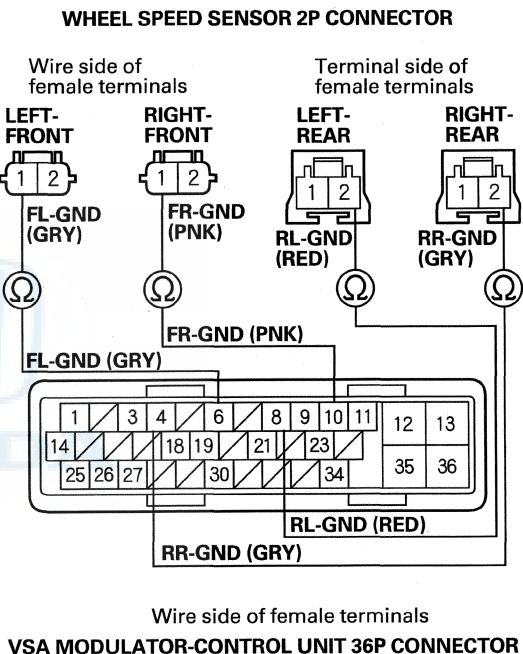
Is there continuity?

YES—Go to step 20.

NO—Repair an open in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit. ■

20. Check for continuity between the appropriate VSA modulator-control unit 36P connector terminal and the wheel speed sensor 2P connector terminal.

DTC	VSA Modulator-control Unit 36P Connector Terminal	Appropriate Wheel Speed Sensor 2P Connector Terminal
11-13	No. 10	Right-front
13-13	No. 6	Left-front
15-13	No. 4	Right-rear
17-13	No. 8	Left-rear



Is there continuity?

YES—

- If a DTC is indicated for either one of the left and right wheels as described in step 4, go to step 21.
- If DTCs are indicated for both the left and right wheels as described in step 4, go to step 27.

NO—Repair an open in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit. ■



21. Swap the appropriate left and right wheel speed sensors (see page 19-173).
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Clear the DTC with the HDS.
25. Turn the ignition switch to LOCK (0) and then back to ON (II).
26. Check for DTCs with the HDS.

DTC Before Swapping	DTC After Swapping
11-13 (Right-front)	13-13 (Left-front)
13-13 (Left-front)	11-13 (Right-front)
15-13 (Right-rear)	17-13 (Left-rear)
17-13 (Left-rear)	15-13 (Right-rear)

Is the DTC indicated for the opposite wheel?

YES—Replace the original wheel speed sensor (see page 19-173).■

NO—Go to step 33.

27. Substitute a known-good wheel speed sensor (see page 19-173).
28. Reconnect all connectors.
29. Turn the ignition switch to ON (II).
30. Clear the DTC with the HDS.
31. Turn the ignition switch to LOCK (0) and then back to ON (II).
32. Check for DTCs with the HDS.

Is DTC 11-13, 13-13, 15-13, or 17-13 indicated?

YES—Go to step 33.

NO—Replace the original wheel speed sensor (see page 19-173).■

33. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
34. Turn the ignition switch to LOCK (0) and then back to ON (II).
35. Check for DTCs with the HDS.

Is DTC 11-13, 13-13, 15-13, or 17-13 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 11-14: Right-front Wheel Speed Sensor Power Source Malfunction

DTC 13-14: Left-front Wheel Speed Sensor Power Source Malfunction

DTC 15-14: Right-rear Wheel Speed Sensor Power Source Malfunction

DTC 17-14: Left-rear Wheel Speed Sensor Power Source Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 11-14, 13-14, 15-14 or 17-14 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

5. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
6. Turn the ignition switch to ON (II).
7. Check for DTCs with the HDS.

Is DTC 11-14, 13-14, 15-14 or 17-14 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 12-11: Right-front Wheel Speed Sensor Electrical Noise or Intermittent Interruption

DTC 14-11: Left-front Wheel Speed Sensor Electrical Noise or Intermittent Interruption

DTC 16-11: Right-rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption

DTC 18-11: Left-rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).
- These DTCs may be caused by electrical interference. Check for aftermarket devices installed in the vehicle when these DTC are indicated.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 12-11, 14-11, 16-11 or 18-11 indicated?

YES—If the DTC 12-12, 14-12, 16-12, or 18-12 is indicated at the same time, do the DTC 12-12, 14-12, 16-12, or 18-12 troubleshooting (see page 19-115). If DTC 12-12, 14-12, 16-12, or 18-12 is not indicated, go to step 6.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

6. Turn the ignition switch to LOCK (0).
7. Check that the appropriate wheel speed sensor is properly mounted (see page 19-173).

DTC	Appropriate Wheel Speed Sensor
12-11	Right-front
14-11	Left-front
16-11	Right-rear
18-11	Left-rear

Is the wheel speed sensor installation OK?

YES—Go to step 8.

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-173).■

8. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
9. Turn the ignition switch to LOCK (0).
10. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

11. Check for DTCs with the HDS.

Is DTC 12-11, 14-11, 16-11 or 18-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 12-12: Right-front Wheel Speed Sensor Short to the Other Sensor Circuit

DTC 14-12: Left-front Wheel Speed Sensor Short to the Other Sensor Circuit

DTC 16-12: Right-rear Wheel Speed Sensor Short to the Other Sensor Circuit

DTC 18-12: Left-rear Wheel Speed Sensor Short to the Other Sensor Circuit

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).
- If the ABS and other indicators come on because of electrical noise, the indicators will go off when you test-drive the vehicle speed at 9 mph (15 km/h) or more and the noise is gone.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle. Drive the vehicle at 13 mph (20 km/h) or more, and go a distance of 328 ft (100 m) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 12-12, 14-12, 16-12 or 18-12 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

6. Turn the ignition switch to LOCK (0).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).

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VSA System Components

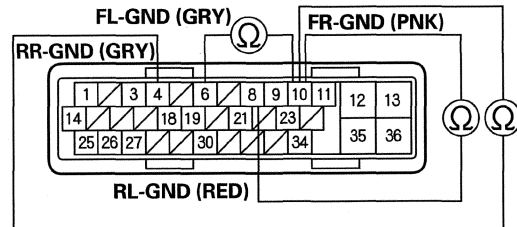
DTC Troubleshooting (cont'd)

8. Check for continuity between the appropriate VSA modulator-control unit 36P connector wheel speed sensor GND terminals (see table).

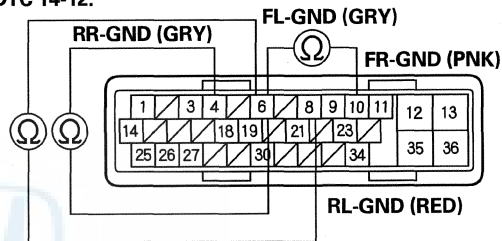
DTC	VSA Modulator-control Unit 36P Connector Terminal			
	Appropriate Terminal	Other Terminals		
12-12	FR-GND: No. 10	No. 6	No. 4	No. 8
14-12	FL-GND: No. 6	No. 10	No. 4	No. 8
16-12	RR-GND: No. 4	No. 10	No. 6	No. 8
18-12	RL-GND: No. 8	No. 10	No. 6	No. 4

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR

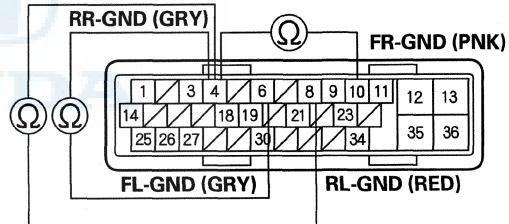
DTC 12-12:



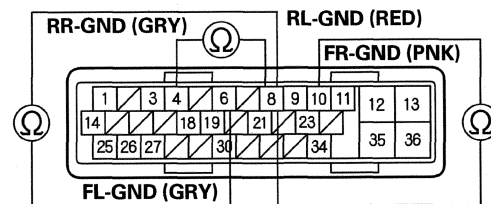
DTC 14-12:



DTC 16-12:



DTC 18-12:



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit. ■

NO—Go to step 9.



9. Reconnect the VSA modulator-control unit 36P connector.
10. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
11. Turn the ignition switch to LOCK (0).
12. Test-drive the vehicle. Drive the vehicle at 13 mph (20 km/h) or more, and go a distance of 328 ft (100 m) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

13. Check for DTCs with the HDS.

Is DTC 12-12, 14-12, 16-12 or 18-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 12-21: Right-front Wheel Speed Sensor Installation Error

DTC 14-21: Left-front Wheel Speed Sensor Installation Error

DTC 16-21: Right-rear Wheel Speed Sensor Installation Error

DTC 18-21: Left-rear Wheel Speed Sensor Installation Error

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Test-drive the vehicle. Drive the vehicle at 7 mph (10 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

2. Check the RF, LF, RR, LR WHEEL SPEED in the VSA DATA LIST with the HDS.

Are all four values the same?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Check that the appropriate wheel speed sensor is properly mounted (see page 19-173).

DTC	Appropriate Wheel Speed Sensor
12-21	Right-front
14-21	Left-front
16-21	Right-rear
18-21	Left-rear

Is the wheel speed sensor installation OK?

YES—Replace the appropriate wheel speed sensor (see page 19-173).■

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-173).■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 12-22: Right-front Wheel Speed Sensor Installation Error (19 mph (30 km/h) or More)

DTC 14-22: Left-front Wheel Speed Sensor Installation Error (19 mph (30 km/h) or More)

DTC 16-22: Right-rear Wheel Speed Sensor Installation Error (19 mph (30 km/h) or More)

DTC 18-22: Left-rear Wheel Speed Sensor Installation Error (19 mph (30 km/h) or More)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Test-drive the vehicle. Drive the vehicle between 19 mph (30 km/h) and 31 mph (50 km/h) for 70 seconds or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

2. Check the RF, LF, RR, LR WHEEL SPEED in the VSA DATA LIST with the HDS.

Are all four values the same?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).

4. Check that the appropriate wheel speed sensor is properly mounted (see page 19-173).

DTC	Appropriate Wheel Speed Sensor
12-22	Right-front
14-22	Left-front
16-22	Right-rear
18-22	Left-rear

Is the wheel speed sensor installation OK?

YES—Replace the appropriate wheel speed sensor (see page 19-173).■

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-173).■

DTC 12-23: Right-front Wheel Speed Sensor Installation Error (0 to 9 mph (0 to 15 km/h))

DTC 14-23: Left-front Wheel Speed Sensor Installation Error (0 to 9 mph (0 to 15 km/h))

DTC 16-23: Right-rear Wheel Speed Sensor Installation Error (0 to 9 mph (0 to 15 km/h))

DTC 18-23: Left-rear Wheel Speed Sensor Installation Error (0 to 9 mph (0 to 15 km/h))

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Test-drive the vehicle. Drive the vehicle between 1 mph (1 km/h) and 9 mph (15 km/h).

NOTE: Drive the vehicle on a straight section of road, not on a lift.

2. Check the RF, LF, RR, LR WHEEL SPEED in the VSA DATA LIST with the HDS.

Are all four values the same?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).

4. Check that the appropriate wheel speed sensor is properly mounted (see page 19-173).

DTC	Appropriate Wheel Speed Sensor
12-23	Right-front
14-23	Left-front
16-23	Right-rear
18-23	Left-rear

Is the wheel speed sensor installation OK?

YES—Replace the appropriate wheel speed sensor (see page 19-173).■

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-173).■

DTC 21-11: Right-front Magnetic Encoder (Wheel Bearing) Malfunction (Pulse Missing)

DTC 22-11: Left-front Magnetic Encoder (Wheel Bearing) Malfunction (Pulse Missing)

DTC 23-11: Right-rear Magnetic Encoder (Wheel Bearing) Malfunction (Pulse Missing)

DTC 24-11: Left-rear Magnetic Encoder (Wheel Bearing) Malfunction (Pulse Missing)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle. Drive the vehicle at 13 mph (20 km/h) or more, and go a distance of 328 ft (100 m) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 21-11, 22-11, 23-11 or 24-11 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

6. Turn the ignition switch to LOCK (0).

7. Inspect the appropriate magnetic encoder for dirt or debris.

DTC	Appropriate Magnetic Encoder	Note
21-11	Right-front	Remove the driveshaft outboard joint from the appropriate wheel hub (see page 18-16).
22-11	Left-front	
23-11	Right-rear	Remove the hub bearing unit (see page 18-32).
24-11	Left-rear	

Is the magnetic encoder surface OK?

YES—Replace the wheel bearing (front) or the hub bearing unit (rear):

- Front: Replace the front wheel bearing (see page 18-16). ■
- Rear: Replace the rear hub bearing unit (see page 18-32). ■

NO—Clean dust or dirt from the appropriate magnetic encoder surface on the wheel bearing or the hub bearing unit, then go to step 1 and recheck. If the DTC is still present, replace the appropriate wheel bearing or hub bearing unit. ■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 25-12: Yaw Rate Sensor Internal Circuit Malfunction (Open, Short)

DTC 25-13: Yaw Rate Sensor Internal Circuit Malfunction

DTC 25-18: Yaw Rate-Lateral Acceleration Sensor Internal Circuit Malfunction

DTC 26-12: Lateral Acceleration Sensor Internal Circuit Malfunction (Open, Short)

DTC 26-13: Lateral Acceleration Sensor Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 25-12, 25-13, 25-18, 26-12 or 26-13 indicated?

YES—Replace the yaw rate-lateral acceleration sensor (see page 19-168). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

DTC 25-17: Yaw Rate-Lateral Acceleration Sensor Power Source Voltage Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 25-17 indicated?

YES—If the DTC 61-01, 61-21, 61-22, 61-23 or 62-21 is indicated at the same time, check the battery performance (see page 22-68), and do the alternator and regulator circuit troubleshooting (see page 4-27). If the DTC 61-01, 61-21, 61-22, 61-23, or 62-21 is not indicated at the same time, replace the yaw rate-lateral acceleration sensor (see page 19-168). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■



DTC 25-19: Yaw Rate-Lateral Acceleration Sensor Startup Time Malfunction

DTC 25-21: Yaw Rate Sensor Neutral Position Malfunction

DTC 25-23: Yaw Rate Sensor Circuit Intermittent Interruption

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the VSA sensor neutral position memorization (see page 19-168).
4. Turn the ignition switch to LOCK (0) and then back to ON (II).
5. Wait 10 seconds or more.
6. Check for DTCs with the HDS.

Is DTC 25-19, 25-21 or 25-23 indicated?

YES—Replace the yaw rate-lateral acceleration sensor (see page 19-168). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

DTC 25-22: Yaw Rate Sensor Stuck

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the VSA sensor neutral position memorization (see page 19-168).

4. Test-drive the vehicle. Drive the vehicle at 7 mph (10 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 25-22 indicated?

YES—Go to step 6.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

6. Check the LATERAL ACCELERATION SENSOR and YAW RATE S in the VSA DATA LIST with the HDS.

Is 0 °/s indicated?

YES—Go to step 7.

NO—Replace the yaw rate-lateral acceleration sensor (see page 19-168). ■

7. Test-drive the vehicle. Check the YAW RATE S in the VSA DATA LIST with the HDS while driving around corners.

Does the indicated value change?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

NO—Replace the yaw rate-lateral acceleration sensor (see page 19-168). ■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 25-24: Yaw Rate Sensor Gain Low

DTC 25-25: Yaw Rate Sensor Gain High

DTC 26-24: Lateral Acceleration Sensor Gain Low

DTC 26-25: Lateral Acceleration Sensor Gain High

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the VSA sensor neutral position memorization (see page 19-168).
4. Test-drive the vehicle. Drive the vehicle at 10 mph (15 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 25-24, 25-25, 26-24 or 26-25 indicated?

YES—Replace the yaw rate-lateral acceleration sensor (see page 19-168). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

DTC 26-21: Lateral Acceleration Sensor Neutral Position Malfunction

DTC 26-23: Lateral Acceleration Sensor Circuit Intermittent Interruption

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).
- While doing this troubleshooting, avoid vibration or shaking of the vehicle.

1. Park the vehicle on a flat and level surface.
2. Turn the ignition switch to ON (II).
3. Clear the DTC with the HDS.
4. Do the VSA sensor neutral position memorization (see page 19-168).
5. Turn the ignition switch to LOCK (0) and then back to ON (II).
6. Wait 15 seconds or more.
7. Check for DTCs with the HDS.

Is DTC 26-21 or 26-23 indicated?

YES—Replace the yaw rate-lateral acceleration sensor (see page 19-168). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

DTC 26-22: Lateral Acceleration Sensor Stuck

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the VSA sensor neutral position memorization (see page 19-168).
4. Test-drive the vehicle. Drive the vehicle at 7 mph (10 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 26-22 indicated?

YES—Go to step 6.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

6. Check the LATERAL ACCELERATION SENSOR and YAW RATE S in the VSA DATA LIST with the HDS.

Is 0 °/s indicated?

YES—Go to step 7.

NO—Replace the yaw rate-lateral acceleration sensor (see page 19-168). ■

7. Test-drive the vehicle. Check the LATERAL ACCELERATION SENSOR in the VSA DATA LIST with the HDS while driving around corners.

Does the indicated value change?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

NO—Replace the yaw rate-lateral acceleration sensor (see page 19-168). ■

DTC 27-11: Steering Angle Sensor DIAG Signal Error (Initial)

DTC 27-26: Steering Angle Sensor DIAG Signal Error (Main)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).

4. Check for DTCs with the HDS.

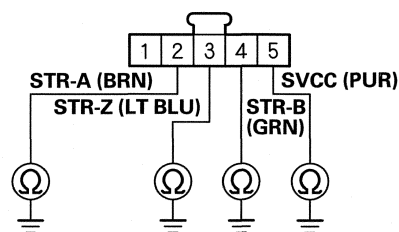
Is DTC 27-11 or 27-26 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector (see page 19-167).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).
8. Check for continuity between body ground and steering angle sensor 5P connector terminals No. 2, No. 3, No. 4, and No. 5 individually.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the steering angle sensor and the VSA modulator-control unit. ■

NO—Go to step 9.

(cont'd)

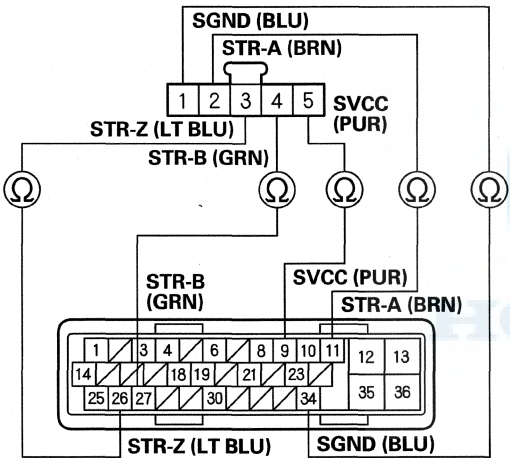
VSA System Components

DTC Troubleshooting (cont'd)

9. Check for continuity between the VSA modulator-control unit 36P connector terminal and the steering angle sensor 5P connector terminal individually.

Sign	VSA Modulator-control Unit 36P Connector Terminal	Steering Angle Sensor 5P Connector Terminal
SVCC	No. 9	No. 5
STR-A	No. 11	No. 2
STR-Z	No. 26	No. 3
STR-B	No. 27	No. 4
SGND	No. 34	No. 1

STEERING ANGLE SENSOR 5P CONNECTOR
Wire side of female terminals



VSA MODULATOR-CONTROL UNIT 36P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair an open in the wire between the steering angle sensor and the VSA modulator-control unit.■

10. Substitute a known-good steering angle sensor (see page 19-167).

11. Reconnect all connectors.

12. Turn the ignition switch to ON (II).

13. Clear the DTC with the HDS.

14. Turn the ignition switch to LOCK (0) and then back to ON (II).

15. Check for DTCs with the HDS.

Is DTC 27-11 or 27-26 indicated?

YES—Go to step 16.

NO—Replace the original steering angle sensor (see page 19-167).■

16. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).

17. Turn the ignition switch to LOCK (0), then turn it to ON (II).

18. Check for DTCs with the HDS.

Is DTC 27-11 or 27-26 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 27-21: Steering Angle Sensor Stuck Neutral Position

DTC 27-22: Steering Angle Sensor Stuck Offset Position

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Turn the steering wheel left and right 90 degrees or more. Check the STEERING ANGLE in the VSA DATA LIST with the HDS.

Is there +90° or more, and -90° or less?

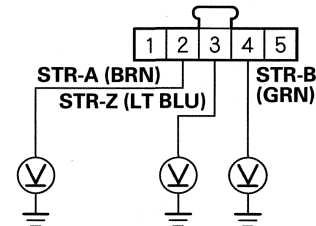
YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Disconnect the steering angle sensor 5P connector (see page 19-167).
5. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).
6. Turn the ignition switch to ON (II).

7. Measure the voltage between body ground and steering angle sensor 5P connector terminals No. 2, No. 3, and No. 4 individually.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair a short to power in the wire between the steering angle sensor and the VSA modulator-control unit. ■

NO—Replace the steering angle sensor (see page 19-167). ■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 27-23: Steering Angle Sensor Counter Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock-to-lock several times.
6. Check for DTCs with the HDS.

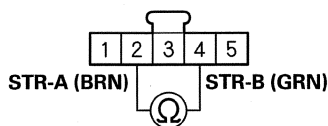
Is DTC 27-23 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

7. Turn the ignition switch to LOCK (0).
8. Disconnect the steering angle sensor 5P connector (see page 19-167).
9. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).
10. Check for continuity between steering angle sensor 5P connector terminals No. 2 and No. 4.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

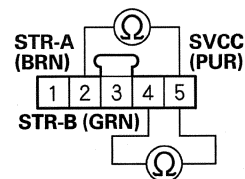
Is there continuity?

YES—Repair a short in the wires between the steering angle sensor and the VSA modulator-control unit.■

NO—Go to step 11.

11. Check for continuity between steering angle sensor 5P connector terminals No. 2 and No. 5, and No. 4 and No. 5 individually.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

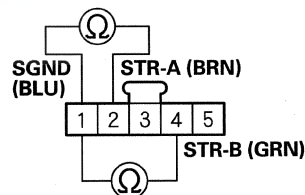
Is there continuity?

YES—Repair a short in the wire between the steering angle sensor and the VSA modulator-control unit.■

NO—Go to step 12.

12. Check for continuity between steering angle sensor 5P connector terminals No. 1 and No. 2, and No. 1 and No. 4 individually.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between the steering angle sensor and the VSA modulator-control unit.■

NO—Replace the steering angle sensor (see page 19-167).■

DTC 27-24: Steering Angle Sensor Exchange Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Turn the steering wheel one turn. Check the STEERING ANGLE in the VSA DATA LIST with the HDS.

Is there about 288 degrees to 432 degrees (-288 degrees to -432 degrees)?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

NO—Replace the steering angle sensor (see page 19-167). ■

DTC 31-xx*: ABS Right-front Inlet Solenoid Valve Malfunction

DTC 32-xx*: ABS Right-front Outlet Solenoid Valve Malfunction

DTC 33-xx*: ABS Left-front Inlet Solenoid Valve Malfunction

DTC 34-xx*: ABS Left-front Outlet Solenoid Valve Malfunction

DTC 35-xx*: ABS Right-rear Inlet Solenoid Valve Malfunction

DTC 36-xx*: ABS Right-rear Outlet Solenoid Valve Malfunction

DTC 37-xx*: ABS Left-rear Inlet Solenoid Valve Malfunction

DTC 38-xx*: ABS Left-rear Outlet Solenoid Valve Malfunction

*: Any two-character subcode (see table)

Subcode	Malfunction	Note (DTC)
01	Solenoid Initial Pulse	31-01, 32-01, 33-01, 34-01, 35-01, 36-01, 37-01, 38-01
02	Initial Feedback Signal	31-02, 33-02, 35-02, 37-02
11	Feedback Signal	31-11, 33-11, 35-11, 37-11
21	Solenoid Pulse	31-21, 32-21, 33-21, 34-21, 35-21, 36-21, 37-21, 38-21
22	Solenoid Speculative	31-22, 32-22, 33-22, 34-22, 35-22, 36-22, 37-22, 38-22
23	Solenoid Stuck ON	31-23, 32-23, 33-23, 34-23, 35-23, 36-23, 37-23, 38-23
24	Feedback Signal/Solenoid Stuck ON	31-24, 33-24, 35-24, 37-24

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 31-xx, 32-xx, 33-xx, 34-xx, 35-xx, 36-xx, 37-xx or 38-xx indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

5. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
6. Turn the ignition switch to LOCK (0) and then back to ON (II).
7. Check for DTCs with the HDS.

Is DTC 31-xx, 32-xx, 33-xx, 34-xx, 35-xx, 36-xx, 37-xx, or 38-xx indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 41-21: Right-front Wheel Lock

DTC 42-21: Left-front Wheel Lock

DTC 43-21: Right-rear Wheel Lock

DTC 44-21: Left-rear Wheel Lock

The DTCs may be indicated under these conditions:

- The vehicle goes into a spin.
- The ABS or VSA continues to operate for a long time.
- Snow, dirt, or debris build-up on the wheel speed sensor or magnetic encoder.
- Misadjusted brake switch.
- Contaminated brake fluid.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Drive the vehicle until the brakes drag or until the pedal is high and hard. This can take 20 or more brake pedal applications during an extended test-drive.
2. With the engine running, raise and support the vehicle (see page 1-14), then spin the appropriate wheel by hand.

DTC	Appropriate Wheel
41-21	Right-front
42-21	Left-front
43-21	Right-rear
44-21	Left-rear

Is there brake drag?

YES—Repair the brake drag (see page 19-5).■

NO—Go to step 3.

3. Check that the appropriate wheel speed sensor is properly mounted (see page 19-173).

Is the wheel speed sensor installation OK?

YES—Go to step 4.

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-173).■

4. Turn the ignition switch to ON (II).
5. Clear the DTC with the HDS.
6. Turn the ignition switch to LOCK (0).
7. Test-drive the vehicle. Drive the vehicle at 7 mph (10 km/h) for 20 seconds or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.



8. Check for DTCs with the HDS.

Is DTC 41-21, 42-21, 43-21 or 44-21 indicated?

YES—Go to step 9.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

9. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).

10. Turn the ignition switch to LOCK (0).

11. Test-drive the vehicle. Drive the vehicle at 7 mph (10 km/h) for 20 seconds or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

12. Check for DTCs with the HDS.

Is DTC 41-21, 42-21, 43-21, or 44-21 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 51-11: Motor Lock

DTC 51-13: Motor Drive Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Wait 5 seconds.
5. Operate any one of the four solenoids, as listed, in the VSA FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

6. Check for DTCs with the HDS.

Is DTC 51-11 or 51-13 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

7. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
8. Turn the ignition switch to LOCK (0) and then back to ON (II).
9. Wait 5 seconds.
10. Operate any one of the four solenoids, as listed, in the VSA FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

11. Check for DTCs with the HDS.

Is DTC 51-11 or 51-13 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 51-12: Motor Drive Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check the DTCs with the HDS.

Is DTC 51-12 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

5. Turn the ignition switch to LOCK (0).
6. Check the No. 58 (30 A) fuse in the under-dash fuse/relay box.

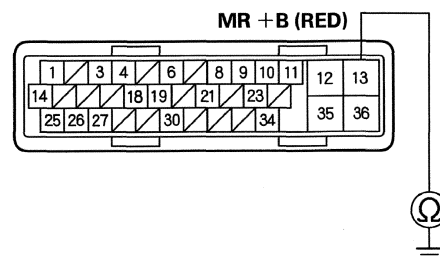
Is the fuse blown?

YES—Go to step 7.

NO—Reinstall the checked fuse, then go to step 14.

7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).
8. Check for continuity between VSA modulator-control unit 36P connector terminal No. 13 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the No. 58 (30 A) fuse in the under-dash fuse/relay box and the VSA modulator-control unit.■

NO—Install a new No. 58 (30 A) fuse in the under-dash fuse/relay box, then go to step 9.

9. Reconnect the VSA modulator-control unit 36P connector.

10. Turn the ignition switch to ON (II).

11. Clear the DTC with the HDS.

12. Turn the ignition switch to LOCK (0) and then back to ON (II).

13. Check for DTCs with the HDS.

Is DTC 51-12 indicated?

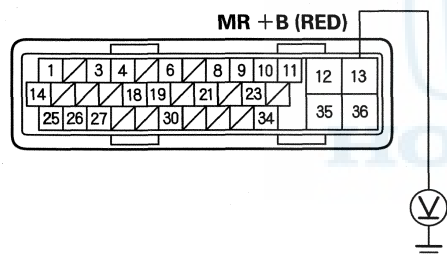
YES—Replace the VSA modulator-control unit (see page 19-171).■

NO—The troubleshooting is complete.■

14. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).

15. Measure the voltage between VSA modulator-control unit 36P connector terminal No. 13 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 17.

NO—Repair an open in the wire between the No. 58 (30 A) fuse in the under-dash fuse/relay box and the VSA modulator-control unit.■

16. Reconnect the VSA modulator-control unit 36P connector.

17. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).

18. Turn the ignition switch to LOCK (0) and then back to ON (II).

19. Check for DTCs with the HDS.

Is DTC 51-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 52-12: Motor Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Operate any one of the four solenoids, as listed, in the VSA FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

5. Check for DTCs with the HDS.

Is DTC 52-12 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

6. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
7. Turn the ignition switch to LOCK (0) and then back to ON (II).
8. Operate any one of the four solenoids, as listed, in the VSA FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

9. Check for DTCs with the HDS.

Is DTC 52-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 53-01: Motor Relay Stuck ON 1

DTC 53-12: Motor Relay Stuck ON 2

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

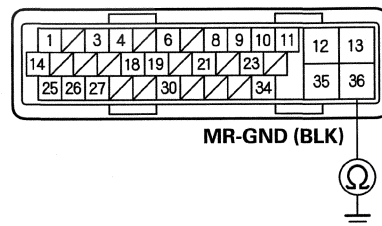
Is DTC 53-01 or 53-12 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).
7. Check for continuity between VSA modulator-control unit 36P connector terminal No. 36 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

NO—Repair an open in the wire between the VSA modulator-control unit and body ground (G202). ■



8. Reconnect the VSA modulator-control unit 36P connector.

9. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).

10. Turn the ignition switch to LOCK (0) and then back to ON (II).

11. Check for DTCs with the HDS.

Is DTC 53-01 or 53-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 54-03: Fail-safe Relay 1 Stuck ON

DTC 54-04: Fail-safe Relay 1 Stuck OFF (Initial)

DTC 54-21: Fail-safe Relay 1 Stuck OFF (Main)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Turn the ignition switch to LOCK (0) and then back to ON (II).

4. Check for DTCs with the HDS.

Is DTC 54-03, 54-04 or 54-21 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

5. Turn the ignition switch to LOCK (0).

6. Check the No. 37 (30 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Go to step 7.

NO—Reinstall the checked fuse, then go to step 14.

7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).

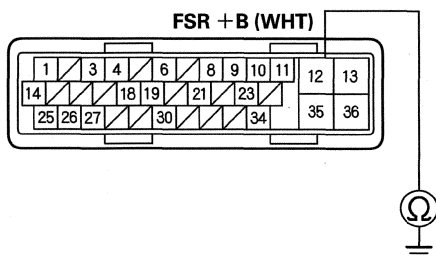
(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

8. Check for continuity between VSA modulator-control unit 36P connector terminal No. 12 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Is there continuity?

YES—Repair a short to body ground in the wire between the No. 37 (30 A) fuse in the under-dash fuse/relay box and the VSA modulator-control unit. ■

NO—Install a new No. 37 (30 A) fuse in the under-dash fuse/relay box, then go to step 9.

9. Reconnect the VSA modulator-control unit 36P connector.
10. Turn the ignition switch to ON (II).
11. Clear the DTC with the HDS.
12. Turn the ignition switch to LOCK (0) and then back to ON (II).
13. Check for DTCs with the HDS.

Is DTC 54-03, 54-04 or 54-21 indicated?

YES—Replace the VSA modulator-control unit (see page 19-171). ■

NO—The troubleshooting is complete. ■

14. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).

15. Turn the ignition switch to LOCK (0) and then back to ON (II).

16. Check for DTCs with the HDS.

Is DTC 54-03, 54-04 or 54-21 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■



DTC 56-01: Initial VIG FET Stuck OFF

DTC 56-02: Initial VIG FET Stuck ON

DTC 56-11: VIG FET Stuck OFF (Main)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 56-01, 56-02 or 56-11 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

5. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
6. Turn the ignition switch to LOCK (0) and then back to ON (II).
7. Check for DTCs with the HDS.

Is DTC 56-01, 56-02 or 56-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 61-01: VSA Modulator-control Unit Initial IG Low Voltage

DTC 61-21: VSA Modulator-control Unit Power Source Low Voltage 1

DTC 61-22: VSA Modulator-control Unit Power Source Low Voltage 2

DTC 61-23: VSA Modulator-control Unit Power Source Low Voltage 3

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then start the engine.
4. Check for DTCs with the HDS.

Is DTC 61-01, 61-21, 61-22 or 61-23 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

5. Check and note BATTERY voltage in the VSA DATA LIST with the HDS.
6. Using a voltmeter, measure and note the voltage across the battery terminals.

NOTE: If the voltage is below 9.5 V, check the battery (see page 22-68), and troubleshoot the alternator regulator circuit (see page 4-27).

7. Compare the voltage noted in step 5 to the voltage in step 6.

Is the difference between the two voltage readings less than 3 V?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). If the code resets after clearing, go to step 8.

NO—Go to step 8.

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

8. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
9. Turn the ignition switch to LOCK (0), then start the engine.
10. Check for DTCs with the HDS.

Is DTC 61-01, 61-21, 61-22 or 61-23 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 62-21: VSA Modulator-control Unit IG High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0), then start the engine.
4. Check for DTCs with the HDS.

Is DTC 62-21 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

5. Check and note BATTERY voltage in the VSA DATA LIST with the HDS.
6. Using a voltmeter, measure and note the voltage across the battery terminals.

NOTE: If the voltage is more than 15.1 V, troubleshoot the alternator regulator circuit (see page 4-27).

7. Compare the voltage noted in step 5 to the voltage in step 6.

Is the difference between the two voltage readings less than 3 V?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). If the code resets after clearing, go to step 8.

NO—Go to step 8.

8. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
9. Turn the ignition switch to LOCK (0), then start the engine.
10. Check for DTCs with the HDS.

Is DTC 62-21 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 64-11: Steering Angle Sensor Power Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

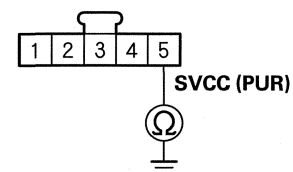
Is DTC 64-11 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector (see page 19-167).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).
8. Check for continuity between steering angle sensor 5P connector terminal No. 5 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the steering angle sensor and the VSA modulator-control unit.■

NO—Go to step 9.

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

9. Reconnect all connectors.
10. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
11. Turn the ignition switch to LOCK (0) and then back to ON (II).
12. Check for DTCs with the HDS.

Is DTC 64-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 64-12: Steering Angle Sensor Power Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

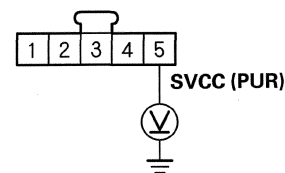
Is DTC 64-12 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector (see page 19-167).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).
8. Turn the ignition switch to ON (II).
9. Measure the voltage between steering angle sensor 5P connector terminal No. 5 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair a short to power in the wire between the steering angle sensor and the VSA modulator-control unit.■

NO—Go to step 10.



10. Turn the ignition switch to LOCK (0).
11. Reconnect all connectors.
12. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
13. Turn the ignition switch to LOCK (0) and then back to ON (II).
14. Check for DTCs with the HDS.

Is DTC 64-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 65-21: Brake Fluid Level Stuck ON

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).
- Bleeding the brake system while the ignition switch is ON can cause this DTC.

1. Check the brake fluid level in the master cylinder reservoir.

Is the brake fluid level OK?

YES—Go to step 2.

NO—Do the brake pad inspection: Front (see page 19-12), drum brake inspection: Rear (see page 19-26), check for brake fluid leaks or replace worn pads. Fill the fluid reservoir to the correct level or replace the pads, then go to step 2 and recheck.

2. Turn the ignition switch to ON (II).
3. Clear the DTC with the HDS.
4. Turn the ignition switch to LOCK (0) and then back to ON (II).
5. Check for DTCs with the HDS.

Is DTC 65-21 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

6. Release the parking brake.
7. Turn the ignition switch to LOCK (0), then turn it to ON (II).
8. Check the brake system indicator in the gauge control module.

Does the indicator come on then go off?

YES—Go to step 13.

NO—Go to step 9.

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

9. Check the BRAKE FLUID LEVEL SWITCH in the GAUGE DATA LIST with the HDS.

Does the HDS indicate the BRAKE FLUID LEVEL SWITCH as OFF?

YES—Substitute a known-good gauge control module (see page 22-294), then go to step 1 and recheck. If no DTCs are indicated, replace the original gauge control module (see page 22-294).

NO—Go to step 10.

10. Disconnect the brake fluid level switch 2P connector (see page 19-6), then check the BRAKE FLUID LEVEL SWITCH in the VSA DATA LIST.

Does the HDS indicate OFF?

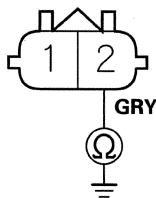
YES—Replace the brake fluid reservoir tank (the brake fluid level switch is included) (see page 19-11).■

NO—Go to step 11.

11. Disconnect the gauge control module 32P connector (see page 22-294).

12. Check for continuity between brake fluid level switch 2P connector terminal No. 2 and body ground.

BRAKE FLUID LEVEL SWITCH 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the gauge control module and the brake fluid level switch.■

NO—Substitute a known-good gauge control module (see page 22-294), then go to step 1 and recheck. If no DTCs are indicated, replace the original gauge control module (see page 22-294).

13. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).

14. Turn the ignition switch to LOCK (0) and then back to ON (II).

15. Check for DTCs with the HDS.

Is DTC 65-21 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 66-11: Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction

DTC 66-14: Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction

DTC 66-16: Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction

DTC 66-17: Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction

DTC 66-18: Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction

DTC 66-19: Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 66-11, 66-14, 66-16, 66-17, 66-18, or 66-19 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

5. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
6. Turn the ignition switch to LOCK (0), then start the engine.
7. Check for DTCs with the HDS.

Is DTC 66-11, 66-14, 66-16, 66-17, 66-18, or 66-19 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 66-12: Pressure Sensor (Inside of VSA Modulator-control Unit) Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

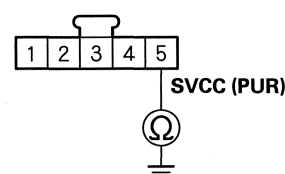
Is DTC 66-12 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector (see page 19-167).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).
8. Check for continuity between steering angle sensor 5P connector terminal No. 5 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the steering angle sensor and the VSA modulator-control unit.■

NO—Go to step 9.

9. Turn the ignition switch to ON (II).

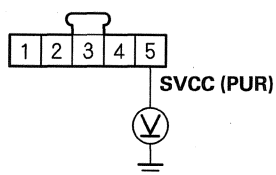
(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

10. Measure the voltage between steering angle sensor 5P connector terminal No. 5 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

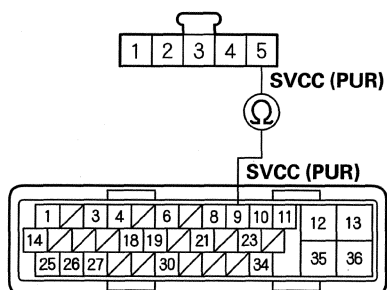
YES—Repair a short to power in the wire between the steering angle sensor and the VSA modulator-control unit. ■

NO—Go to step 11.

11. Turn the ignition switch to LOCK (0).
12. Check for continuity between VSA modulator-control unit 36P connector terminal No. 9 and steering angle sensor 5P connector terminal No. 5.

STEERING ANGLE SENSOR 5P CONNECTOR

Wire side of female terminals



VSA MODULATOR-CONTROL UNIT 36P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair an open in the wire between the steering angle sensor and the VSA modulator-control unit. ■

13. Reconnect all connectors.

14. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).

15. Turn the ignition switch to LOCK (0) and then back to ON (II).

16. Check for DTCs with the HDS.

Is DTC 66-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 68-21: Brake Pedal Position Switch Stuck OFF

NOTE:

- NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).
- Troubleshoot any fuel and emissions DTCs first.

1. Turn the ignition switch to ON (II).
2. Check the BRAKE PRESS in the VSA DATA LIST with the HDS. Do not press the brake pedal.

Is there 10 MPa or less?

YES—Go to step 3.

NO—Check for brake drag (see page 19-5) or a misadjusted brake pedal position switch (see page 19-6). If they are normal, go to step 32.

3. Check the BRAKE SWITCH in the VSA DATA LIST with the HDS while moving the brake pedal.

Does it indicate ON when the pedal is pressed, and OFF when the pedal is released?

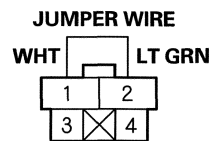
YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).
5. Disconnect the brake pedal position switch 4P connector (see page 19-6).

6. Connect brake pedal position switch 4P connector terminals No. 1 and No. 2 with a jumper wire.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



Wire side of female terminals

7. Turn the ignition switch to ON (II).
8. Check the BRAKE SWITCH in the VSA DATA LIST with the HDS.

Does it indicate ON?

YES—Check the brake pedal position switch adjustment (see page 19-6). If it is OK, replace the brake pedal position switch. ■

NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).
10. Disconnect the jumper wire.
11. Check the No. 24 (10 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Go to step 12.

NO—Reinstall the checked fuse, then go to step 22.

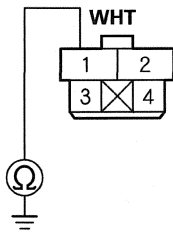
(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

12. Check for continuity between brake pedal position switch 4P connector terminal No. 1 and body ground.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



Wire side of female terminals

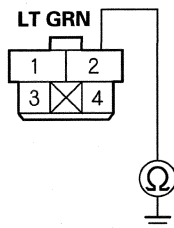
Is there continuity?

YES—Repair a short to body ground in the wire between the No. 24 (10 A) fuse in the under-dash fuse/relay box and the brake pedal position switch. ■

NO—Go to step 13.

13. Short the SCS line with the HDS.
14. Disconnect ECM/PCM connector A (49P) (see page 11-215).
15. Check for continuity between brake pedal position switch 4P connector terminal No. 2 and body ground.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



Wire side of female terminals

Is there continuity?

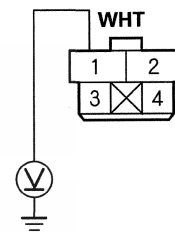
YES—Repair a short to body ground in the wire between the brake pedal position switch and the ECM/PCM. ■

NO—Install a new No. 24 (10 A) fuse in the under-dash fuse/relay box, then go to step 16.

16. Reconnect all connectors.
17. Turn the ignition switch to ON (II).

18. Clear the DTC with the HDS.
19. Turn the ignition switch to LOCK (0).
20. Test-drive the vehicle at 10 km/h (6 mph) or more.
- NOTE: Drive the vehicle on the road, not on a lift.
21. Check for DTCs with the HDS.
- Is DTC 68-21 indicated?*
- YES**—Go to step 32.
- NO**—The troubleshooting is complete. ■
22. Measure the voltage between brake pedal position switch 4P connector terminal No. 1 and body ground.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

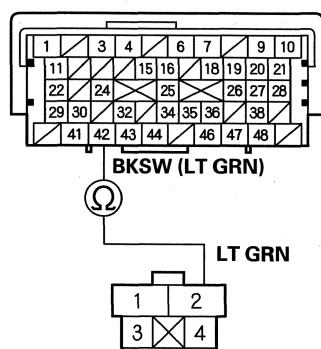
YES—Go to step 23.

NO—Repair an open in the wire between the No. 24 (10 A) fuse in the under-dash fuse/relay box and the brake pedal position switch. ■

23. Short the SCS line with the HDS.
24. Disconnect ECM/PCM connector A (49P) (see page 11-215).

25. Check for continuity between brake pedal position switch 4P connector terminal No. 2 and ECM/PCM connector terminal A42.

ECM/PCM CONNECTOR A (49P)
Terminal side of female terminals



BRAKE PEDAL POSITION SWITCH 4P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 26.

NO—Repair an open in the wire between the ECM/PCM and the brake pedal position switch. ■

26. Reconnect all connectors.
27. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
28. Clear the DTC with the HDS.
29. Turn the ignition switch to LOCK (0).
30. Test-drive the vehicle. Drive the vehicle at 7 mph (10 km/h) or more.
- NOTE:** Drive the vehicle on a straight section of road, not on a lift.
31. Check for DTCs with the HDS.
- Is DTC 68-21 indicated?*
- YES**—Check for loose terminals in the ECM/PCM connector A (44P). If the PCM was updated, substitute a known-good ECM/PCM, (see page 11-7) then retest. If the ECM/PCM was substituted, go to step 1.
- NO**—The troubleshooting is complete. ■
32. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
33. Turn the ignition switch to LOCK (0).

34. Test-drive the vehicle at 10 km/h (6 mph) or more.

NOTE: Drive the vehicle on the road, not on a lift.

35. Check for DTCs with the HDS.

Is DTC 68-21 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 68-22: Brake Pedal Position Switch Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Start the engine.
2. Check the BRAKE PRESS in the VSA DATA LIST with the HDS. Do not press the brake pedal.

Is there 10 MPa or more?

YES—Check the brake pedal height and the brake pedal position switch adjustment (see page 19-6). If the brake pedal height and the brake pedal position switch adjustment is OK, go to step 10.

NO—Go to step 3.

3. Check the BRAKE SWITCH in the VSA DATA LIST with the HDS while moving the brake pedal.

Does it indicate ON when the pedal is pressed, and OFF when the pedal is released?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

NO—Go to step 4.

4. Check the BRAKE SWITCH in the VSA DATA LIST with the HDS, and disconnect the brake pedal position switch 4P connector (see page 19-6).

Does the indicator change from ON to OFF?

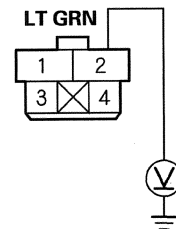
YES—Inspect the brake pedal position switch and adjustment. If the brake pedal position switch and adjustment are OK, replace the brake pedal position switch (see page 19-7). ■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Short the SCS line with the HDS.
7. Disconnect ECM/PCM connector A (49P) (see page 11-215).
8. Turn the ignition switch to ON (II).

9. Measure the voltage between brake pedal position switch 4P connector terminal No. 2 and body ground.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair a short to power in the wire between the ECM/PCM and the brake pedal position switch. ■

NO—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), then go to step 1 and recheck. If the ECM/PCM was updated and DTCs are not indicated, troubleshooting is complete. If the ECM/PCM was substituted and DTCs are not indicated, replace the original ECM/PCM (see page 11-215).

10. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
11. Turn the ignition switch to LOCK (0) and then back to ON (II).
12. Check for DTCs with the HDS.

Is DTC 68-22 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■



DTC 71-21: Right-front or Left-rear Different Diameter Tire Malfunction

DTC 71-22: Left-front or Right-rear Different Diameter Tire Malfunction

DTC 71-23: Right-front and Right-rear Different Diameter Tire Malfunction

DTC 71-24: Left-front and Left-rear Different Diameter Tire Malfunction

DTC 71-25: Right-front and Left-front Different Diameter Tire Malfunction

DTC 71-26: Right-rear and Left-rear Different Diameter Tire Malfunction

DTC 71-27: Right-front or Left-rear Different Diameter Tire Malfunction

DTC 71-28: Left-front or Right-rear Different Diameter Tire Malfunction

DTC 71-29: Right-front and Right-rear Different Diameter Tire Malfunction

DTC 71-2A: Left-front and Left-rear Different Diameter Tire Malfunction

DTC 71-2B: Right-front and Left-front Different Diameter Tire Malfunction

DTC 71-2C: Right-rear and Left-rear Different Diameter Tire Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).
- The DTC will be indicated when the vehicle has a different diameter tire(s) compared to the other tires.

1. Check the tires for proper inflation and the correct size (see page 18-6).

2. Turn the ignition switch to ON (II).

3. Clear the DTC with the HDS.

4. Turn the ignition switch to LOCK (0).

5. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

6. Check for DTCs with the HDS.

Is DTC 71-21, 71-22, 71-23, 71-24, 71-25, 71-26, 71-27, 71-28, 71-29, 71-2A, 71-2B, or 71-2C indicated?

YES—Replace tires as needed until all their diameters match (see page 18-6).■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 81-xx*: Central Processing Unit (CPU) Internal Circuit Malfunction

*: Any two-character subcode (Except these combinations: DTC 81-07, 81-11, 81-3D, 81-3E, 81-51, 81-52, 81-53, 81-54, 81-55, 81-56, 81-57, 81-58, and 81-59)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 81-xx indicated?

YES—If the DTC 81-07, 81-11, 81-3D, 81-3E, 81-51, 81-52, 81-53, 81-54, 81-55, 81-56, 81-57, 81-58, or 81-59 is indicated at the same time, do the appropriate troubleshooting. If DTC 81-07, 81-11, 81-3D, 81-3E, 81-51, 81-52, 81-53, 81-54, 81-55, 81-56, 81-57, 81-58, or 81-59 is not indicated. Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

5. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
6. Turn the ignition switch to LOCK (0) and then back to ON (II).
7. Check for DTCs with the HDS.

Is DTC 81-xx indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 81-07: Central Processing Unit (CPU) Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

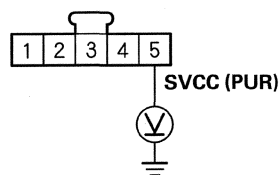
Is DTC 81-07 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector (see page 19-167).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).
8. Turn the ignition switch to ON (II).
9. Measure the voltage between steering angle sensor 5P connector terminal No. 5 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair a short to power in the wire between the steering angle sensor and the VSA modulator-control unit. ■

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).
11. Reconnect all connectors.
12. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
13. Turn the ignition switch to LOCK (0) and then back to ON (II).
14. Check for DTCs with the HDS.

Is DTC 81-07 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 81-11: Central Processing Unit (CPU) Internal Circuit Malfunction

DTC 81-52: Central Processing Unit (CPU) Internal Circuit Malfunction

DTC 81-54: Central Processing Unit (CPU) Internal Circuit Malfunction

DTC 81-56: Central Processing Unit (CPU) Internal Circuit Malfunction

DTC 81-58: Central Processing Unit (CPU) Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 30 km/h (19 mph) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 81-11, 81-52, 81-54, 81-56, or 81-58 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

6. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
7. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

8. Check for DTCs with the HDS.

Is DTC 81-11, 81-52, 81-54, 81-56, or 81-58 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 81-51: Central Processing Unit (CPU)
Internal Circuit Malfunction

DTC 81-53: Central Processing Unit (CPU)
Internal Circuit Malfunction

DTC 81-55: Central Processing Unit (CPU)
Internal Circuit Malfunction

DTC 81-57: Central Processing Unit (CPU)
Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 81-51, 81-53, 81-55, or 81-57 indicated?

YES—Go to step 6.

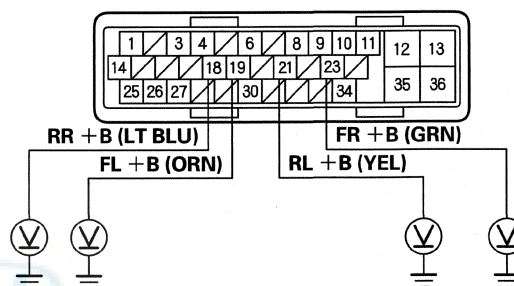
NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

6. Turn the ignition switch to LOCK (0).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).
8. Turn the ignition switch to ON (II).

9. Measure the voltage between body ground and the appropriate VSA modulator-control unit 36P connector terminals (see table).

DTC	VSA Modulator-control Unit 36P Connector Terminal
81-51	No. 23
81-53	No. 19
81-55	No. 18
81-57	No. 21

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair a short to power in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit. ■

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).
11. Reconnect the VSA modulator-control unit 36P connector.
12. Substitute a known-good wheel speed sensor (see page 19-173) for the appropriate wheel.

DTC	Appropriate Wheel Speed Sensor
81-51	Right-front
81-53	Left-front
81-55	Right-rear
81-57	Left-rear

13. Test drive the vehicle at 19 mph (30 km/h) or more.
14. Check for DTCs with the HDS.

Is DTC 81-51, 81-53, 81-55, or 81-57 indicated?

YES—Reinstall the original wheel sensor, then go to step 14.

NO—Replace the original wheel sensor (see page 19-173). ■



15. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).

16. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

17. Check for DTCs with the HDS.

Is DTC 81-51, 81-53, 81-55 or 81-57 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 81-3D: Central Processing Unit (CPU) Internal Circuit Malfunction

DTC 81-3E: Central Processing Unit (CPU) Internal Circuit Malfunction

DTC 81-59: Central Processing Unit (CPU) Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Start the engine.
4. Turn the steering wheel from lock-to-lock several times.
5. Check for DTCs with the HDS.

Is DTC 81-3D, 81-3E, or 81-59 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

6. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
7. Start the engine.
8. Turn the steering wheel from lock to lock several times.
9. Check for DTCs with the HDS.

Is DTC 81-3D, 81-3E, or 81-59 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 83-13: ECM/PCM Communication Error (Engine Malfunction)

DTC 83-14: ECM/PCM Communication Error (A/T Malfunction)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 83-13 or 83-14 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

6. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

7. Clear the DTC with the HDS.
 8. Turn the ignition switch to LOCK (0).
 9. Test-drive the vehicle at 19 mph (30 km/h) or more.
- NOTE: Drive the vehicle on a straight section of road, not on a lift.

10. Check for DTCs with the HDS.

Is DTC 83-13 or 83-14 indicated?

YES—Go to step 11.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). ■

11. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).

12. Turn the ignition switch to LOCK (0).

13. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

14. Check for DTCs with the HDS.

Is DTC 83-13 or 83-14 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■



DTC 84-21: VSA Sensor Neutral Position not Written

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the VSA sensor neutral position memorization (see page 19-168).
4. Turn the ignition switch to LOCK (0) and then back to ON (II).
5. Check for DTCs with the HDS.

Is DTC 84-21 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

6. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
7. Do the VSA sensor neutral position memorization (see page 19-168).
8. Turn the ignition switch to LOCK (0) and then back to ON (II).
9. Check for DTCs with the HDS.

Is DTC 84-21 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 86-01: F-CAN Bus-off Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).
- Troubleshoot the fuel and emissions DTCs first.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 86-01 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89).■

5. Check for fuel and emissions systems DTCs with the HDS (see page 11-3).

Are you able to retrieve fuel and emissions systems DTCs?

YES—Troubleshoot the fuel and emissions systems DTCs (see page 11-3), then go to step 6.

NO—Go to F-CAN circuit troubleshooting (see page 11-183).■

6. Turn the ignition switch to LOCK (0).
7. Short the SCS line with the HDS.
8. Disconnect ECM/PCM connector A (49P) (see page 11-215).
9. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).

(cont'd)

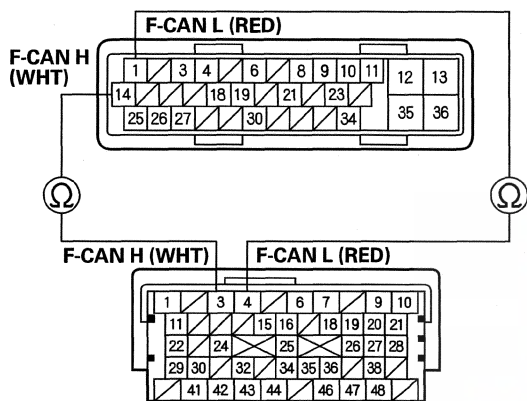
VSA System Components

DTC Troubleshooting (cont'd)

10. Check for continuity between the VSA modulator-control unit 36P connector terminal and ECM/PCM connector A (49P) terminal (see table).

Sign	VSA Modulator-control Unit 36P Connector Terminal	ECM/PCM Connector A (49P) Terminal
F-CAN L	No. 1	A4
F-CAN H	No. 14	A3

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR
Wire side of female terminals



ECM/PCM CONNECTOR A (49P)
Terminal side of female terminals

Is there continuity?

YES—Go to step 11.

NO—Repair an open in the wire between the ECM/PCM and the VSA modulator-control unit. ■

11. Reconnect all connectors.
12. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
13. Turn the ignition switch to LOCK (0) and then back to ON (II).
14. Check for DTCs with the HDS.

Is DTC 86-01 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 86-11: F-CAN Communication With ECM/PCM Malfunction

DTC 86-21: F-CAN Communication With Engine Malfunction

DTC 86-22: F-CAN Communication With Engine Malfunction

DTC 86-23: F-CAN Communication With Engine Malfunction

DTC 86-24: F-CAN Communication With Engine Malfunction

DTC 86-25: F-CAN Communication With Engine Malfunction

DTC 86-41: F-CAN Communication With EAT Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).
- Troubleshoot the fuel and emissions DTCs first.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 7 mph (10 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 86-11, 86-21, 86-22, 86-23, 86-24, 86-25, or 86-41 indicated?

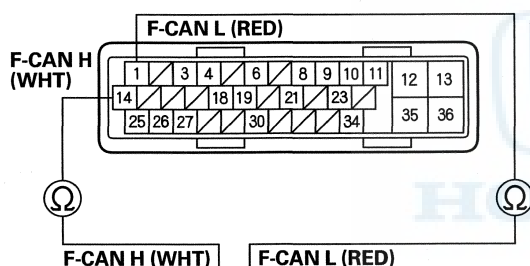
YES—If the DTC 86-01 is indicated at the same time, do the DTC 86-01 troubleshooting (see page 19-153). If the DTC 86-01 is not indicated, go to step 6.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

6. Turn the ignition switch to LOCK (0).
7. Short the SCS line with the HDS.
8. Disconnect ECM/PCM connector A (49P) (see page 11-215).
9. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).
10. Check for continuity between the VSA modulator-control unit 36P connector terminal and ECM/PCM connector A (49P) terminal (see table).

Sign	VSA Modulator-control Unit 36P Connector Terminal	ECM/PCM Connector A (49P) Terminal
F-CAN L	No. 1	A4
F-CAN H	No. 14	A3

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR
Wire side of female terminals



ECM/PCM CONNECTOR A (49P)
Terminal side of female terminals

Is there continuity?

YES—Go to step 11.

NO—Repair an open in the wire between the ECM/PCM and the VSA modulator-control unit.■

11. Reconnect all connectors.
12. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
13. Clear the DTC with the HDS.
14. Turn the ignition switch to LOCK (0).
15. Test-drive the vehicle at 7 mph (10 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

16. Check for DTCs with the HDS.

Is DTC 86-11, 86-21, 86-22, 86-23, 86-24, 86-25, or 86-41 indicated?

YES—Go to step 17.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215).■

17. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
18. Turn the ignition switch to LOCK (0).
19. Test-drive the vehicle at 7 mph (10 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

20. Check for DTCs with the HDS.

Is DTC 86-11, 86-21, 86-22, 86-23, 86-24, 86-25, or 86-41 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 86-31: F-CAN Communication With Gauge Control Module Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).
- Troubleshoot the fuel and emissions DTCs first.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 86-31 indicated?

YES—If the DTC 86-01 is indicated at the same time, do the DTC 86-01 troubleshooting (see page 19-153). If the DTC 86-01 is not indicated, go to step 5.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

5. Turn the ignition switch to ON (II).

Do the gauge indicators come on?

YES—Go to step 6.

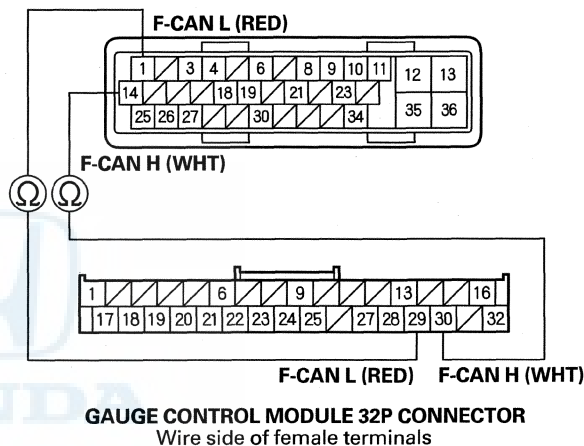
NO—Do the gauge control module troubleshooting (see page 22-274). ■

6. Turn the ignition switch to LOCK (0).
7. Disconnect the gauge control module 32P connector (see page 22-294).
8. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).

9. Check for continuity between the VSA modulator-control unit 36P connector terminal and gauge control module 32P connector terminal (see table).

Sign	VSA Modulator-control Unit 36P Connector Terminal	Gauge Control Module 32P Connector Terminal
F-CAN L	No. 1	No. 29
F-CAN H	No. 14	No. 30

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR
Wire side of female terminals



Is there continuity?

YES—Check for loose terminals in the gauge control module 32P connector. If necessary, substitute a known-good gauge control module (see page 22-294), then go to step 1 and recheck. If no DTCs are indicated, replace the original gauge control module (see page 22-294). If DTC 86-31 resets, go to step 10.

NO—Repair an open in the wire between the gauge control module and the VSA modulator-control unit. ■



10. Reconnect all connectors.
11. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
12. Turn the ignition switch to LOCK (0) and then back to ON (II).
13. Check for DTCs with the HDS.

Is DTC 86-31 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 86-71: F-CAN Communication with Yaw Rate-Lateral Acceleration Sensor Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).
- Troubleshoot the fuel and emissions DTCs first.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 86-71 indicated?

YES—If the DTC 86-01 is indicated at the same time, do the DTC 86-01 troubleshooting (see page 19-153). If the DTC 86-01 is not indicated, go to step 5.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the yaw rate-lateral acceleration sensor 5P connector (see page 19-168).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).

(cont'd)

VSA System Components

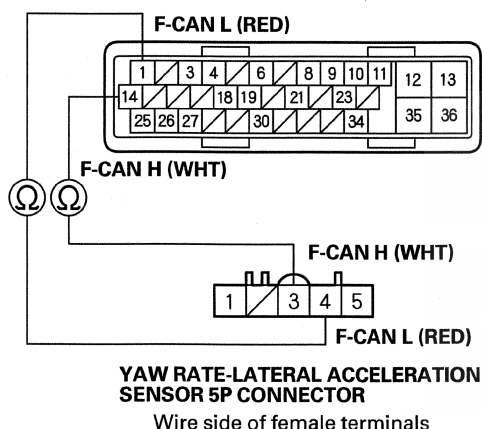
DTC Troubleshooting (cont'd)

8. Check for continuity between the VSA modulator-control unit 36P connector terminal and the yaw rate-lateral acceleration sensor 5P connector terminal (see table).

Sign	VSA Modulator-control Unit 36P Connector Terminal	Yaw Rate-lateral Acceleration Sensor 5P Connector Terminal
F-CAN L	No. 1	No. 4
F-CAN H	No. 14	No. 3

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR

Wire side of female terminals



Is there continuity?

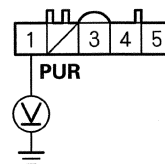
YES—Go to step 9.

NO—Repair an open in the wire between the yaw rate-lateral acceleration sensor and the VSA modulator-control unit. ■

9. Turn the ignition switch to ON (II).

10. Measure the voltage between yaw rate-lateral acceleration sensor 5P connector terminal No. 1 and body ground.

YAW RATE-LATERAL ACCELERATION SENSOR 5P CONNECTOR



Wire side of female terminals

Is there battery voltage?

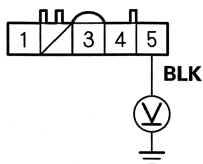
YES—Go to step 11.

NO—Repair an open in the wire between the No. 11 (7.5 A) fuse in the under-dash fuse/relay box and the yaw rate-lateral acceleration sensor. ■

11. Turn the ignition switch to LOCK (0).
12. Reconnect the yaw rate-lateral acceleration sensor 5P connector.
13. Turn the ignition switch to ON (II).

14. Measure the voltage between yaw rate-lateral acceleration sensor 5P connector terminal No. 5 and body ground.

YAW RATE-LATERAL ACCELERATION SENSOR 5P CONNECTOR



Wire side of female terminals

Is there 0.1 V or less?

YES—Replace the yaw rate-lateral acceleration sensor (see page 19-168). ■

NO—Repair an open in the wire between the yaw rate-lateral acceleration sensor and body ground (G502). ■

DTC 107-22: Central Processing Unit (CPU) Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to LOCK (0) to cool the VSA modulator-control unit, and wait 1 hour or more.
2. Turn the ignition switch to ON (II).
3. Clear the DTC with the HDS.
4. Turn the ignition switch to LOCK (0) and then back to ON (II).
5. Check for DTCs with the HDS.

Is DTC 107-22 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

6. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
7. Turn the ignition switch to LOCK (0) and then back to ON (II).
8. Check for DTCs with the HDS.

Is DTC 107-22 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 108-21: Steering Angle Sensor Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 19 mph (30 km/h) or more.
NOTE: Drive the vehicle on a straight section of road, not on a lift.
5. Check for DTCs with the HDS.
Is DTC 108-21 indicated?
YES—Go to step 6.
NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■
6. Turn the ignition switch to LOCK (0).
7. Substitute a known-good steering angle sensor (see page 19-167).
8. Turn the ignition switch to ON (II).
9. Clear the DTC with the HDS.
10. Turn the ignition switch to LOCK (0).
11. Test-drive the vehicle at 19 mph (30 km/h) or more.
NOTE: Drive the vehicle on a straight section of road, not on a lift.
12. Check for DTCs with the HDS.

Is DTC 108-21 indicated?

YES—Go to step 13.

NO—Replace the original steering angle sensor (see page 19-167). ■

13. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
14. Turn the ignition switch to LOCK (0).
15. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on a straight section of road, not on a lift.

16. Check for DTCs with the HDS.

Is DTC 108-21 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 117-11: VSA OFF Switch Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Wait at least 2 minutes.
5. Check for DTCs with the HDS.

Is DTC 117-11 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

6. Check the VSA OFF SWITCH in the GAUGES DATA LIST with the HDS.

Does it indicate ON when the VSA OFF switch is pressed, and OFF when the VSA OFF switch is released?

YES—Go to step 13.

NO—Go to step 7.

7. Check the VSA OFF switch (see page 19-169).

Is the VSA OFF switch OK?

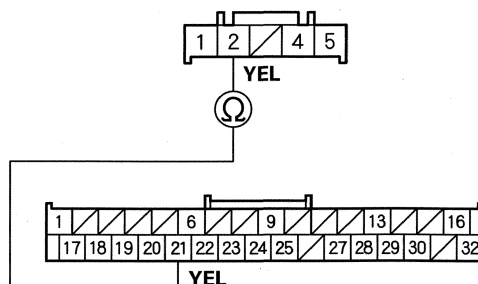
YES—Go to step 8.

NO—Replace the VSA OFF switch (see page 19-169). ■

8. Turn the ignition switch to LOCK (0).
9. Disconnect the VSA OFF switch 5P connector.
10. Disconnect the gauge control module 32P connector (see page 22-294).

11. Check for continuity between gauge control module 32P connector terminal No. 21 and VSA OFF switch 5P connector terminal No. 2.

VSA OFF SWITCH 5P CONNECTOR
Wire side of female terminals



GAUGE CONTROL MODULE 32P CONNECTOR
Wire side of female terminals

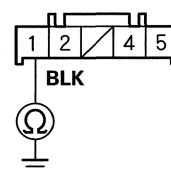
Is there continuity?

YES—Go to step 12.

NO—Repair an open in the wire between the gauge control module and the VSA OFF switch. ■

12. Check for continuity between VSA OFF switch 5P connector terminal No. 1 and body ground.

VSA OFF SWITCH 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good gauge control module, then go to step 1 and recheck. If it is OK, replace the original gauge control module (see page 22-294). ■

NO—Repair an open in the wire between the VSA OFF switch and body ground (G501). ■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

13. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
14. Turn the ignition switch to LOCK (0) and then back to ON (II).
15. Wait at least 2 minutes.
16. Check for DTCs with the HDS.

Is DTC 117-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 121-xx*: VSA Solenoid Valve Malfunction

DTC 122-xx*: VSA Solenoid Valve Malfunction

DTC 123-xx*: VSA Solenoid Valve Malfunction

DTC 124-xx*: VSA Solenoid Valve Malfunction

*: Any two-character subcode (see table)

DTC		Sectional	Valve
121	-01	Right-front and left-rear	Regulator
	-02		
	-11		
	-21		
	-24		
122	-01	Left-front and right-rear	Suction
	-21		
	-22		
	-23		
123	-01	Left-front and right-rear	Regulator
	-02		
	-11		
	-21		
	-24		
124	-01	Left-front and right-rear	Suction
	-21		
	-22		
	-23		

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-88).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 121-xx, 122-xx, 123-xx or 124-xx indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-89). ■

Symptom Troubleshooting

5. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
6. Turn the ignition switch to LOCK (0) and then back to ON (II).
7. Check for DTCs with the HDS.

Is DTC 121-xx, 122-xx, 123-xx, or 124-xx indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

VSA cannot be turned OFF

NOTE: If the low tire pressure/TPMS indicator turns ON, the VSA cannot be turned OFF. Check the tire pressure first.

1. Turn the ignition switch to LOCK (0).
2. Check the VSA OFF switch (see page 19-169).

Is the VSA OFF switch OK?

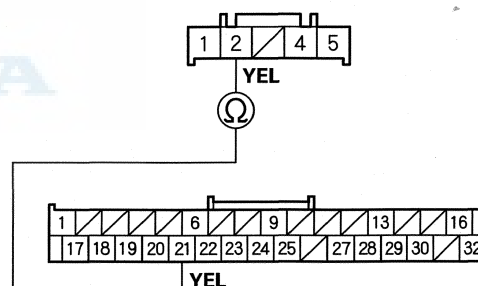
YES—Go to step 3.

NO—Replace the VSA OFF switch (see page 19-169).■

3. Disconnect the VSA OFF switch 5P connector (see page 19-169).
4. Disconnect the gauge control module 32P connector (see page 22-294).
5. Check for continuity between gauge control module 32P connector terminal No. 21 and VSA OFF switch 5P connector terminal No. 2.

VSA OFF SWITCH 5P CONNECTOR

Wire side of female terminals



GAUGE CONTROL MODULE 32P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Go to step 6.

NO—Repair an open in the wire between the gauge control module and the VSA OFF switch.■

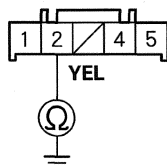
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VSA System Components

Symptom Troubleshooting (cont'd)

6. Check for continuity between VSA OFF switch 5P connector terminal No. 2 and body ground.

VSA OFF SWITCH 5P CONNECTOR



Wire side of female terminals

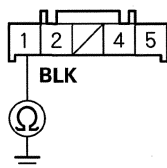
Is there continuity?

YES—Repair a short to body ground in the wire between the gauge control module and the VSA OFF switch. ■

NO—Go to step 7.

7. Check for continuity between VSA OFF switch 5P connector terminal No. 1 and body ground.

VSA OFF SWITCH 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good gauge control module (see page 22-294), and recheck. If it is OK, Replace the original gauge control module (see page 22-294). ■

NO—Repair an open in the wire between the VSA OFF switch and body ground (G501). ■

ABS indicator, brake system indicator, and VSA indicator do not go off

1. Turn the ignition switch to LOCK (0).
2. Check the No. 11 (7.5 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Replace the fuse. Turn the ignition switch to ON (II), then turn it to LOCK (0) again. If the fuse blows again, repair the short to ground on the No.11 (7.5 A) fuse circuit. ■

NO—Reinstall the checked fuse, then go to step 4.

3. Check the No. 37 (30 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Replace the fuse. Turn the ignition switch to ON (II), then turn it to LOCK (0) again. If the fuse blows again, repair the short to ground on the No. 37 (30 A) fuse circuit. ■

NO—Reinstall the checked fuse, then go to step 4.

4. Do the gauge control module self-diagnostic function (see page 22-274).

Is the gauge control module OK?

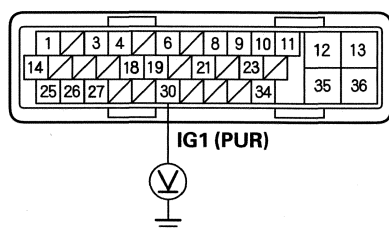
YES—Go to step 5.

NO—Substitute a known-good gauge control module (see page 22-294), and recheck. If it is OK, Replace the original gauge control module (see page 22-294). ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-171).
7. Turn the ignition switch to ON (II).

8. Measure the voltage between VSA modulator-control unit 36P connector terminal No. 30 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

Is there battery voltage?

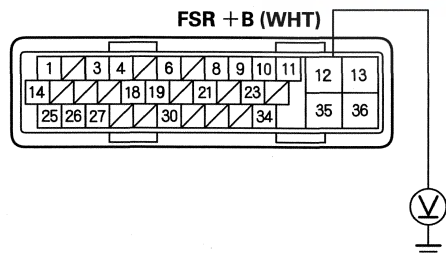
YES—Go to step 9.

NO—Repair an open in the wire between the No. 11 (7.5 A) fuse in the under-dash fuse/relay box and the VSA modulator-control unit. ■

9. Turn the ignition switch to LOCK (0).

10. Measure the voltage between VSA modulator-control unit 36P connector terminal No. 12 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

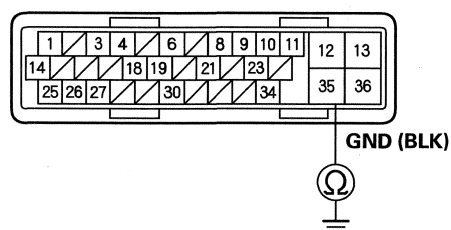
Is there battery voltage?

YES—Go to step 11.

NO—Repair an open in the wire between the No. 37 (30 A) fuse in the under-dash fuse/relay box and the VSA modulator-control unit. ■

11. Check for continuity between VSA modulator-control unit 36P connector terminal No. 35 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair an open in the wire between the VSA modulator-control unit and body ground (G202). ■

12. Disconnect the gauge control module 32P connector (see page 22-294).

(cont'd)

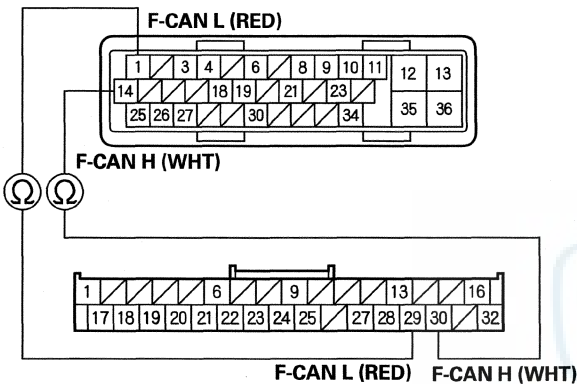
VSA System Components

Symptom Troubleshooting (cont'd)

13. Check for continuity between the VSA modulator-control unit 36P connector terminal and gauge control module 32P connector terminal (see table).

Sign	VSA Modulator-control Unit 36P Connector Terminal	Gauge Control Module 32P Connector Terminal
F-CAN L	No. 1	No. 29
F-CAN H	No. 14	No. 30

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR
Wire side of female terminals



GAUGE CONTROL MODULE 32P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 14.

NO—Repair an open in the wire between the gauge control module and the VSA modulator-control unit. ■

14. Reconnect all connectors.
15. Update the VSA modulator-control unit if it does not have the latest software (see page 19-170).
16. Turn the ignition switch to LOCK (0) and then back to ON (II).
17. Check the ABS indicator, the brake system indicator, and the VSA indicator for several seconds when the ignition switch is turned to ON (II).

Dose the indicators come on then go off?

YES—If the VSA modulator-control unit was updated, troubleshooting is complete. ■

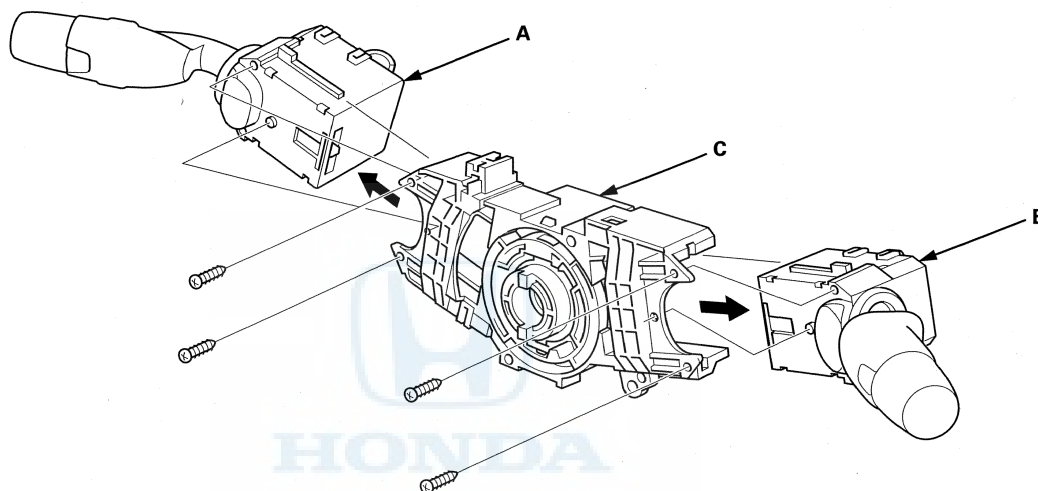
NO—Check for loose terminals in the VSA modulator-control unit 36P connector. If the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-171). ■

Steering Angle Sensor Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

NOTE: Do not damage or drop the combination switch as the steering angle sensor is sensitive to shock and vibration.

1. With the wheels in the straight-ahead position and the steering wheel centered, remove the steering wheel (see page 17-6).
2. Remove the steering column covers (see page 20-105) and the cable reel (see page 24-186).
3. Remove the combination switch assembly (see step 13 on page 17-11).
4. Remove the combination light switch (A) and the wiper/washer switch (B) from the combination switch body assembly (C).



5. Install the combination switch body assembly in the reverse order of removal.

NOTE:

- Do not remove the steering angle sensor from the combination switch body.
- When installing the cable reel, set the turn signal canceling sleeve position so that the arrow points straight-up (see page 24-187).
- Note that the tightening order is specified for combination switch mounting screws (see page 17-12).

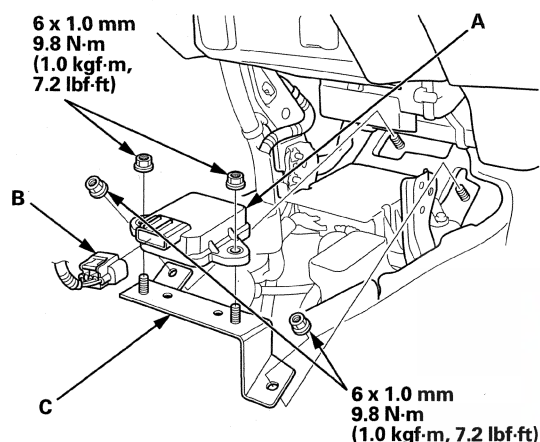
VSA System Components

Yaw Rate-Lateral Acceleration Sensor Replacement

NOTE:

- Do not damage or drop the sensor as it is sensitive.
- Do not use power tools.

1. Turn the ignition switch to LOCK (0).
2. Remove the center console (see page 20-93).
3. Remove the yaw rate-lateral acceleration sensor (A) mounting nuts.

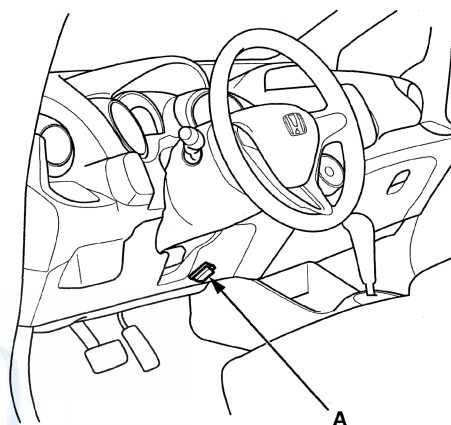


4. Disconnect the yaw rate-lateral acceleration sensor 5P connector (B).
5. Check for deformation in the bracket (C). If necessary replace it.
6. Install the yaw rate-lateral acceleration sensor in the reverse order of removal.
7. Do the VSA sensor neutral position memorization procedure (see page 19-168).

VSA Sensor Neutral Position Memorization

NOTE: Do not press the brake pedal during this procedure.

1. Park the vehicle on a flat and level surface, with the steering wheel in the straight ahead position.
2. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) (A) under the driver's side of the dashboard.



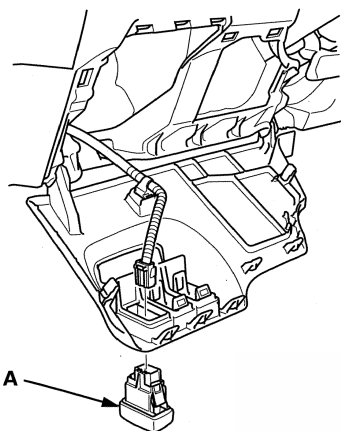
3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it does not, troubleshoot the DLC circuit (see page 11-193).
5. Select VSA ADJUSTMENT with the HDS, and follow the screen prompts.

NOTE: See the HDS Help menu for specific instructions.

6. Turn the ignition switch to LOCK (0).

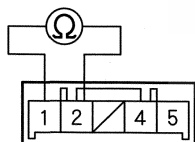
VSA Off Switch Test/Replacement

1. Turn the ignition switch to LOCK (0).
2. Open the driver's dashboard lower cover (see page 20-97).
3. Push out the VSA OFF switch (A) from the driver's dashboard lower cover.





4. Check for continuity between the VSA OFF switch 5P connector terminal in each switch position according to the table.

VSA OFF SWITCH 5P CONNECTOR



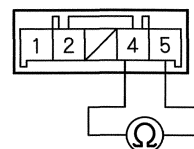
Terminal side of male terminals

Terminal	1	2
Position		
RELEASED		
PRESSED		

- If the switch does not work as described in the table, replace the switch.
- If the switch tests OK, go to step 5.

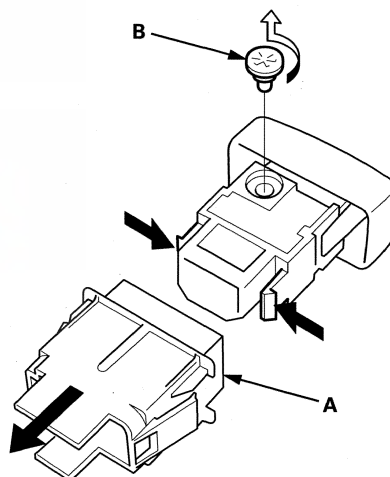
5. Check for continuity between VSA OFF switch 5P connector terminals No. 4 and No. 5. There should be continuity at all times.

VSA OFF SWITCH 5P CONNECTOR



Terminal side of male terminals

6. If the continuity is not as specified, remove the cover (A), and replace the bulb (B).



7. Install the VSA OFF switch in the reverse order of removal.

VSA System Components

VSA Modulator-Control Unit Update

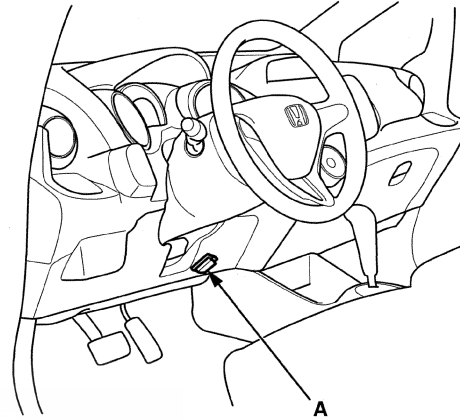
Special Tools Required

- Honda Diagnostic System (HDS)
- Honda Interface Module (HIM)
- HDS pocket tester
- MVCI unit with the latest control module (CM) update software installed

Use any one of these update tools.

NOTE:

- Use this procedure when you need to update the VSA modulator-control unit at anytime.
 - Make sure the HDS/iN workstation has the latest HDS software version.
 - Before you update the VSA modulator-control unit, make sure the battery in the vehicle is fully charged, and connect a jumper to the battery (not a battery charger) to maintain system voltage.
 - Never turn the ignition switch to LOCK (0) or ACCESSORY (I) during the update. If there is a problem with the update, leave the ignition switch in ON (II).
 - To prevent VSA modulator-control unit damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, door locks, etc.) during the update.
 - To ensure the latest program is installed, do a VSA modulator-control unit update whenever the VSA modulator-control unit is substituted or replaced.
 - You cannot update a VSA modulator-control unit with a program it already has. It will only accept a new program.
 - High temperature in the engine compartment might cause the VSA modulator-control unit to become too hot to run the update. If the engine has been running before this procedure, open the hood and cool the engine compartment.
 - If you need to diagnose the Honda interface module (HIM) because the HIM's red (#3) light came on or was flashing during the update, leave the ignition switch ON (II) when you disconnect the HIM from the data link connector (DLC). This will prevent VSA modulator-control unit damage.
 - DTCs stored in memory are cleared when the VSA modulator-control unit is updated.
1. Turn the ignition switch to ON (II), but do not start the engine.
 2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it doesn't, troubleshooting the DLC circuit (see page 11-193).
4. Select the update mode, and follow the screen prompts to update the VSA modulator-control unit.
5. If the software in the VSA modulator-control unit is the latest, disconnect the HDS/HIM from the DLC. If the software in the VSA modulator-control unit is not the latest, follow the instructions on the screen.
6. Do the VSA sensor neutral position memorization procedure (see page 19-168).

VSA Modulator-Control Unit Removal and Installation

NOTICE

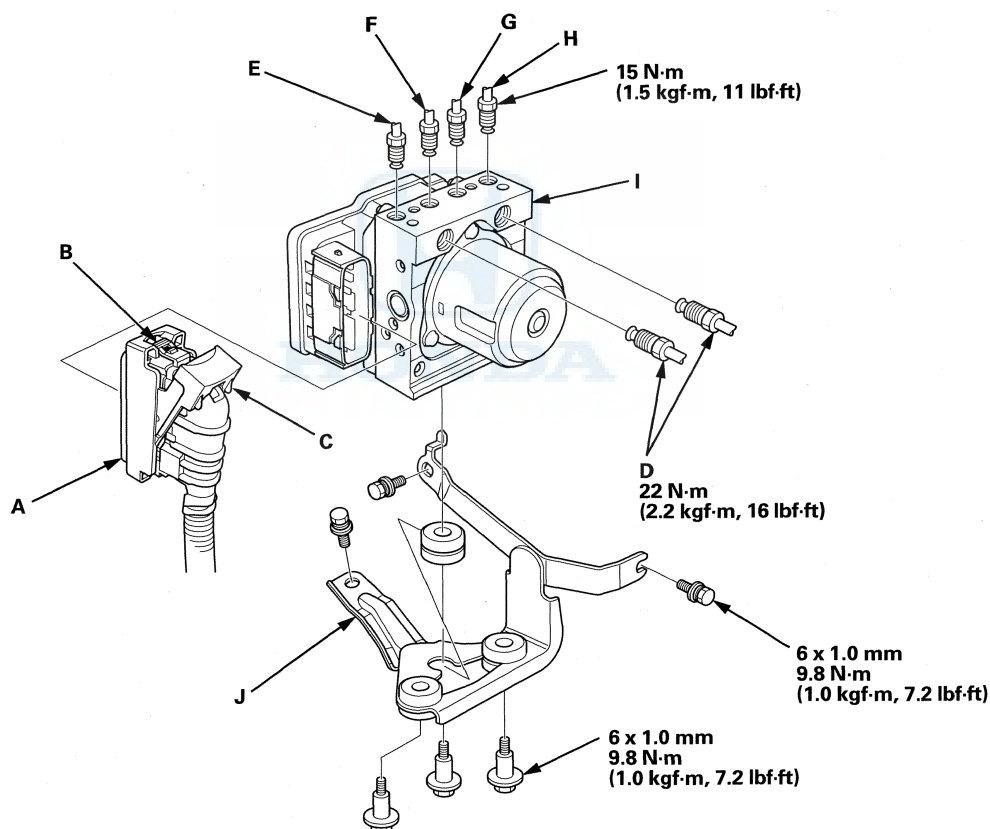
Do not spill brake fluid on the vehicle; it may damage the paint. If brake fluid gets on the paint, wash it off immediately with water.

NOTE:

- Be careful not to damage or deform the brake lines during removal and installation.
- To prevent the brake fluid from dripping, plug and cover the hose ends and joints with a shop towel.

Removal

1. Turn the ignition switch to LOCK (0).
2. Remove the washer reservoir (see page 22-264).
3. Disconnect the VSA modulator-control unit 36P connector (A) by pushing the lock (B) and pulling down the lever (C); the connector disconnects itself.



4. Disconnect the six brake lines from the VSA modulator-control unit.

NOTE: Brake lines are connected to the master cylinder (D) and to the left-rear (E), the right-front (F), the left-front (G), and the right-rear (H) brake systems.

5. Remove the VSA modulator-control unit (I) with the bracket (J) from the body.
6. Remove the VSA modulator-control unit from the bracket.

(cont'd)

VSA System Components

VSA Modulator-Control Unit Removal and Installation (cont'd)

Installation

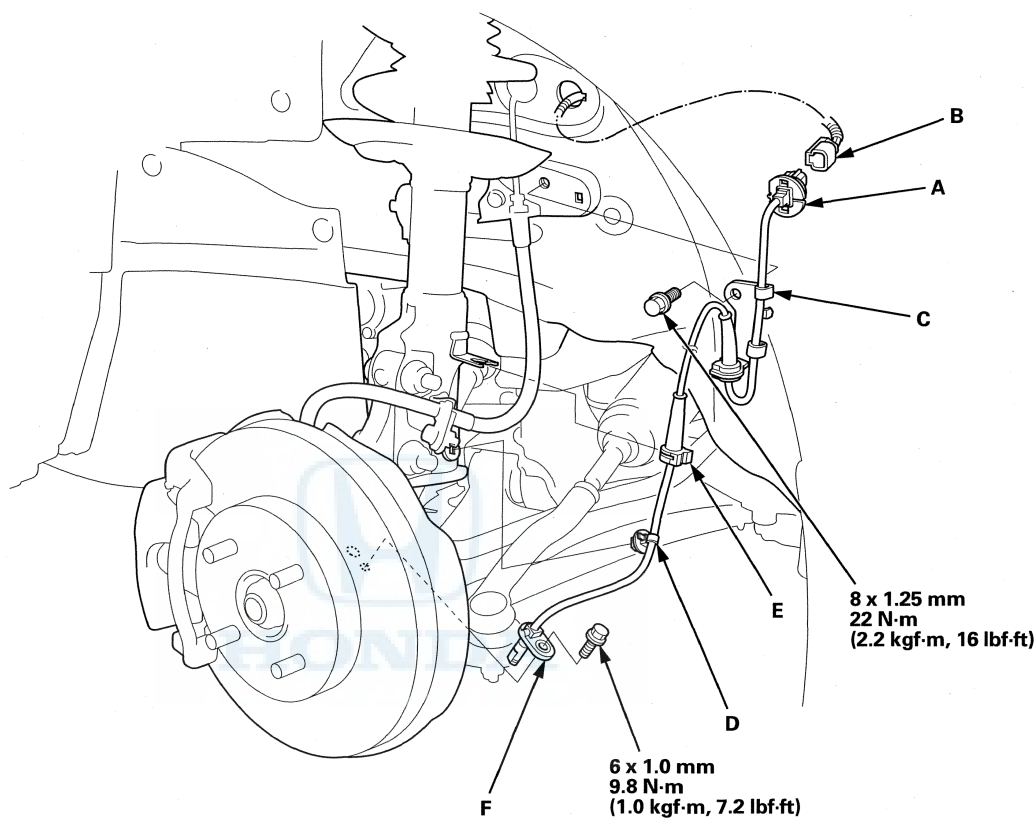
1. Install the VSA modulator-control unit onto the bracket.
2. Install the bracket with the VSA modulator-control unit to the body.
3. Reconnect the six brake lines, then tighten the flare nuts to the specified torque.
4. Align the connecting surface of the VSA modulator-control unit 36P connector to the VSA modulator-control unit.
5. Pull up the lever of the VSA modulator-control unit 36P connector, then confirm the connector is fully seated.
6. Install the washer reservoir (see page 22-264).
7. Bleed the brake system (see page 19-8).
8. Do the VSA modulator-control unit update (see page 19-170).
9. Do the VSA sensor neutral position memorization procedure (see page 19-168).



Wheel Speed Sensor Replacement

Front

1. Turn the ignition switch to LOCK (0).
2. Remove the grommet (A), then disconnect the wheel speed sensor connector (B).



3. Remove the bracket (C), the clip (D), and the wire guide rubber (E).
4. Remove the bolts and the wheel speed sensor (F).
5. Install the wheel speed sensor in the reverse order of removal, and note these items:
 - Do not twist the sensor wires.
 - If the wheel speed sensor comes in contact with the hub bearing unit, it is faulty.
 - Make sure the grommet is installed properly.
 - Make sure there is no debris in the sensor mounting hole.

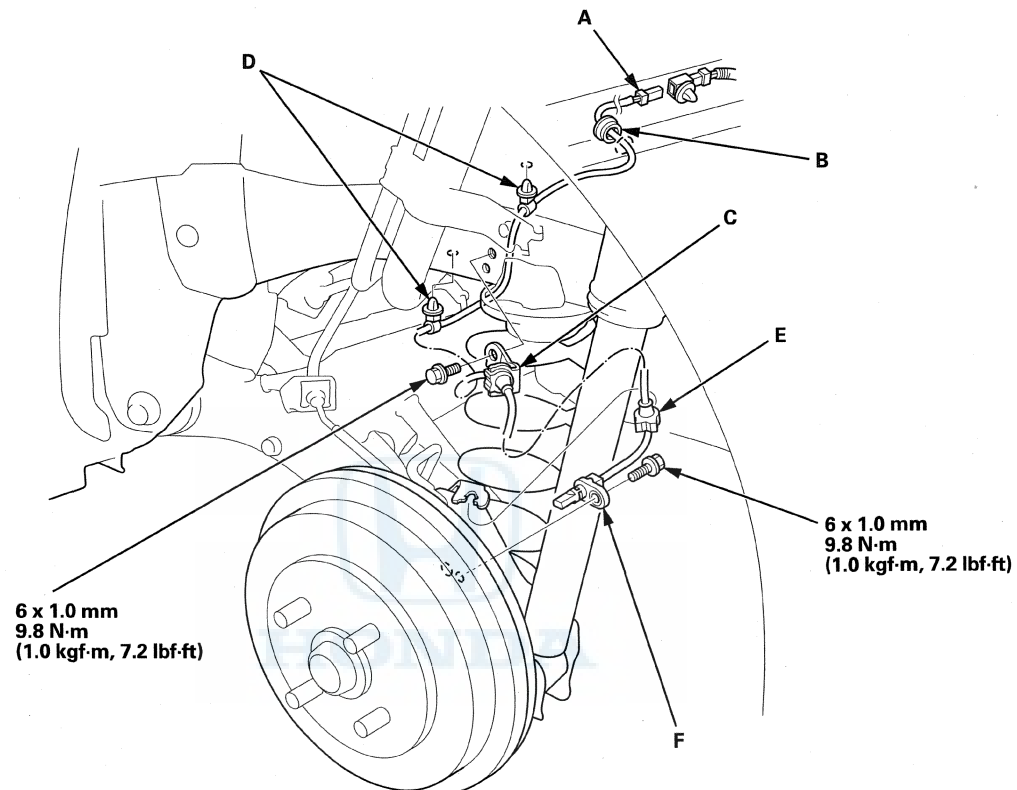
(cont'd)

VSA System Components

Wheel Speed Sensor Replacement (cont'd)

Rear

1. Turn the ignition switch to LOCK (0).
2. Pull back the carpet under the rear seat, then disconnect the wheel speed sensor connector (A).



3. Remove the grommet (B), the bracket (C), the clips (D), and the wire guide rubber (E).
4. Remove the bolt and the wheel speed sensor (F).
5. Install the wheel speed sensor in the reverse order of removal, and note these items:
 - Do not twist the sensor wires.
 - If the wheel speed sensor comes in contact with the hub bearing unit, it is faulty.
 - Make sure the grommet is installed properly.
 - Make sure there is no debris in the sensor mounting hole.

VSA System Components - 12 Model

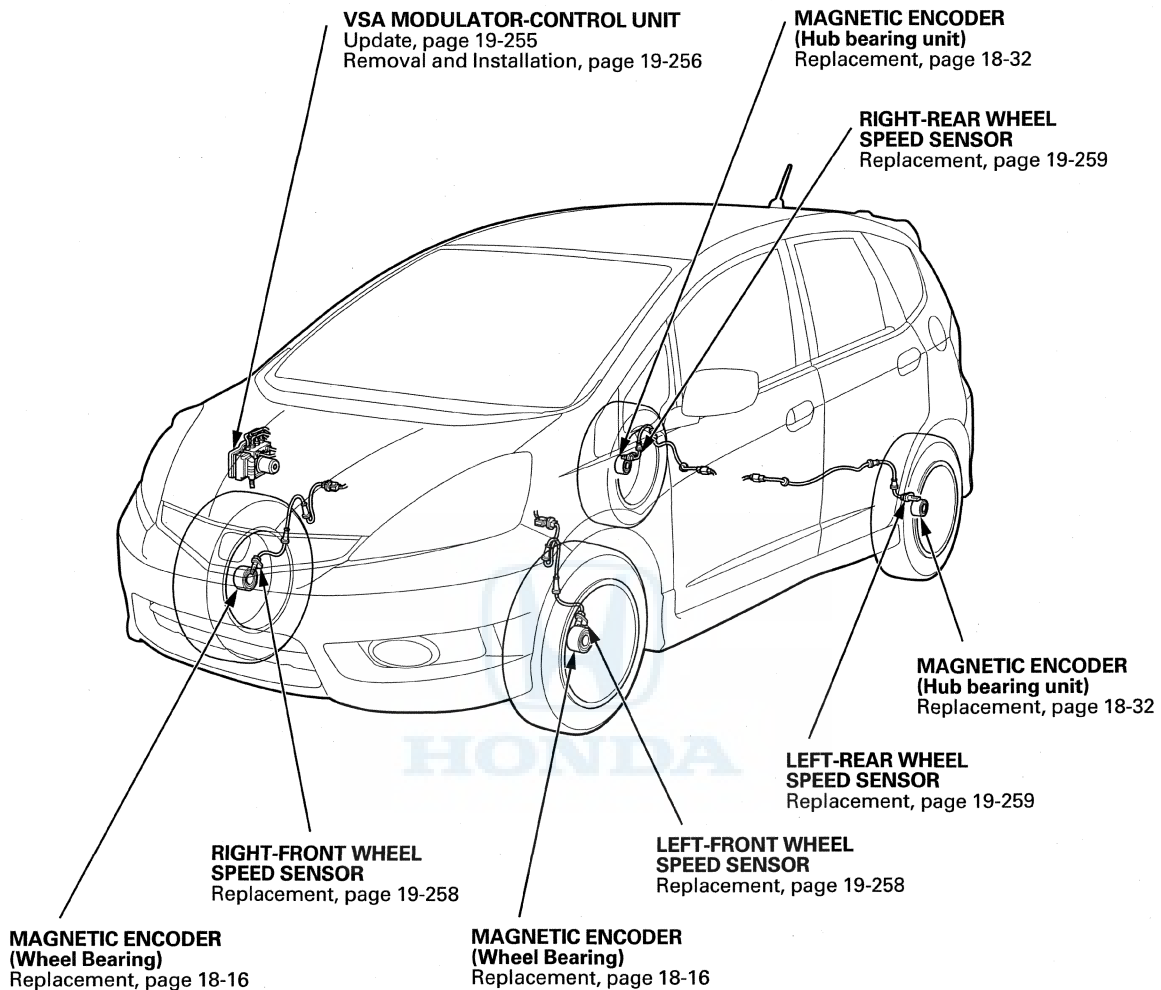
VSA System Components

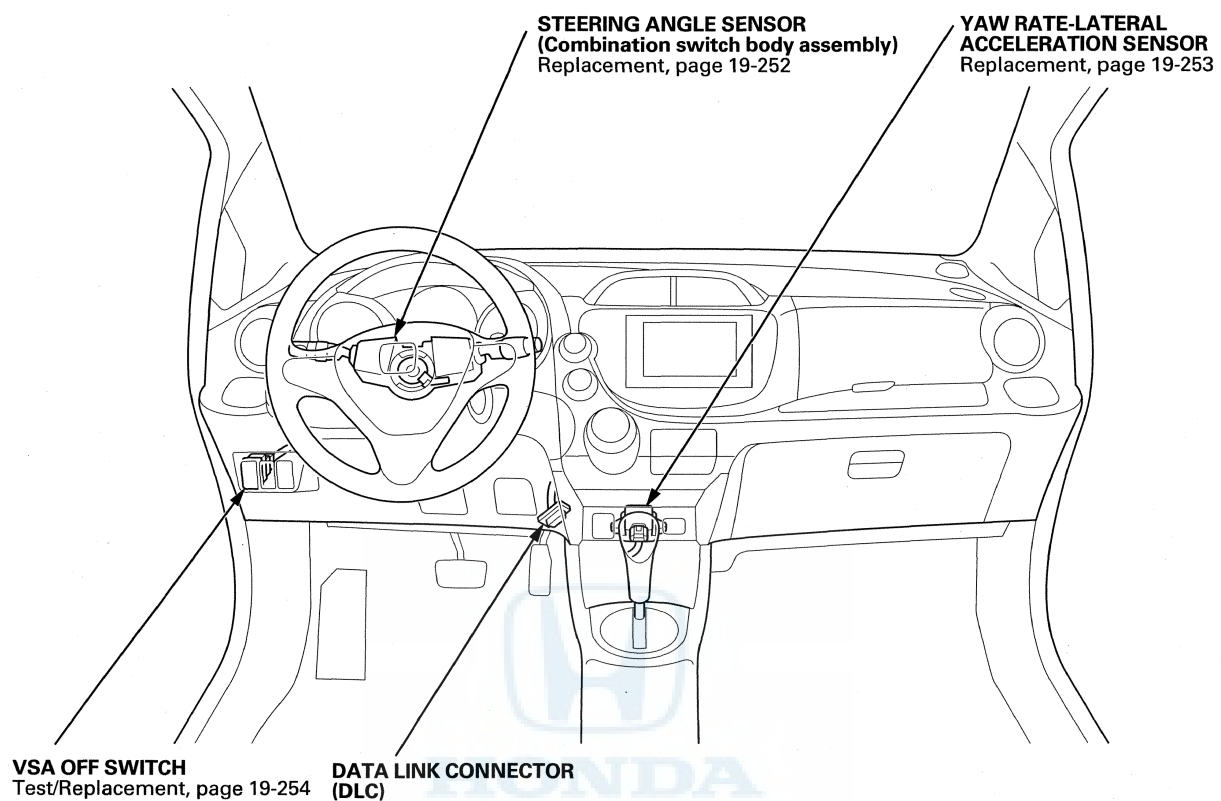
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VSA System Components

Component Location Index





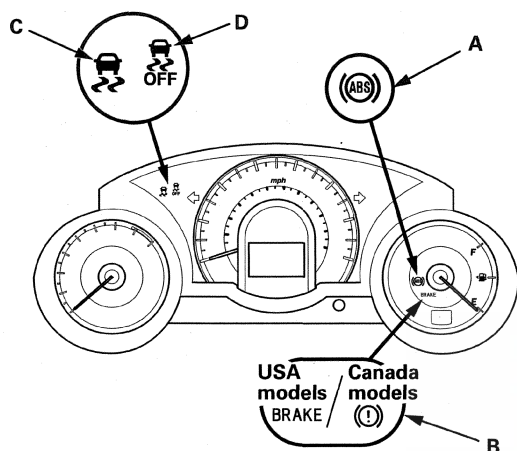
VSA System Components

General Troubleshooting Information

System Indicator

This system has four indicators:

- ABS indicator (A)
- Brake system indicator (B)
- VSA indicator (C)
- VSA OFF indicator (D)



When the system is OK, each indicator comes on for about 2 seconds after turning the ignition switch to ON (II), then goes off.

When the system detects a problem, a DTC will set and, depending upon the failure, the VSA modulator-control unit determines which indicator(s) will turn on. If the problem goes away (system returns to normal), the indicator(s) will be controlled in the following way depending upon the DTC that was set:

- The indicator(s) will come on and stay on when the ignition switch is ON (II).
- The indicator(s) will automatically go off.
- The indicator(s) will go off after the vehicle is driven.

ABS Indicator

The ABS indicator comes on when the ABS function is lost. The brakes still work like a conventional system.

Brake System Indicator

The brake system indicator comes on when the EBD function is lost, the parking brake is applied, and/or the brake fluid level is low.

NOTE: If two or more wheel speed sensors fail, the brake system indicator comes on.

VSA Indicator

The VSA indicator comes on when the VSA function is lost. The VSA indicator blinks when the VSA function is activating.

VSA OFF Indicator

The VSA OFF indicator comes on when the VSA is turned OFF by using the VSA OFF switch.



Diagnostic Trouble Code (DTC)

- The memory can hold all DTCs. However, when the same DTC is detected more than once, the more recent DTC is written over the earlier one. Therefore, when the same problem is detected repeatedly, it is memorized as a single DTC.
- The DTCs are indicated in ascending number order, not in the order they occur.
- The DTCs are memorized in an EEPROM in the VSA modulator-control unit. Therefore, the memorized DTCs cannot be erased by disconnecting the battery. Do the specified procedures to clear the DTCs.

Self-Diagnosis

- Self-diagnosis can be classified into two categories:
 - Initial diagnosis: Done right after the ignition switch is turned to ON (II) and until the ABS and VSA indicators go off.
 - Regular diagnosis: Done right after the initial diagnosis until the ignition switch is turned to LOCK (0).
- When the system detects a problem, the VSA modulator-control unit shifts to fail-safe mode.

Kickback

The pump motor operates when the VSA modulator-control unit is functioning, and the fluid in the reservoir is forced out to the master cylinder, causing kickback at the brake pedal.

Pump Motor

- The pump motor operates when the VSA modulator-control unit is functioning.
- The VSA modulator-control unit checks the pump motor operation one time after completing initial diagnosis during regular diagnosis when the vehicle is driven over 9 mph (15 km/h).

Brake Fluid Replacement/Air Bleeding

Brake fluid replacement and air bleeding procedures are identical to the procedures used on vehicles without the VSA system (see page 19-8).

How to Troubleshoot DTCs

The troubleshooting procedures assume that the cause of the problem is still present and the ABS and/or VSA indicator is still on. Following a troubleshooting procedure for a code that has been cleared but does not reset can result in incorrect diagnosis.

1. Question the customer about the conditions when the problem occurred, and try to reproduce the same conditions for troubleshooting. Find out when the ABS and/or VSA indicator came on, such as during activation, after activation, when the vehicle was traveling at a certain speed, etc. If necessary, have the customer demonstrate the concern.
2. When the ABS or VSA indicator does not come on during the test-drive, check for loose connectors, poor contact of the terminals, etc. in the circuit indicated by the DTC before you start troubleshooting.
3. After troubleshooting, or the repairs are done, clear the DTCs, and test-drive the vehicle under the same conditions that originally set the DTCs. Make sure the ABS and VSA indicators do not come on.

Intermittent Failures

The term “intermittent failure” means a system may have had a failure, but it checks OK now. If you cannot reproduce the condition, check for loose connections and terminals. Also check ground and power connections related to the circuit that you are troubleshooting.

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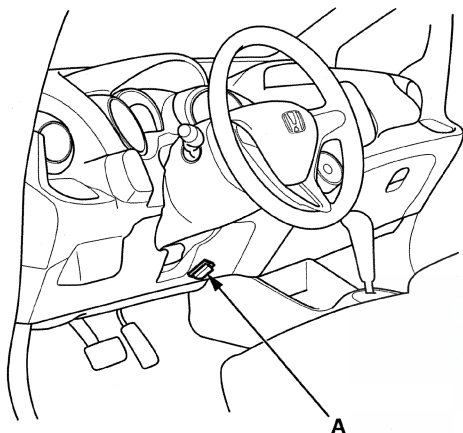
VSA System Components

General Troubleshooting Information (cont'd)

How to Use the HDS (Honda Diagnostic System)

NOTE: Make sure the battery is in good condition and fully charged.

1. If the system indicators stay on, connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it does not, troubleshoot the DLC circuit (see page 11-193).
4. Check the diagnostic trouble code (DTC) and the freeze data, for all systems, troubleshoot the powertrain DTCs first and note them. Then refer to the indicated DTC's troubleshooting, and do the appropriate troubleshooting procedure.

NOTE:

- Freeze data indicates the VSA conditions when the first system malfunction that activated the indicator was detected.
- The HDS reads the DTC, the freeze data, the current data, and other system data.
- For specific operations, refer to the Help menu that came with the HDS.

How to Retrieve DTCs

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it does not, troubleshoot the DLC circuit (see page 11-193).
4. Follow the prompts on the HDS to display the DTC(s) on the screen. After determining the DTC, refer to the DTC troubleshooting. Do the all systems DTC check, and troubleshoot any powertrain DTCs first.
5. Turn the ignition switch to LOCK (0).

How to Clear DTCs

1. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) under the driver's side of the dashboard.
2. Turn the ignition switch to ON (II).
3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it does not, troubleshoot the DLC circuit (see page 11-193).
4. Clear the DTC(s) by following the screen prompts on the HDS.
5. Turn the ignition switch to LOCK (0).

DTC Troubleshooting Index

DTC	Detection Item	Note
11	-11 Right-Front Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-195)
	-12 Right-Front Wheel Speed Sensor Power Source Malfunction	DTC Troubleshooting (see page 19-200)
12	-11 Right-Front Wheel Speed Sensor Electrical Noise or Intermittent Interruption	DTC Troubleshooting (see page 19-202)
	-12 Right-Front Wheel Speed Sensor Short to the Other Sensor Circuit	DTC Troubleshooting (see page 19-203)
	-13 Right-Front Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-206)
	-14 Right-Front Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-207)
	-15 Right-Front Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-207)
	-120 Right-Front Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-205)
13	-11 Left-Front Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-195)
	-12 Left-Front Wheel Speed Sensor Power Source Malfunction	DTC Troubleshooting (see page 19-200)
14	-11 Left-Front Wheel Speed Sensor Electrical Noise or Intermittent Interruption	DTC Troubleshooting (see page 19-202)
	-12 Left-Front Wheel Speed Sensor Short to the Other Sensor Circuit	DTC Troubleshooting (see page 19-203)
	-13 Left-Front Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-206)
	-14 Left-Front Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-207)
	-15 Left-Front Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-207)
	-120 Left-Front Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-205)
15	-11 Right-Rear Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-195)
	-12 Right-Rear Wheel Speed Sensor Power Source Malfunction	DTC Troubleshooting (see page 19-200)
16	-11 Right-Rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption	DTC Troubleshooting (see page 19-202)
	-12 Right-Rear Wheel Speed Sensor Short to the Other Sensor Circuit	DTC Troubleshooting (see page 19-203)
	-13 Right-Rear Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-206)
	-14 Right-Rear Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-207)
	-15 Right-Rear Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-207)
	-120 Right-Rear Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-205)
17	-11 Left-Rear Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-195)
	-12 Left-Rear Wheel Speed Sensor Power Source Malfunction	DTC Troubleshooting (see page 19-200)
18	-11 Left-Rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption	DTC Troubleshooting (see page 19-202)
	-12 Left-Rear Wheel Speed Sensor Short to the Other Sensor Circuit	DTC Troubleshooting (see page 19-203)
	-13 Left-Rear Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-206)
	-14 Left-Rear Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-207)
	-15 Left-Rear Wheel Speed Sensor Installation Error	DTC Troubleshooting (see page 19-207)
	-120 Left-Rear Wheel Speed Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-205)
21	-11 Right-Front Magnetic Encoder Malfunction (Pulse Missing)	DTC Troubleshooting (see page 19-208)
22	-11 Left-Front Magnetic Encoder Malfunction (Pulse Missing)	DTC Troubleshooting (see page 19-208)
23	-11 Right-Rear Magnetic Encoder Malfunction (Pulse Missing)	DTC Troubleshooting (see page 19-208)
24	-11 Left-Rear Magnetic Encoder Malfunction (Pulse Missing)	DTC Troubleshooting (see page 19-208)
25	-11 Yaw Rate Sensor Internal Circuit Malfunction	DTC Troubleshooting (see page 19-209)
	-12 Yaw Rate Sensor Stuck	DTC Troubleshooting (see page 19-209)
	-13 Yaw Rate Sensor Output Signal Malfunction	DTC Troubleshooting (see page 19-210)
26	-11 Lateral Acceleration Sensor Internal Circuit Malfunction	DTC Troubleshooting (see page 19-210)
	-12 Lateral Acceleration Sensor Stuck	DTC Troubleshooting (see page 19-211)
	-13 Lateral Acceleration Sensor Output Signal Malfunction	DTC Troubleshooting (see page 19-210)
27	-11 Steering Angle Sensor Internal Circuit Malfunction	DTC Troubleshooting (see page 19-211)
	-12 Steering Angle Sensor Stuck	DTC Troubleshooting (see page 19-213)
	-13 Steering Angle Sensor Output Signal Malfunction	DTC Troubleshooting (see page 19-214)
	-14 Steering Angle Sensor Counter Malfunction	DTC Troubleshooting (see page 19-214)
31	-11 ABS Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-215)
32	-11 ABS Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-215)
33	-11 ABS Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-215)
34	-11 ABS Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-215)
35	-11 ABS Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-215)
36	-11 ABS Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-215)
37	-11 ABS Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-215)
38	-11 ABS Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-215)
41	-11 Right-Front Wheel Lock	DTC Troubleshooting (see page 19-216)
42	-11 Left-Front Wheel Lock	DTC Troubleshooting (see page 19-216)

(cont'd)

VSA System Components

DTC Troubleshooting Index (cont'd)

DTC		Detection Item	Note
43	-11	Right-Rear Wheel Lock	DTC Troubleshooting (see page 19-216)
44	-11	Left-Rear Wheel Lock	DTC Troubleshooting (see page 19-216)
51	-11	Motor Malfunction	DTC Troubleshooting (see page 19-217)
	-12	Motor Drive Circuit Malfunction	DTC Troubleshooting (see page 19-218)
52	-11	Motor Stuck OFF	DTC Troubleshooting (see page 19-220)
53	-11	Motor Relay Stuck ON	DTC Troubleshooting (see page 19-221)
54	-11	Fail-Safe Relay Stuck ON	DTC Troubleshooting (see page 19-222)
	-12	Fail-Safe Relay Stuck OFF	DTC Troubleshooting (see page 19-222)
56	-11	Fail-Safe Relay Power Source Malfunction	DTC Troubleshooting (see page 19-223)
61	-11	Modulator-Control Unit Power Source Circuit (IG) Low Voltage	DTC Troubleshooting (see page 19-224)
62	-11	Modulator-Control Unit Power Source Circuit (IG) High Voltage	DTC Troubleshooting (see page 19-225)
64	-11	Sensor Power Source Circuit Low Voltage	DTC Troubleshooting (see page 19-226)
	-12	Sensor Power Source Circuit High Voltage	DTC Troubleshooting (see page 19-227)
65	-11	Brake Fluid Level Switch Circuit Malfunction	DTC Troubleshooting (see page 19-228)
66	-11	Pressure Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-229)
	-13	Pressure Sensor Circuit Malfunction	DTC Troubleshooting (see page 19-229)
68	-11	Brake Pedal Position Switch Stuck OFF	DTC Troubleshooting (see page 19-230)
	-12	Brake Pedal Position Switch Stuck ON	DTC Troubleshooting (see page 19-233)
71	-11	Different Diameter Tire Malfunction (Right-Front or Left-Rear)	DTC Troubleshooting (see page 19-235)
	-12	Different Diameter Tire Malfunction (Left-Front or Right-Rear)	DTC Troubleshooting (see page 19-235)
	-13	Different Diameter Tire Malfunction (Right-Front and Right-Rear)	DTC Troubleshooting (see page 19-235)
	-14	Different Diameter Tire Malfunction (Left-Front and Left-Rear)	DTC Troubleshooting (see page 19-235)
	-15	Different Diameter Tire Malfunction (Right-Front and Left-Front)	DTC Troubleshooting (see page 19-235)
	-16	Different Diameter Tire Malfunction (Right-Rear and Left-Rear)	DTC Troubleshooting (see page 19-235)
81	-11	Modulator-Control Unit Internal Circuit Malfunction	DTC Troubleshooting (see page 19-235)
	-12	Modulator-Control Unit Internal Circuit Malfunction	DTC Troubleshooting (see page 19-236)
	-13	Modulator-Control Unit Internal Circuit Malfunction	DTC Troubleshooting (see page 19-237)
	-14	Modulator-Control Unit Internal Circuit Malfunction	DTC Troubleshooting (see page 19-237)
83	-11	PCM Malfunction (Engine)	DTC Troubleshooting (see page 19-238)
	-12	PCM Malfunction (A/T)	DTC Troubleshooting (see page 19-238)
84	-11	VSA Sensor Neutral Position Memorization Incomplete	DTC Troubleshooting (see page 19-239)
	-12	Steering Angle Sensor Neutral Position Memorization incomplete	DTC Troubleshooting (see page 19-239)
86	-11	F-CAN Bus-Off Malfunction	DTC Troubleshooting (see page 19-240)
	-12	F-CAN Communication With PCM (Engine) Malfunction	DTC Troubleshooting (see page 19-241)
	-13	F-CAN Communication With PCM (A/T) Malfunction	DTC Troubleshooting (see page 19-241)
	-14	F-CAN Communication With Gauge Control Module Malfunction	DTC Troubleshooting (see page 19-243)
	-15	F-CAN Communication With Yaw Rate-Acceleration Sensor Malfunction	DTC Troubleshooting (see page 19-244)
104	-11	Yaw Rate-Acceleration Sensor Internal Circuit Malfunction	DTC Troubleshooting (see page 19-246)
	-12	Yaw Rate-Acceleration Sensor Power Source Malfunction	DTC Troubleshooting (see page 19-246)
	-13	Yaw Rate-Acceleration Sensor Internal Circuit Malfunction	DTC Troubleshooting (see page 19-209)
108	-11	Steering Angle Sensor Stuck	DTC Troubleshooting (see page 19-247)
121	-11	VSA Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-248)
122	-11	VSA Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-248)
123	-11	VSA Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-248)
124	-11	VSA Solenoid Valve Malfunction	DTC Troubleshooting (see page 19-248)
158	-01	ECU Software Update Failure	DTC Troubleshooting (see page 19-248)



Symptom Troubleshooting Index

When the vehicle has one of these symptoms, check for VSA diagnostic trouble codes (DTCs) with the HDS. If there are no DTCs, do the diagnostic procedure for the symptom, in the sequence listed, until you find the cause.

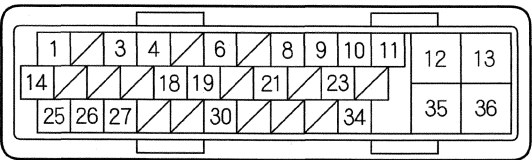
Symptom	Diagnostic procedure	Also check for
HDS does not communicate with the VSA modulator-control unit or the vehicle	Troubleshoot the DLC circuit (see page 11-193).	
ABS indicator, brake system indicator, VSA indicator, or VSA OFF indicator do not come on at start-up (bulb check)	<ol style="list-style-type: none">1. Do the gauge control module self-diagnostic function (see page 22-274).2. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255), if the VSA modulator-control unit was updated and the symptom is still present, replace the VSA modulator-control unit (see page 19-256).	
VSA cannot be turned OFF	<ol style="list-style-type: none">1. Symptom troubleshooting (see page 19-249).2. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255), if the VSA modulator-control unit was updated and the symptom is still present, replace the VSA modulator-control unit (see page 19-256).	
VSA OFF indicator does not go off	Do the VSA sensor neutral position memorization (see page 19-253)	
ABS indicator, brake system indicator, and VSA indicator do not go off	<ol style="list-style-type: none">1. Check for F-CAN DTCs, and troubleshoot and repair those first (see page 11-183).2. Symptom troubleshooting (see page 19-250).	

HONDA

VSA System Components

System Description

VSA Modulator-Control Unit Inputs and Outputs for 36P Connector (Connector Disconnected)



Wire side of female terminals

Terminal number	Wire color	Terminal sign	Description	Signal
1	RED	F-CAN L	F-CAN communication circuit	Pulse voltage (digital signal)
3	BLU	K-LINE	Communication with HDS	
4	GRY	RR-GND	Detects right-rear wheel speed sensor signal	
6	GRY	FL-GND	Detects left-front wheel speed sensor signal	
8	RED	RL-GND	Detects left-rear wheel speed sensor signal	
9	PUR	SVCC	Power source for the steering angle sensor	
10	PNK	FR-GND	Detects right-front wheel speed sensor signal	
11	BRN	STR-A	Detects steering angle sensor signal	
12	WHT	FSR +B	Power source for the fail-safe relay	Battery voltage (about 12 V) at all times
13	RED	MR +B	Power source for the motor relay	Battery voltage (about 12 V) at all times
14	WHT	F-CAN H	F-CAN communication circuit	
18	LT BLU	RR +B	Detects right-rear wheel speed sensor signal	
19	ORN	FL +B	Detects left-front wheel speed sensor signal	



Terminal number	Wire color	Terminal sign	Description	Signal
21	YEL	RL + B	Detects left-rear wheel speed sensor signal	—
23	GRN	FR + B	Detects right-front wheel speed sensor signal	
26	LT BLU	STR-Z	Detects steering angle sensor signal	
27	GRN	STR-B	Detects steering angle sensor signal	
30	PUR	IG1	Power source for activating the system	With ignition switch ON (II): battery voltage (about 12 V)
34	BLU	SGND	Ground for the steering angle sensor	—
35	BLK	GND	Ground for the VSA modulator-control unit	Continuity to ground
36	BLK	MR-GND	Ground for the pump motor	Continuity to ground



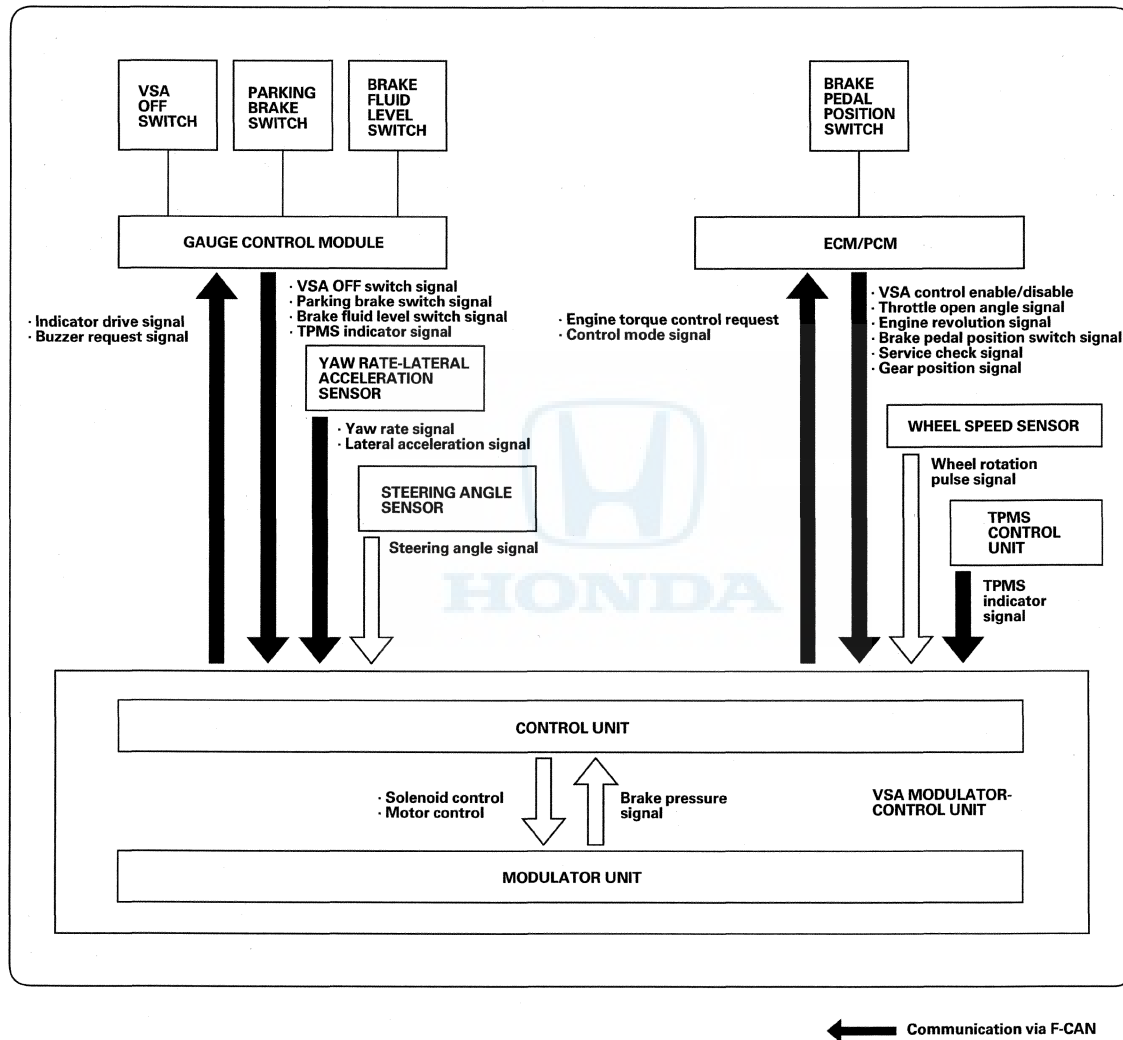
(cont'd)

VSA System Components

System Description (cont'd)

System Outline

This system is composed of the VSA modulator-control unit, the wheel speed sensors, the steering angle sensor, the yaw rate-lateral acceleration sensor, and the system indicators in the gauge control module. The VSA modulator-control unit controls the ABS, EBD, TCS, VSA, and brake assist with the brake pressure of each wheel and reduces engine torque.

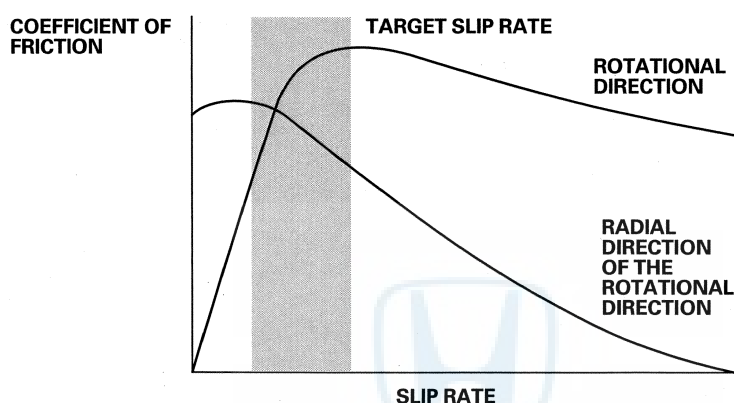


ABS (Anti-Lock Brake System) Features

Anti-Lock Control

Without ABS, when the brake pedal is pressed while driving, the wheels sometimes lock before the vehicle comes to a stop. In such an event, the maneuverability of the vehicle is reduced if the front wheels are locked, and the stability of the vehicle is reduced if the rear wheels are locked, creating an extremely unstable condition. With ABS, the system precisely controls the slip rate of the wheels to ensure maximum grip force from the tires, and it thereby ensures maneuverability and stability of the vehicle. The ABS calculates the slip rate of the wheels based on the four wheel speeds, and then it controls the brake fluid pressure to reach the target slip rate.

Grip force of tire and road surface

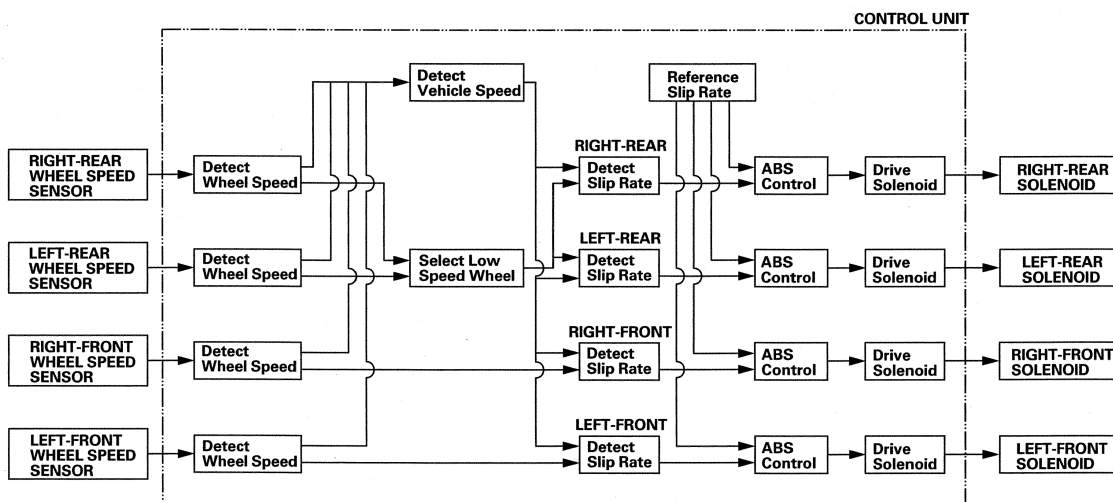


Main Control

The control unit detects the wheel speed based on the wheel speed sensor signals it receives, then it calculates the vehicle speed based on the detected wheel speed. The control unit detects the vehicle speed during deceleration based on the wheel speeds.

The control unit calculates the slip rate of each wheel, and transmits the control signal to the modulator unit solenoid valve when the slip rate is high.

The hydraulic control has three modes: Pressure intensifying, pressure reducing, and pressure retaining.



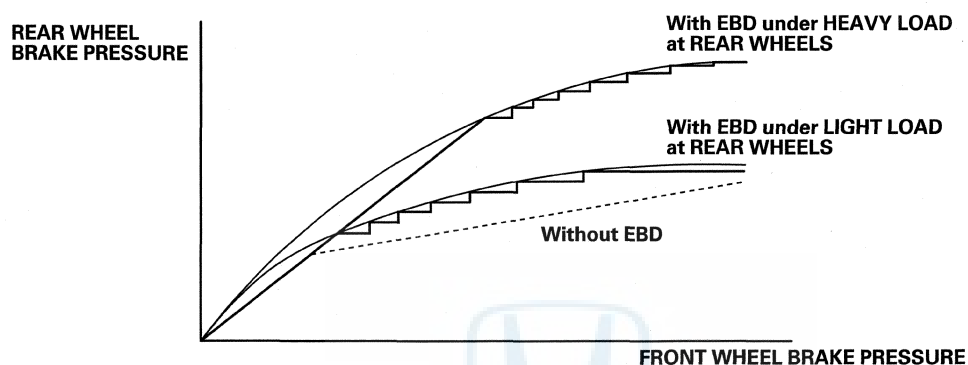
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VSA System Components

System Description (cont'd)

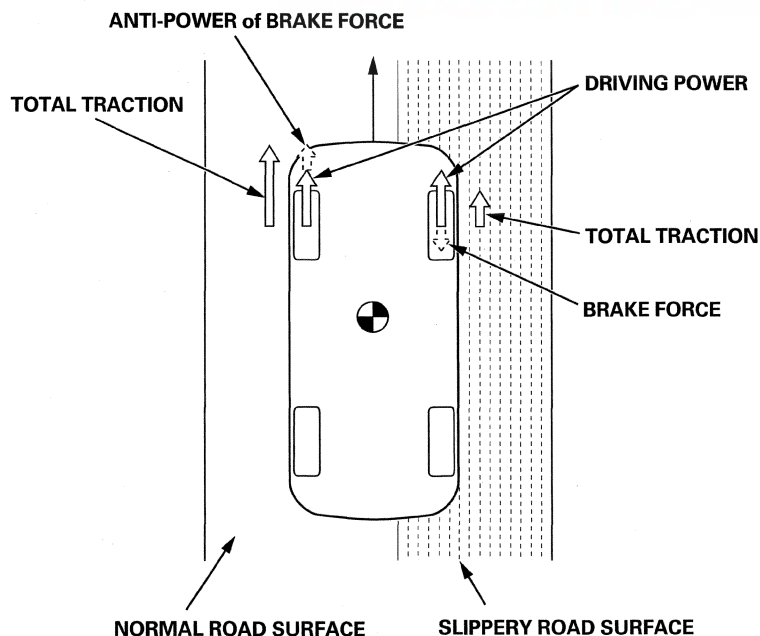
EBD (Electronic Brake Distribution) Features

The EBD feature helps control vehicle braking by adjusting the rear brake force in accordance with the rear wheel load before the ABS operates. Based on the wheel speed sensor signals, the control unit uses the modulator to control the rear brakes individually. When the rear wheel speed is less than the front wheel speed, the VSA modulator-control unit retains the current rear brake fluid pressure by closing the inlet valve in the modulator. As the rear wheel speed increases and approaches the front wheel speed, the VSA modulator-control unit increases the rear brake fluid pressure by momentarily opening the inlet valve. This whole process is repeated very rapidly. While this is happening, kickback may be felt at the brake pedal, you may also hear a muted buzzing sound from the VSA modulator-control unit. This is normal.



TCS (Traction Control System) Features

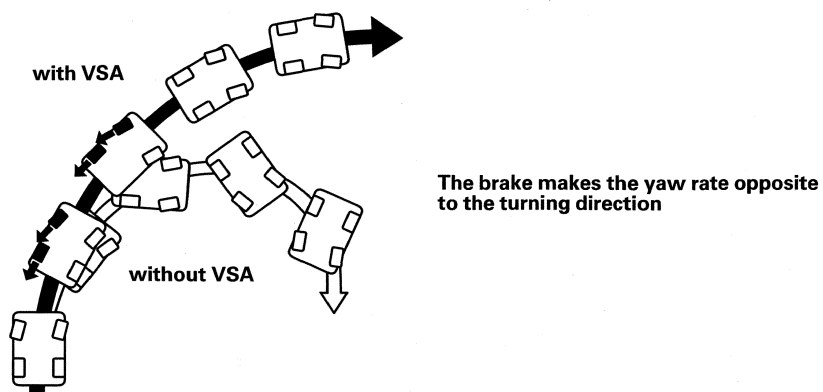
When a drive wheel loses traction on a slippery road surface and starts to spin, the VSA modulator-control unit applies brake pressure to the spinning wheel and sends an engine torque control request to the ECM/PCM to slow the spinning wheel and keep traction.



VSA (Vehicle Stability Assist) System Features

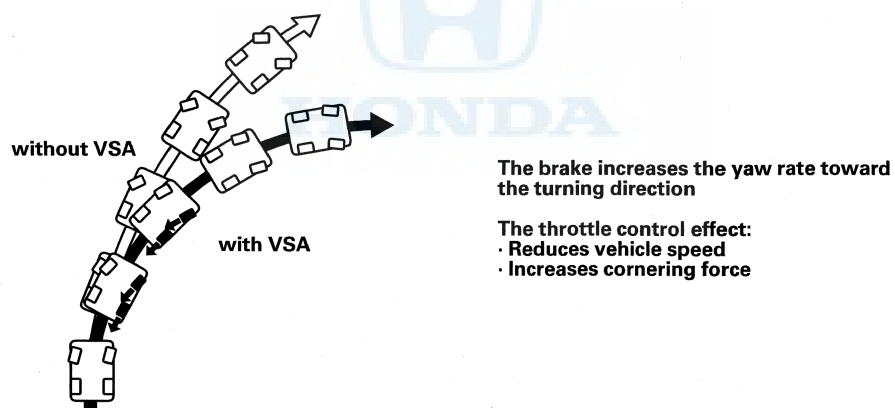
Oversteer Control

Applies the brakes to the front and rear outside wheels



Understeer Control

- Applies the brakes to the front and rear inside wheels
- Controls the engine torque when accelerating



(cont'd)

VSA System Components

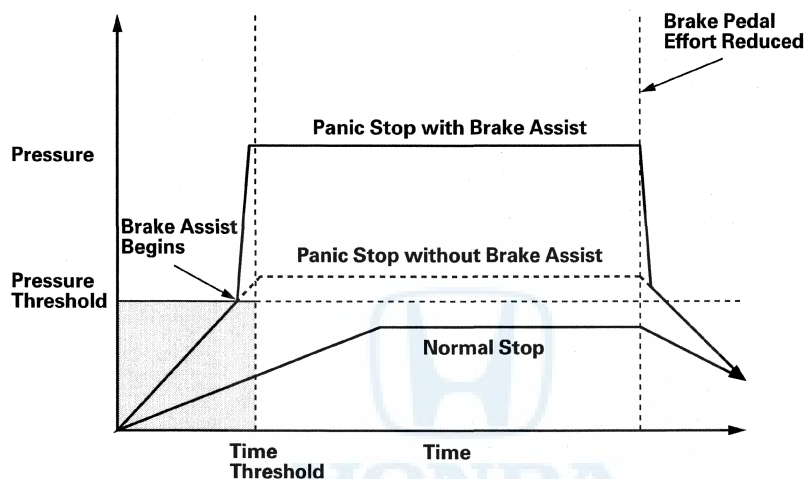
System Description (cont'd)

Brake Assist Features

Brake assist helps ensure that any driver can achieve the full braking potential of the vehicle by increasing brake system pressure in a panic situation, bringing the vehicle into a full ABS stop.

If during a panic stop the VSA modulator-control unit determines that the brake system pressure increases above a threshold in less than a certain amount of time, the VSA modulator-control unit engages brake assist.

Because the brake system pressure crossed the pressure threshold before the time threshold had expired, the VSA modulator-control unit goes into brake assist mode.

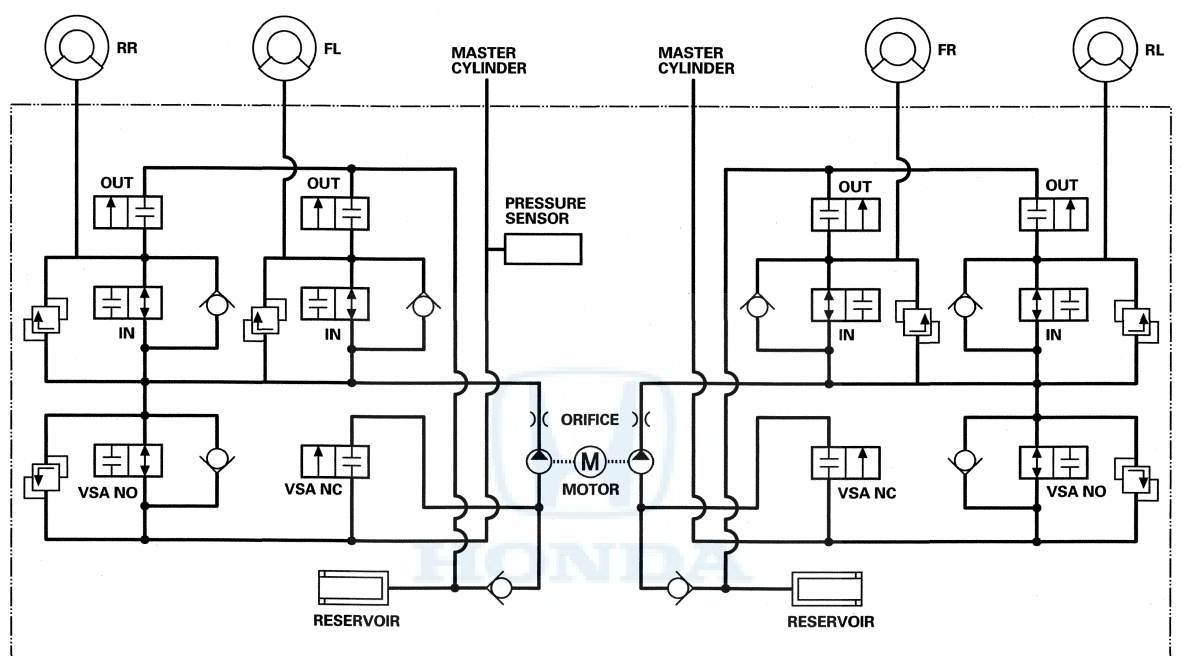


Modulator Unit

The modulator unit consists of the inlet solenoid valve, the outlet solenoid valve, the VSA NO (normally open) solenoid valve, the VSA NC (normally closed) solenoid valve, the reservoir, the pump, and the pump motor.

The hydraulic control has three modes of ABS action; pressure intensifying, pressure retaining, and pressure reducing. Pressure intensifying mode (VSA) is a combination of the TCS, VSA, and brake assist action.

The hydraulic circuit is an independent four channel type, one channel for each wheel.



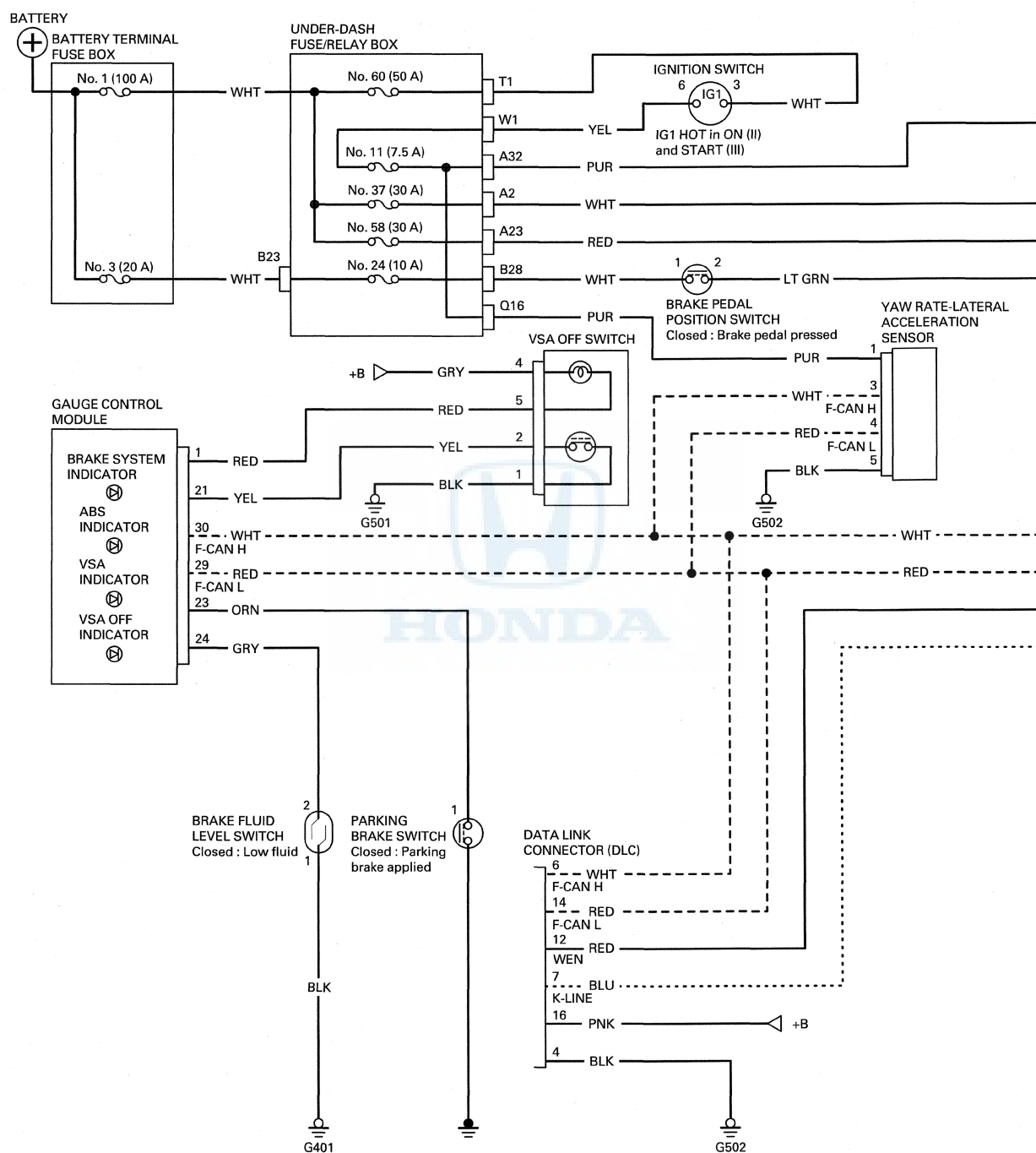
IN: INLET SOLENOID VALVE (NORMALLY OPEN)
OUT: OUTLET SOLENOID VALVE (NORMALLY CLOSED)

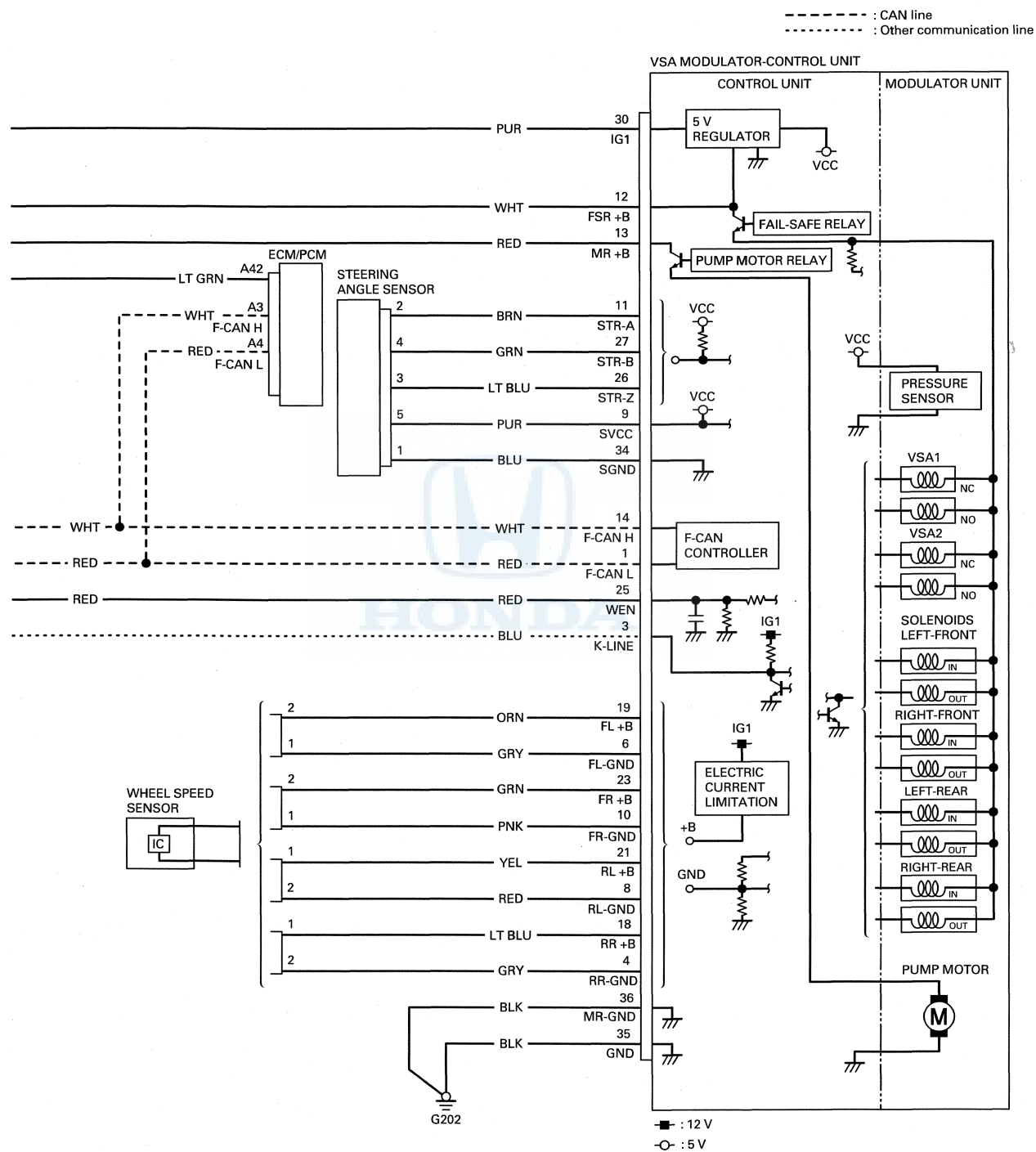
Mode	VSA NO Valve	VSA NC Valve	Inlet Solenoid Valve	Outlet Solenoid Valve	Brake Fluid
Pressure intensifying mode	open	closed	open	closed	Master cylinder fluid is pumped out to the caliper.
Pressure retaining mode	open	closed	closed	closed	Caliper fluid is retained by the inlet and outlet valves.
Pressure reducing mode	open	closed	closed	open	<ul style="list-style-type: none"> Caliper fluid flows through the outlet valve to the reservoir. The motor pumps the reservoir fluid through the damping chamber to the master cylinder*.
Pressure intensifying mode (VSA)	closed	open	open	closed	<ul style="list-style-type: none"> Master cylinder fluid is pumped out by pump with motor through VSA NC valve to the caliper. Caliper fluid pressure exceeds master cylinder pressure.

*: The motor will keep running until the operation of the anti-lock brake control is finished with the first pressure reducing mode.

VSA System Components

Circuit Diagram



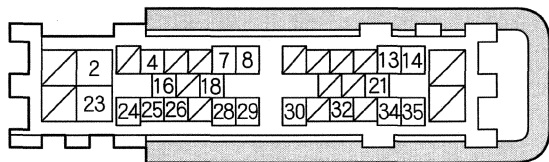


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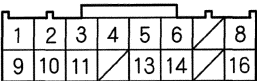
VSA System Components

Circuit Diagram (cont'd)

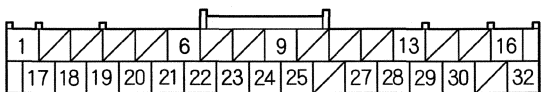
UNDER-DASH FUSE/RELAY BOX CONNECTOR A (36P)



UNDER-DASH FUSE/RELAY BOX CONNECTOR Q (16P)



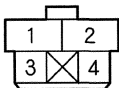
GAUGE CONTROL MODULE 32P CONNECTOR



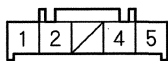
PARKING BRAKE SWITCH 1P CONNECTOR



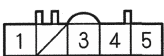
BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



VSA OFF SWITCH 5P CONNECTOR



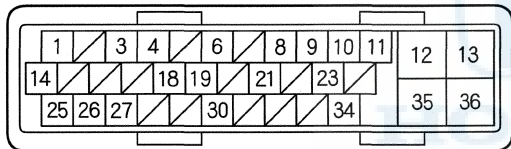
YAW RATE-LATERAL ACCELERATION SENSOR 5P CONNECTOR



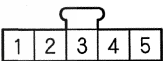
BRAKE FLUID LEVEL SWITCH 2P CONNECTOR



VSA MODULATOR-CONTROL UNIT 36P CONNECTOR

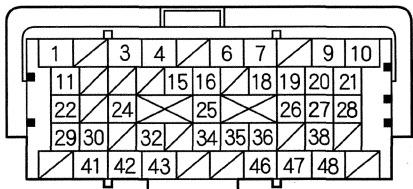


STEERING ANGLE SENSOR 5P CONNECTOR

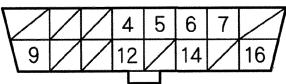


Wire side of female terminals

ECM/PCM CONNECTOR A (49P)



DATA LINK CONNECTOR (DLC)



Terminal side of female terminals

WHEEL SPEED SENSOR 2P CONNECTOR

FRONT



REAR



Wire side of female terminals

Terminal side of female terminals

DTC Troubleshooting

DTC 11-11: Right-Front Wheel Speed Sensor Circuit Malfunction

DTC 13-11: Left-Front Wheel Speed Sensor Circuit Malfunction

DTC 15-11: Right-Rear Wheel Speed Sensor Circuit Malfunction

DTC 17-11: Left-Rear Wheel Speed Sensor Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 11-11, 13-11, 15-11, or 17-11 indicated?

YES—Go to step 5.

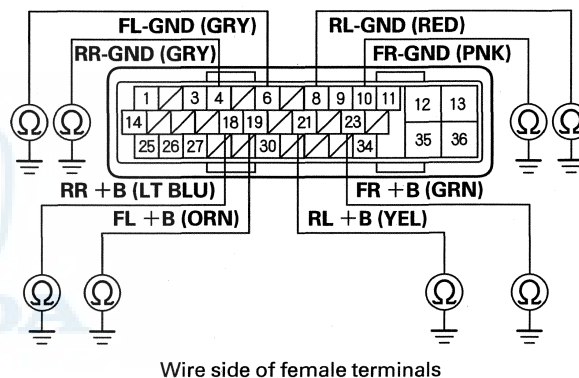
NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).

7. Check for continuity between body ground and the appropriate wheel speed sensor +B and GND terminals of the VSA modulator-control unit 36P connector individually (see table).

DTC	Appropriate Terminal	
	+B	GND
11-11 Right-front	FR +B: No. 23	FR-GND: No. 10
13-11 Left-front	FL +B: No. 19	FL-GND: No. 6
15-11 Right-rear	RR +B: No. 18	RR-GND: No. 4
17-11 Left-rear	RL +B: No. 21	RL-GND: No. 8

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 8.

NO—Go to step 10.

8. Disconnect the appropriate wheel speed sensor 2P connector (see page 19-258).

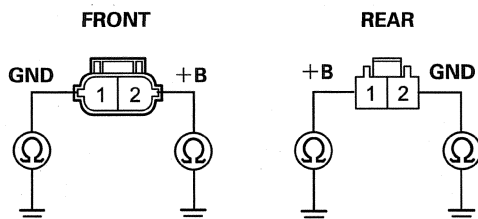
(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

9. On the sensor side, check for continuity between body ground and wheel speed sensor 2P connector terminals No. 1 and No. 2 individually.

WHEEL SPEED SENSOR 2P CONNECTOR



Terminal side of male terminals

Wire side of female terminals

Is there continuity?

YES—Replace the appropriate wheel speed sensor (see page 19-258). ■

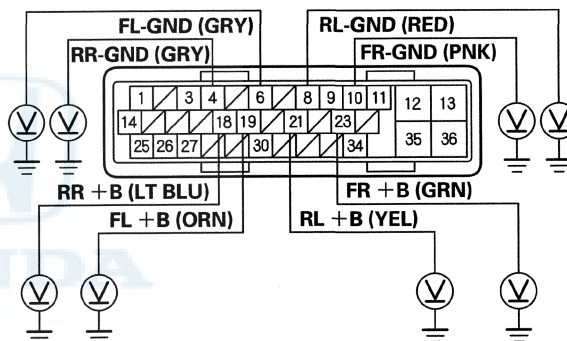
NO—Repair a short to body ground in the wire between the VSA modulator-control unit and the wheel speed sensor. ■

10. Turn the ignition switch to ON (II).

11. Measure the voltage between body ground and the appropriate wheel speed sensor +B and GND terminals of the VSA modulator-control unit 36P connector individually (see table).

DTC	Appropriate Terminal	
	+B	GND
11-11 Right-front	FR + B: No. 23	FR-GND: No. 10
13-11 Left-front	FL + B: No. 19	FL-GND: No. 6
15-11 Right-rear	RR + B: No. 18	RR-GND: No. 4
17-11 Left-rear	RL + B: No. 21	RL-GND: No. 8

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



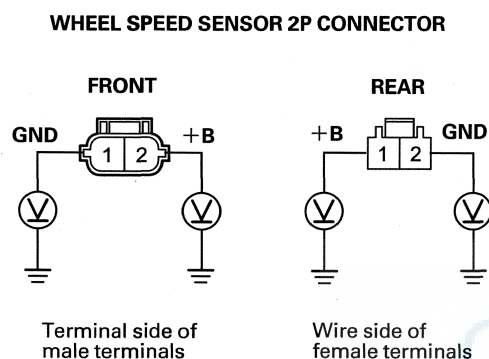
Wire side of female terminals

Is there 0.1 V or more?

YES—Go to step 12.

NO—Go to step 16.

12. Turn the ignition switch to LOCK (0).
13. Disconnect the appropriate wheel speed sensor 2P connector (see page 19-258).
14. Turn the ignition switch to ON (II).
15. On the sensor side, measure the voltage between body ground and wheel speed sensor 2P connector terminals No. 1 and No. 2 individually.



Is there 0.1 V or more?

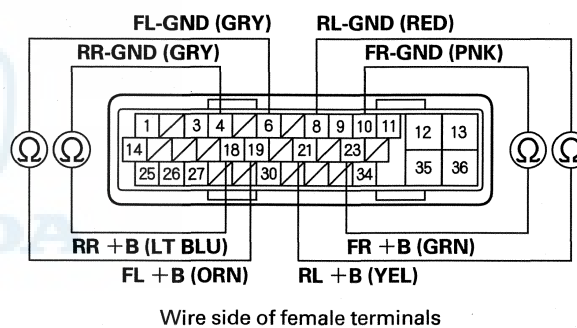
YES—Replace the appropriate wheel speed sensor (see page 19-258). ■

NO—Repair a short to power in the wire between the VSA modulator-control unit and the appropriate wheel speed sensor. ■

16. Turn the ignition switch to LOCK (0).
17. Disconnect the appropriate wheel speed sensor 2P connector (see page 19-258).
18. Check for continuity between the appropriate VSA modulator-control unit 36P connector wheel speed sensor +B and GND terminals (see table).

DTC	Appropriate Terminal	
	+B	GND
11-11 Right-front	FR +B: No. 23	FR-GND: No. 10
13-11 Left-front	FL +B: No. 19	FL-GND: No. 6
15-11 Right-rear	RR +B: No. 18	RR-GND: No. 4
17-11 Left-rear	RL +B: No. 21	RL-GND: No. 8

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Is there continuity?

YES—Repair a short in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit. ■

NO—Go to step 19.

(cont'd)

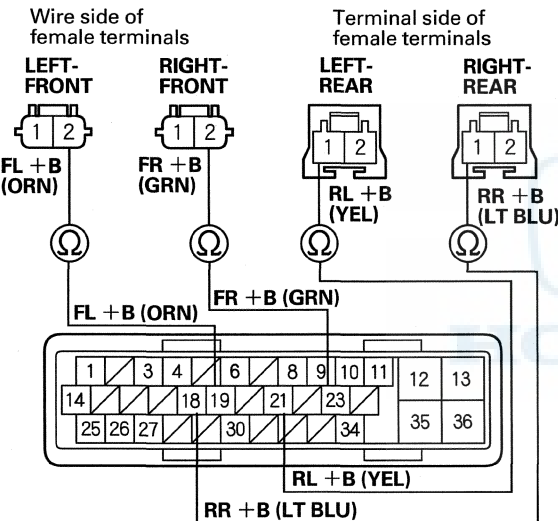
VSA System Components

DTC Troubleshooting (cont'd)

19. Check for continuity between the appropriate VSA modulator-control unit 36P connector terminal and the wheel speed sensor 2P connector terminal (see table).

DTC	VSA Modulator-Control Unit 36P Connector Terminal	Appropriate Wheel Speed Sensor 2P Connector Terminal
11-11	No. 23	Right-front
13-11	No. 19	Left-front
15-11	No. 18	Right-rear
17-11	No. 21	Left-rear

WHEEL SPEED SENSOR 2P CONNECTOR



Wire side of female terminals
VSA MODULATOR-CONTROL UNIT 36P CONNECTOR

Is there continuity?

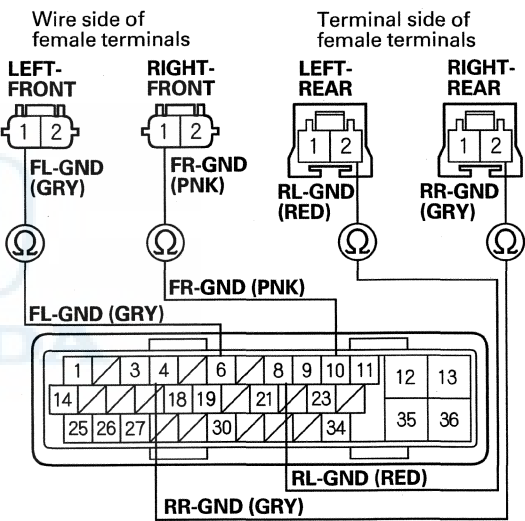
YES—Go to step 20.

NO—Repair an open in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit.■

20. Check for continuity between the appropriate VSA modulator-control unit 36P connector terminal and the wheel speed sensor 2P connector terminal (see table).

DTC	VSA Modulator-Control Unit 36P Connector Terminal	Appropriate Wheel Speed Sensor 2P Connector Terminal
11-11	No. 10	Right-front
13-11	No. 6	Left-front
15-11	No. 4	Right-rear
17-11	No. 8	Left-rear

WHEEL SPEED SENSOR 2P CONNECTOR



Wire side of female terminals
VSA MODULATOR-CONTROL UNIT 36P CONNECTOR

Is there continuity?

YES—

- If a DTC is indicated for either one of the left and right wheels as described in step 4, go to step 21.
- If DTCs are indicated for both the left and right wheels as described in step 4, go to step 27.

NO—Repair an open in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit.■



21. Swap the appropriate left and right wheel speed sensors (see page 19-258).
22. Reconnect all connectors.
23. Turn the ignition switch to ON (II).
24. Clear the DTC with the HDS.
25. Turn the ignition switch to LOCK (0) and then back to ON (II).
26. Check for DTCs with the HDS.

DTC Before Swapping	DTC After Swapping
11-11 (Right-front)	13-11 (Left-front)
13-11 (Left-front)	11-11 (Right-front)
15-11 (Right-rear)	17-11 (Left-rear)
17-11 (Left-rear)	15-11 (Right-rear)

Is the DTC indicated for the opposite wheel?

YES—Replace the original wheel speed sensor (see page 19-258).■

NO—Go to step 32.

27. Substitute a known-good wheel speed sensor (see page 19-258).
28. Reconnect all connectors.
29. Turn the ignition switch to ON (II).
30. Clear the DTC with the HDS.
31. Check for DTCs with the HDS.

Is DTC 11-11, 13-11, 15-11, or 17-11 indicated?

YES—Go to step 32.

NO—Replace the original wheel speed sensor (see page 19-258).■

32. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).

33. Turn the ignition switch to LOCK (0).

34. Check for DTCs with the HDS.

Is DTC 11-11, 13-11, 15-11, or 17-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 11-12: Right-Front Wheel Speed Sensor Power Source Malfunction

DTC 13-12: Left-Front Wheel Speed Sensor Power Source Malfunction

DTC 15-12: Right-Rear Wheel Speed Sensor Power Source Malfunction

DTC 17-12: Left-Rear Wheel Speed Sensor Power Source Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 11-12, 13-12, 15-12, or 17-12 indicated?

YES—Go to step 5.

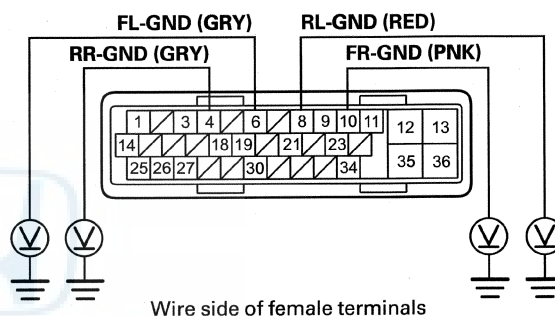
NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).
7. Turn the ignition switch to ON (II).

8. Measure the voltage between body ground and the appropriate wheel speed sensor GND terminals of the VSA modulator-control unit 36P connector individually (see table).

DTC	VSA Modulator-Control Unit 36P Connector Terminal	Appropriate Wheel Speed Sensor 2P Connector Terminal
11-12	No. 10	Right-front
13-12	No. 6	Left-front
15-12	No. 4	Right-rear
17-12	No. 8	Left-rear

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Is there 0.1 V or more?

YES—Go to step 9.

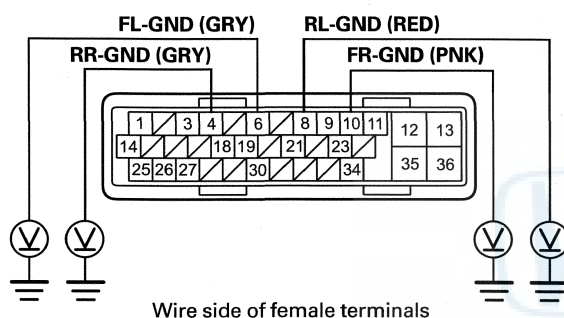
NO—Go to step 13.

9. Turn the ignition switch to LOCK (0).
10. Disconnect the appropriate wheel speed sensor 2P connector (see page 19-258).
11. Turn the ignition switch to ON (II).

12. Measure the voltage between body ground and the appropriate wheel speed sensor GND terminals of the VSA modulator-control unit 36P connector individually (see table).

DTC	VSA Modulator-Control Unit 36P Connector Terminal	Appropriate Wheel Speed Sensor 2P Connector Terminal
11-12	No. 10	Right-front
13-12	No. 6	Left-front
15-12	No. 4	Right-rear
17-12	No. 8	Left-rear

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Is there 0.1 V or more?

YES—Repair a short to power in the wire between the VSA modulator-control unit and the appropriate wheel speed sensor. ■

NO—Replace the appropriate wheel speed sensor (see page 19-258). ■

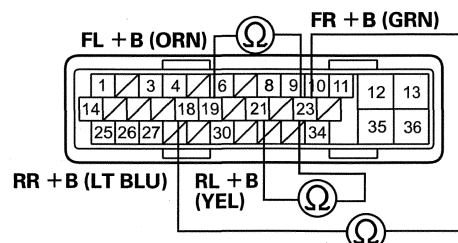
13. Turn the ignition switch to LOCK (0).

14. Check for continuity between the appropriate VSA modulator-control unit 36P connector wheel speed sensor +B terminals (see table).

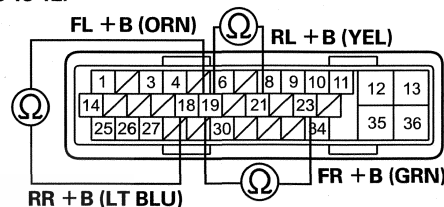
DTC	VSA Modulator-Control Unit 36P Connector Terminal			
	Appropriate Terminal	Other Terminals		
11-12	No. 23	No. 19	No. 18	No. 21
13-12	No. 19	No. 23	No. 18	No. 21
15-12	No. 18	No. 23	No. 19	No. 21
17-12	No. 21	No. 23	No. 19	No. 18

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR

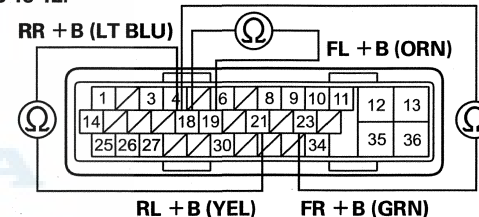
DTC 11-12:



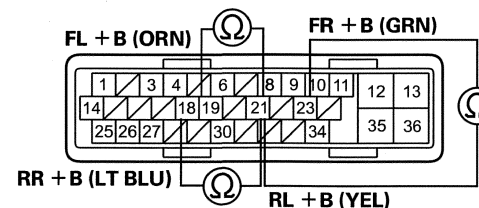
DTC 13-12:



DTC 15-12:



DTC 17-12:



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the appropriate wheel speed sensor and the VSA modulator-control unit. ■

NO—Go to step 15.

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

15. Reconnect the VSA modulator-control unit 36P connector.
16. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
17. Turn the ignition switch to LOCK (0) and then back to ON (II).
18. Check for DTCs with the HDS.

Is DTC 11-12, 13-12, 15-12, or 17-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 12-11: Right-Front Wheel Speed Sensor Electrical Noise or Intermittent Interruption

DTC 14-11: Left-Front Wheel Speed Sensor Electrical Noise or Intermittent Interruption

DTC 16-11: Right-Rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption

DTC 18-11: Left-Rear Wheel Speed Sensor Electrical Noise or Intermittent Interruption

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).
- These DTCs may be caused by electrical interference. Check for aftermarket devices installed in the vehicle when these DTCs are indicated.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle.

NOTE: Drive the vehicle on the road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 12-11, 14-11, 16-11, or 18-11 indicated?

YES—If DTC 12-12, 14-12, 16-12, or 18-12 is indicated at the same time, do the DTC 12-12, 14-12, 16-12, or 18-12 troubleshooting first (see page 19-203). If DTC 12-12, 14-12, 16-12, or 18-12 is not indicated, go to step 6.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

6. Turn the ignition switch to LOCK (0).
7. Check that the appropriate wheel speed sensor is properly mounted (see page 19-258).

DTC	Appropriate Wheel Speed Sensor
12-11	Right-front
14-11	Left-front
16-11	Right-rear
18-11	Left-rear

Is the wheel speed sensor installation OK?

YES—Go to step 8.

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-258).■

8. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
9. Turn the ignition switch to LOCK (0).
10. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

11. Check for DTCs with the HDS.

Is DTC 12-11, 14-11, 16-11, or 18-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 12-12: Right-Front Wheel Speed Sensor Short to the Other Sensor Circuit

DTC 14-12: Left-Front Wheel Speed Sensor Short to the Other Sensor Circuit

DTC 16-12: Right-Rear Wheel Speed Sensor Short to the Other Sensor Circuit

DTC 18-12: Left-Rear Wheel Speed Sensor Short to the Other Sensor Circuit

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).
- These DTCs may be caused by electrical interference. Check for aftermarket devices installed in the vehicle when these DTC are indicated.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 12 mph (20 km/h) or more, and go a distance of 328 ft (100 m) or more.

NOTE: Drive the vehicle on the road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 12-12, 14-12, 16-12, or 18-12 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

6. Turn the ignition switch to LOCK (0).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).
8. Check for continuity between the appropriate VSA modulator-control unit 36P connector wheel speed sensor GND terminals (see table).

DTC	VSA Modulator-Control Unit 36P Connector Terminal			
	Appropriate Terminal	Other Terminals		
12-12	No. 10	No. 6	No. 4	No. 8
14-12	No. 6	No. 10	No. 4	No. 8
16-12	No. 4	No. 10	No. 6	No. 8
18-12	No. 8	No. 10	No. 6	No. 4

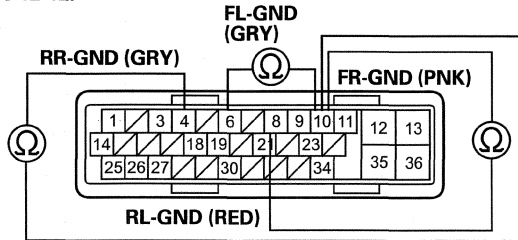
(cont'd)

VSA System Components

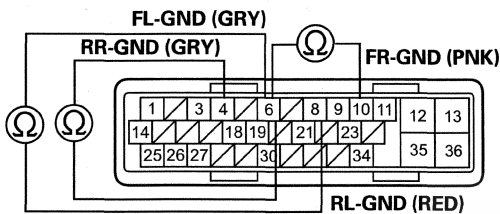
DTC Troubleshooting (cont'd)

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR

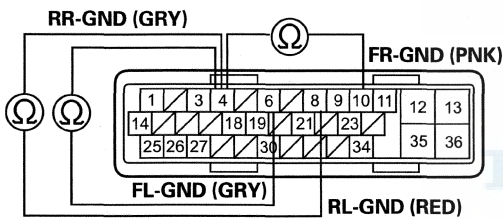
DTC 12-12:



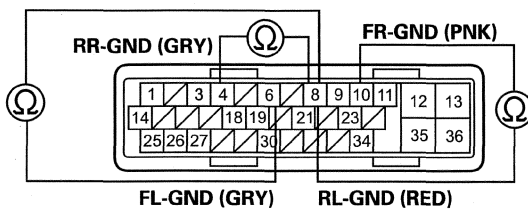
DTC 14-12:



DTC 16-12:



DTC 18-12:



Wire side of female terminals

Is there continuity?

YES—Repair short in the wires between the appropriate wheel speed sensor and the VSA modulator-control unit. ■

NO—Go to step 9.

9. Reconnect the VSA modulator-control unit 36P connector.

10. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).

11. Turn the ignition switch to LOCK (0).

12. Test-drive the vehicle at 12 mph (20 km/h) or more, and go a distance of 328 ft (100 m) or more.

NOTE: Drive the vehicle on the road, not on a lift.

13. Check for DTCs with the HDS.

Is DTC 12-12, 14-12, 16-12, or 18-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 12-120: Right-Front Wheel Speed Sensor Circuit Malfunction

DTC 14-120: Left-Front Wheel Speed Sensor Circuit Malfunction

DTC 16-120: Right-Rear Wheel Speed Sensor Circuit Malfunction

DTC 18-120: Left-Rear Wheel Speed Sensor Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 12-120, 14-120, 16-120, or 18-120 indicated?

YES—Go to step 6.

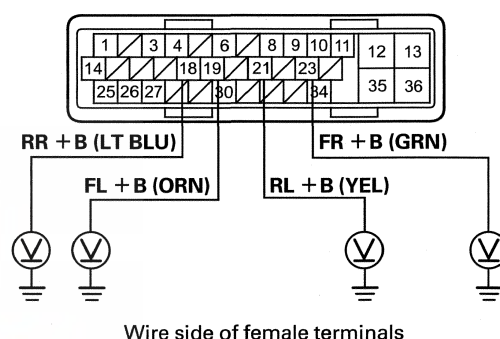
NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

6. Turn the ignition switch to LOCK (0).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).
8. Turn the ignition switch to ON (II).

9. Measure the voltage between body ground and the appropriate VSA modulator-control unit 36P connector terminals (see table).

DTC	VSA Modulator-Control Unit 36P Connector Terminal
12-120	No. 23
14-120	No. 19
16-120	No. 18
18-120	No. 21

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Is there 0.1 V or more?

YES—Repair a short to power in the wire between the appropriate wheel speed sensor and the VSA modulator-control unit. ■

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).
11. Reconnect the VSA modulator-control unit 36P connector.
12. Substitute a known-good wheel speed sensor (see page 19-179).

DTC	Appropriate Wheel Speed Sensor
12-120	Right-front
14-120	Left-front
16-120	Right-rear
18-120	Left-rear

13. Turn the ignition switch to ON (II).
14. Clear the DTC with the HDS.
15. Turn the ignition switch to LOCK (0).
16. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

17. Check for DTCs with the HDS.

Is DTC 12-120, 14-120, 16-120, or 18-120 indicated?

YES—Go to step 19.

NO—Replace the original wheel speed sensor (see page 19-258).■

18. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).

19. Turn the ignition switch to LOCK (0).

20. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

21. Check for DTCs with the HDS.

Is DTC 12-120, 14-120, 16-120, or 18-120 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 12-13: Right-Front Wheel Speed Sensor Installation Error

DTC 14-13: Left-Front Wheel Speed Sensor Installation Error

DTC 16-13: Right-Rear Wheel Speed Sensor Installation Error

DTC 18-13: Left-Rear Wheel Speed Sensor Installation Error

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Test-drive the vehicle in a straight line at 6 mph (10 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

2. Check the RIGHT FRONT, LEFT FRONT, RIGHT REAR, LEFT REAR WHEEL SPEED in the VSA DATA LIST with the HDS.

Are all four values the same?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).

4. Check that the appropriate wheel speed sensor is properly mounted (see page 19-258).

DTC	Appropriate Wheel Speed Sensor
12-13	Right-front
14-13	Left-front
16-13	Right-rear
18-13	Left-rear

Is the wheel speed sensor installation OK?

YES—Replace the appropriate wheel speed sensor (see page 19-258).■

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-258), then go to step 1.

DTC 12-14: Right-Front Wheel Speed Sensor Installation Error

DTC 14-14: Left-Front Wheel Speed Sensor Installation Error

DTC 16-14: Right-Rear Wheel Speed Sensor Installation Error

DTC 18-14: Left-Rear Wheel Speed Sensor Installation Error

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Test-drive the vehicle in a straight line between 19 mph (30 km/h) and 31 mph (50 km/h) for 70 seconds or more.

NOTE: Drive the vehicle on the road, not on a lift.

2. Check the RIGHT FRONT, LEFT FRONT, RIGHT REAR, LEFT REAR WHEEL SPEED in the VSA DATA LIST with the HDS.

Are all four values the same?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Check that the appropriate wheel speed sensor is properly mounted (see page 19-258).

DTC	Appropriate Wheel Speed Sensor
12-14	Right-front
14-14	Left-front
16-14	Right-rear
18-14	Left-rear

Is the wheel speed sensor installation OK?

YES—Replace the appropriate wheel speed sensor (see page 19-258).■

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-258), then go to step 1.

DTC 12-15: Right-Front Wheel Speed Sensor Installation Error

DTC 14-15: Left-Front Wheel Speed Sensor Installation Error

DTC 16-15: Right-Rear Wheel Speed Sensor Installation Error

DTC 18-15: Left-Rear Wheel Speed Sensor Installation Error

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Test-drive the vehicle in a straight line between 1 mph (1 km/h) and 9 mph (15 km/h).

NOTE: Drive the vehicle on the road, not on a lift.

2. Check the RIGHT FRONT, LEFT FRONT, RIGHT REAR, LEFT REAR WHEEL SPEED in the VSA DATA LIST with the HDS.

Are all four values the same?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Check that the appropriate wheel speed sensor is properly mounted (see page 19-258).

DTC	Appropriate Wheel Speed Sensor
12-15	Right-front
14-15	Left-front
16-15	Right-rear
18-15	Left-rear

Is the wheel speed sensor installation OK?

YES—Replace the appropriate wheel speed sensor (see page 19-258).■

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-258), then go to step 1.

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 21-11: Right-Front Magnetic Encoder Malfunction (Pulse Missing)

DTC 22-11: Left-Front Magnetic Encoder Malfunction (Pulse Missing)

DTC 23-11: Right-Rear Magnetic Encoder Malfunction (Pulse Missing)

DTC 24-11: Left-Rear Magnetic Encoder Malfunction (Pulse Missing)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 12 mph (20 km/h) or more, and go a distance of 328 ft (100 m) or more.

NOTE: Drive the vehicle on the road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 21-11, 22-11, 23-11, or 24-11 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

6. Turn the ignition switch to LOCK (0).

7. Inspect the appropriate magnetic encoder for damage, debris, and correct installation.

DTC	Appropriate Magnetic Encoder	Note
21-11	Right-front	Remove the driveshaft outboard joint from the appropriate wheel hub (see page 18-16).
22-11	Left-front	
23-11	Right-rear	Remove the hub bearing unit (see page 18-32).
24-11	Left-rear	

Is the magnetic encoder surface OK?

YES—Remove the debris from the magnetic encoder, or replace the wheel bearing (front) or the hub bearing unit (rear):

- Front: Replace the wheel bearing (see page 18-16).■
- Rear: Replace the hub bearing unit (see page 18-32).■

NO—Clean debris from the appropriate magnetic encoder surface on the wheel bearing or the hub bearing unit, then go to step 1 and recheck. If the DTC is still present, replace the appropriate wheel bearing or hub bearing unit.■



DTC 25-11: Yaw Rate Sensor Internal Circuit Malfunction

DTC 104-13: Yaw Rate-Acceleration Sensor Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Wait for 60 seconds or more.
5. Check for DTCs with the HDS.

Is DTC 25-11 or 104-13 indicated?

YES—Replace the yaw rate-lateral acceleration sensor (see page 19-253).■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

DTC 25-12: Yaw Rate Sensor Stuck

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 6 mph (10 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 25-12 indicated?

YES—Go to step 6.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-178).■

6. Test-drive the vehicle. Check the YAW RATE SENSOR in the VSA DATA LIST with the HDS while driving in corners.

Does the indicated value change?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

NO—Replace the yaw rate-lateral acceleration sensor (see page 19-253).■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 25-13: Yaw Rate Sensor Output Signal Malfunction

DTC 26-13: Lateral Acceleration Sensor Output Signal Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 9 mph (15 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 25-13 or 26-13 indicated?

YES—Replace the yaw rate-lateral acceleration sensor (see page 19-253). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

DTC 26-11: Lateral Acceleration Sensor Internal Circuit Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).
- While doing this troubleshooting, avoid vibration or shaking of the vehicle.

1. Park the vehicle on a flat and level surface.
2. Turn the ignition switch to ON (II).
3. Clear the DTC with the HDS.
4. Turn the ignition switch to LOCK (0) and then back to ON (II).
5. Wait for 60 seconds or more.
6. Check for DTCs with the HDS.

Is DTC 26-11 indicated?

YES—Replace the yaw rate-lateral acceleration sensor (see page 19-253). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■



DTC 26-12: Lateral Acceleration Sensor Stuck

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 6 mph (10 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 26-12 indicated?

YES—Go to step 6.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

6. Test-drive the vehicle. Check the LATERAL ACCELERATION SENSOR in the VSA DATA LIST with the HDS while driving around corners.

Does the indicated value change?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

NO—Replace the yaw rate-lateral acceleration sensor (see page 19-253).■

DTC 27-11: Steering Angle Sensor Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 27-11 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

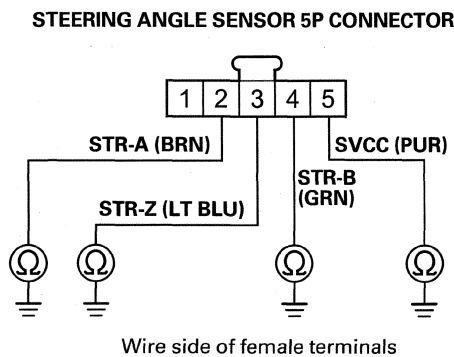
5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector (see page 19-252).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

8. Check for continuity between body ground and steering angle sensor 5P connector terminals No. 2, No. 3, No. 4, and No. 5 individually.



Is there continuity?

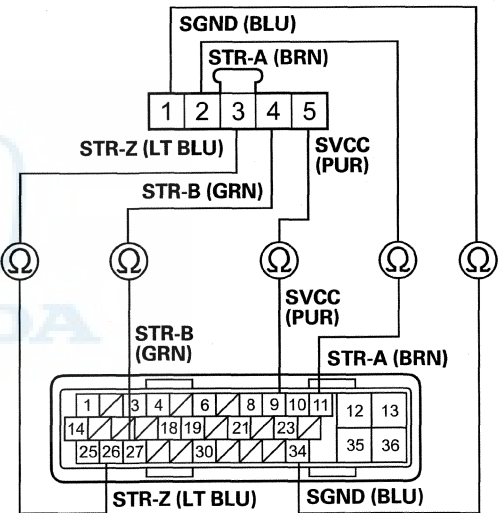
YES—Repair a short to body ground in the wire between the steering angle sensor and the VSA modulator-control unit. ■

NO—Go to step 9.

9. Check for continuity between the VSA modulator-control unit 36P connector terminal and the steering angle sensor 5P connector terminal individually (see table).

Sign	VSA Modulator-Control Unit 36P Connector Terminal	Steering Angle Sensor 5P Connector Terminal
SVCC	No. 9	No. 5
STR-A	No. 11	No. 2
STR-Z	No. 26	No. 3
STR-B	No. 27	No. 4
SGND	No. 34	No. 1

STEERING ANGLE SENSOR 5P CONNECTOR
Wire side of female terminals



VSA MODULATOR-CONTROL UNIT 36P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair an open in the wire between the steering angle sensor and the VSA modulator-control unit. ■

10. Substitute a known-good steering angle sensor (see page 19-252).
11. Reconnect all connectors.
12. Turn the ignition switch to ON (II).
13. Clear the DTC with the HDS.
14. Turn the ignition switch to LOCK (0) and then back to ON (II).
15. Check for DTCs with the HDS.

Is DTC 27-11 indicated?

YES—Go to step 16.

NO—Replace the original steering angle sensor (see page 19-252). ■

16. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
17. Turn the ignition switch to LOCK (0) and then back to ON (II).
18. Check for DTCs with the HDS.

Is DTC 27-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 27-12: Steering Angle Sensor Stuck

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Turn the steering wheel left and right 90 degrees or more. Check the STEERING ANGLE in the VSA DATA LIST with the HDS.

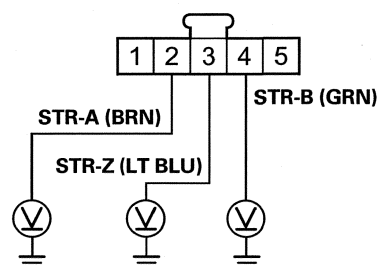
Is there +90 ° or more, and -90 ° or less?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Disconnect the steering angle sensor 5P connector (see page 19-252).
5. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).
6. Turn the ignition switch to ON (II).
7. Measure the voltage between body ground and steering angle sensor 5P connector terminals No. 2, No. 3, and No. 4 individually.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair a short to power in the wire between the steering angle sensor and the VSA modulator-control unit. ■

NO—Replace the steering angle sensor (see page 19-252). ■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 27-13: Steering Angle Sensor Output Signal Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II), and set the front wheels to the straight ahead position.
2. Turn the steering wheel one turn to the left. Check the STEERING ANGLE in the VSA DATA LIST with the HDS.

Is there about -288 degrees to -432 degrees?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

NO—Replace the steering angle sensor (see page 19-252). ■

DTC 27-14: Steering Angle Sensor Counter Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock to lock several times.
6. Check for DTCs with the HDS.

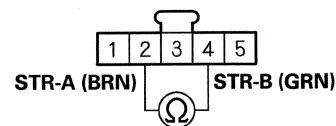
Is DTC 27-14 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

7. Turn the ignition switch to LOCK (0).
8. Disconnect the steering angle sensor 5P connector (see page 19-252).
9. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).
10. Check for continuity between steering angle sensor 5P connector terminals No. 2 and No. 4.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

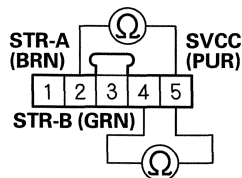
Is there continuity?

YES—Repair a short in the wire between the steering angle sensor and the VSA modulator-control unit. ■

NO—Go to step 11.

11. Check for continuity between steering angle sensor 5P connector terminals No. 2 and No. 5, and No. 4 and No. 5 individually.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

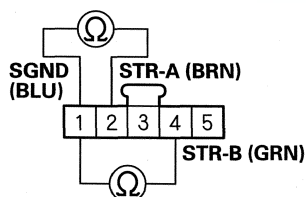
Is there continuity?

YES—Repair a short in the wire between the steering angle sensor and the VSA modulator-control unit. ■

NO—Go to step 12.

12. Check for continuity between steering angle sensor 5P connector terminals No. 1 and No. 2, and No. 1 and No. 4 individually.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wire between the steering angle sensor and the VSA modulator-control unit. ■

NO—Replace the steering angle sensor (see page 19-252). ■

DTC 31-11: ABS Solenoid Valve Malfunction

DTC 32-11: ABS Solenoid Valve Malfunction

DTC 33-11: ABS Solenoid Valve Malfunction

DTC 34-11: ABS Solenoid Valve Malfunction

DTC 35-11: ABS Solenoid Valve Malfunction

DTC 36-11: ABS Solenoid Valve Malfunction

DTC 37-11: ABS Solenoid Valve Malfunction

DTC 38-11: ABS Solenoid Valve Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 31-11, 32-11, 33-11, 34-11, 35-11, 36-11, 37-11, or 38-11 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

5. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
6. Turn the ignition switch to LOCK (0) and then back to ON (II).

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

7. Check for DTCs with the HDS.

Is DTC 31-11, 32-11, 33-11, 34-11, 35-11, 36-11, 37-11, or 38-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 41-11: Right-Front Wheel Lock

DTC 42-11: Left-Front Wheel Lock

DTC 43-11: Right-Rear Wheel Lock

DTC 44-11: Left-Rear Wheel Lock

The DTCs may be indicated under these conditions:

- The vehicle goes into a spin.
- The ABS or VSA continues to operate for a long time.
- Snow, dirt, or debris build-up on the wheel speed sensor or magnetic encoder.
- Misadjusted brake pedal position switch.
- Contaminated brake fluid.

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Drive the vehicle until the brakes drag or until the pedal is high and hard. This can take 20 or more brake pedal applications during an extended test-drive.
2. With the engine running, raise and support the vehicle (see page 1-14), then spin the appropriate wheel by hand.

DTC	Appropriate Wheel
41-11	Right-front
42-11	Left-front
43-11	Right-rear
44-11	Left-rear

Is there brake drag?

YES—Repair the brake drag (see page 19-5). ■

NO—Go to step 3.

3. Check that the appropriate wheel speed sensor is properly mounted (see page 19-258).

Is the wheel speed sensor installation OK?

YES—Go to step 4.

NO—Reinstall the wheel speed sensor, and check the mounting position (see page 19-258). ■

4. Turn the ignition switch to ON (II).

5. Clear the DTC with the HDS.

6. Turn the ignition switch to LOCK (0).

7. Test-drive the vehicle at 6 mph (10 km/h) for 20 seconds or more.

NOTE: Drive the vehicle on the road, not on a lift.

8. Check for DTCs with the HDS.

Is DTC 41-11, 42-11, 43-11, or 44-11 indicated?

YES—Go to step 9.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

9. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).

10. Turn the ignition switch to LOCK (0).

11. Test-drive the vehicle at 6 mph (10 km/h) for 20 seconds or more.

NOTE: Drive the vehicle on the road, not on a lift.

12. Check for DTCs with the HDS.

Is DTC 41-11, 42-11, 43-11, or 44-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 51-11: Motor Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Turn the ignition switch to LOCK (0) and then back to ON (II).

4. Wait for 5 seconds.

5. Operate any one of the four solenoids, as listed, in the VSA FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

6. Check for DTCs with the HDS.

Is DTC 51-11 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

7. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).

8. Turn the ignition switch to LOCK (0) and then back to ON (II).

9. Wait for 5 seconds.

10. Operate any one of the four solenoids, as listed, in the VSA FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

11. Check for DTCs with the HDS.

Is DTC 51-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 51-12: Motor Drive Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 51-12 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

5. Turn the ignition switch to LOCK (0).
6. Check the No. 58 (30 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

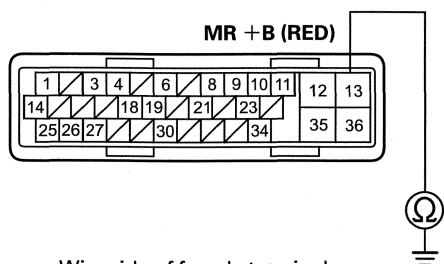
YES—Go to step 7.

NO—Reinstall the checked fuse, then go to step 14.

7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).

8. Check for continuity between VSA modulator-control unit 36P connector terminal No. 13 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the No. 58 (30 A) fuse in the under-dash fuse/relay box and the VSA modulator-control unit. ■

NO—Install a new No. 58 (30 A) fuse in the under-dash fuse/relay box, then go to step 9.

9. Reconnect the VSA modulator-control unit 36P connector.
10. Turn the ignition switch to ON (II).
11. Clear the DTC with the HDS.
12. Turn the ignition switch to LOCK (0) and then back to ON (II).
13. Check for DTCs with the HDS.

Is DTC 51-12 indicated?

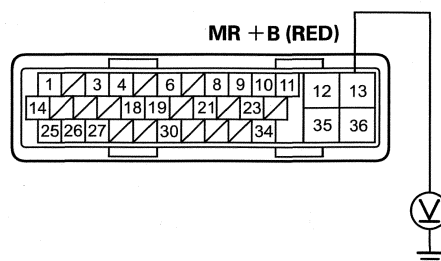
YES—Replace the VSA modulator-control unit (see page 19-256). ■

NO—The troubleshooting is complete. ■

14. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).

15. Measure the voltage between VSA modulator-control unit 36P connector terminal No. 13 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 16.

NO—Repair an open in the wire between the No. 58 (30 A) fuse in the under-dash fuse/relay box and the VSA modulator-control unit. ■

16. Reconnect the VSA modulator-control unit 36P connector.
17. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
18. Turn the ignition switch to LOCK (0) and then back to ON (II).
19. Check for DTCs with the HDS.

Is DTC 51-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-258). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 52-11: Motor Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Operate any one of the four solenoids, as listed, in the VSA FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

5. Check for DTCs with the HDS.

Is DTC 52-11 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

6. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
7. Turn the ignition switch to LOCK (0) and then back to ON (II).
8. Operate any one of the four solenoids, as listed, in the VSA FUNCTION TEST five times with the HDS.

-LFT FT SOLENOID
-RT FT SOLENOID
-LFT REAR SOLENOID
-RT REAR SOLENOID

9. Check for DTCs with the HDS.

Is DTC 52-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 53-11: Motor Relay Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

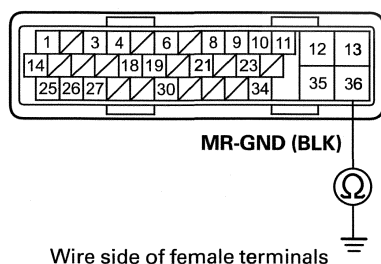
Is DTC 53-11 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).
7. Check for continuity between VSA modulator-control unit 36P connector terminal No. 36 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Is there continuity?

YES—Go to step 8.

NO—Repair an open in the wire between the VSA modulator-control unit and body ground (G202).■

8. Reconnect the VSA modulator-control unit 36P connector.
9. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
10. Turn the ignition switch to LOCK (0) and then back to ON (II).
11. Check for DTCs with the HDS.

Is DTC 53-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 54-11: Fail-Safe Relay Stuck ON

DTC 54-12: Fail-Safe Relay Stuck OFF

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 54-11 or 54-12 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

5. Turn the ignition switch to LOCK (0).
6. Check the No. 37 (30 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

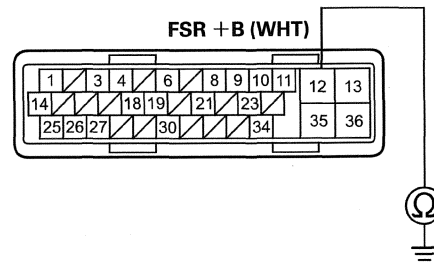
YES—Go to step 7.

NO—Reinstall the checked fuse, then go to step 14.

7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).

8. Check for continuity between VSA modulator-control unit 36P connector terminal No. 12 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the No. 37 (30 A) fuse in the under-dash fuse/relay box and the VSA modulator-control unit. ■

NO—Install a new No. 37 (30 A) fuse in the under-dash fuse/relay box, then go to step 9.

9. Reconnect the VSA modulator-control unit 36P connector.
10. Turn the ignition switch to ON (II).
11. Clear the DTC with the HDS.
12. Turn the ignition switch to LOCK (0) and then back to ON (II).
13. Check for DTCs with the HDS.

Is DTC 54-11 or 54-12 indicated?

YES—Replace the VSA modulator-control unit (see page 19-256). ■

NO—The troubleshooting is complete. ■



14. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
15. Turn the ignition switch to LOCK (0) and then back to ON (II).
16. Check for DTCs with the HDS.

Is DTC 54-11 or 54-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 56-11: Fail-Safe Relay Power Source Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 56-11 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

5. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
6. Turn the ignition switch to LOCK (0) and then back to ON (II).
7. Check for DTCs with the HDS.

Is DTC 56-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 61-11: VSA Modulator-Control Unit Power Source Circuit (IG) Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Check for DTCs with the HDS.

Is DTC 61-11 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

6. Check and note BATTERY voltage in the VSA DATA LIST with the HDS.
7. Using a voltmeter, measure and note the voltage across the battery terminals.

NOTE: If the voltage is below 9.5 V, check the battery (see page 22-68), and troubleshoot the alternator regulator circuit (see page 4-27).
8. Compare the voltage noted in step 6 to the voltage in step 7.

Is the difference between the two voltage readings less than 3 V?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). If the code resets after clearing, go to step 9.

NO—Go to step 9.

9. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).

10. Turn the ignition switch to LOCK (0).

11. Start the engine.

12. Check for DTCs with the HDS.

Is DTC 61-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■



DTC 62-11: Modulator-Control Unit Power Source Circuit (IG) High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Check for DTCs with the HDS.

Is DTC 62-11 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

6. Check and note BATTERY voltage in the VSA DATA LIST with the HDS.
7. Using a voltmeter, measure and note the voltage across the battery terminals.

NOTE: If the voltage is more than 15.1 V, troubleshoot the alternator regulator circuit (see page 4-27).

8. Compare the voltage noted in step 6 to the voltage in step 7.

Is the difference between the two voltage readings less than 3 V?

YES—Go to step 9.

NO—Check the battery (see page 22-68), and troubleshoot the alternator regulator circuit (see page 4-27).■

9. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).

10. Turn the ignition switch to LOCK (0).

11. Start the engine.

12. Check for DTCs with the HDS.

Is DTC 62-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 64-11: Sensor Power Source Circuit Low Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

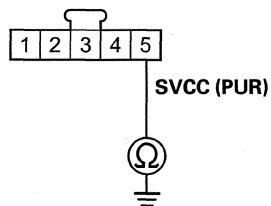
Is DTC 64-11 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector (see page 19-252).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).
8. Check for continuity between steering angle sensor 5P connector terminal No. 5 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the steering angle sensor and the VSA modulator-control unit.■

NO—Go to step 9.

9. Reconnect all connectors.

10. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
11. Turn the ignition switch to LOCK (0) and then back to ON (II).
12. Check for DTCs with the HDS.

Is DTC 64-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

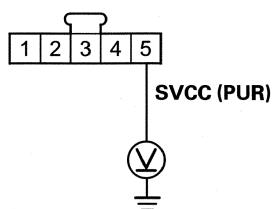
NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 64-12: Sensor Power Source Circuit High Voltage

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.
Is DTC 64-12 indicated?
YES—Go to step 5.
NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■
5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector (see page 19-252).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).
8. Turn the ignition switch to ON (II).
9. Measure the voltage between steering angle sensor 5P connector terminal No. 5 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair a short to power in the wire between the steering angle sensor and the VSA modulator-control unit.■

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).
11. Reconnect all connectors.
12. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
13. Turn the ignition switch to LOCK (0) and then back to ON (II).
14. Check for DTCs with the HDS.

Is DTC 64-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 65-11: Brake Fluid Level Switch Circuit Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).
- Bleeding the brake system while the ignition switch is ON (II) can cause this DTC.

1. Check the brake fluid level in the master cylinder reservoir (see page 19-8).

Is the brake fluid level OK?

YES—Go to step 2.

NO—Do the brake pad inspection: Front (see page 19-12), rear (see page 19-26), check for brake fluid leaks or replace worn brake pads, then go to step 2 and recheck.

2. Turn the ignition switch to ON (II).
3. Clear the DTC with the HDS.
4. Turn the ignition switch to LOCK (0) and then back to ON (II).
5. Check for DTCs with the HDS.

Is DTC 65-11 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

6. Release the parking brake.
7. Turn the ignition switch to LOCK (0) and then back to ON (II).
8. Check the brake system indicator in the gauge control module.

Does the indicator come on then go off?

YES—Go to step 14.

NO—Go to step 9.

9. Check the BRAKE FLUID LEVEL in the VSA DATA LIST with the HDS.

Does the HDS indicate the BRAKE FLUID LEVEL as ENOUGH?

YES—Substitute a known-good gauge control module (see page 22-294), then go to step 2 and recheck. If no DTCs are indicated, replace the original gauge control module (see page 22-294).

NO—Go to step 10.

10. Disconnect the brake fluid level switch 2P connector (see page 19-11), then check the BRAKE FLUID LEVEL in the VSA DATA LIST.

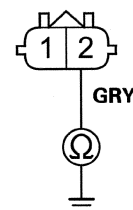
Does the HDS indicate ENOUGH?

YES—Replace the brake master cylinder (the brake fluid level switch is included) (see page 19-21).

NO—Go to step 11.

11. Turn the ignition switch to LOCK (0).
12. Disconnect the gauge control module 32P connector (see page 22-294).
13. Check for continuity between brake fluid level switch 2P connector terminal No. 2 and body ground.

BRAKE FLUID LEVEL SWITCH 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the gauge control module and the brake fluid level switch. ■

NO—Substitute a known-good gauge control module (see page 22-294), then go to step 2 and recheck. If no DTCs are indicated, replace the original gauge control module (see page 22-294). ■

14. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
15. Turn the ignition switch to LOCK (0) and then back to ON (II).
16. Check for DTCs with the HDS.

Is DTC 65-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 66-11: Pressure Sensor Circuit Malfunction

DTC 66-13: Pressure Sensor Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).

4. Check for DTCs with the HDS.

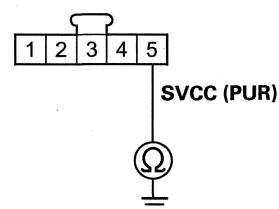
Is DTC 66-11 or 66-13 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector (see page 19-252).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).
8. Check for continuity between steering angle sensor 5P connector terminal No. 5 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the steering angle sensor and the VSA modulator-control unit.■

NO—Go to step 9.

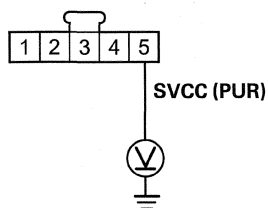
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VSA System Components

DTC Troubleshooting (cont'd)

9. Turn the ignition switch to ON (II).
10. Measure the voltage between steering angle sensor 5P connector terminal No. 5 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair a short to power in the wire between the steering angle sensor and the VSA modulator-control unit. ■

NO—Go to step 11.

11. Turn the ignition switch to LOCK (0).
12. Reconnect all connectors.
13. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
14. Turn the ignition switch to LOCK (0) and then back to ON (II).
15. Check for DTCs with the HDS.

Is DTC 66-11 or 66-13 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 68-11: Brake Pedal Position Switch Stuck OFF

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).
- Troubleshoot any fuel and emissions DTCs first.

1. Start the engine.
2. Check the BRAKE PRESSURE in the VSA DATA LIST with the HDS. Do not press the brake pedal.

Is there 10 MPa or less?

YES—Go to step 3.

NO—Check for brake drag (see page 19-96) or a misadjusted brake pedal position switch (see page 19-6). If they are normal, go to step 32.

3. Check the BRAKE SWITCH in the VSA DATA LIST with the HDS while moving the brake pedal.

Does it indicate ON when the pedal is pressed, and OFF when the pedal is released?

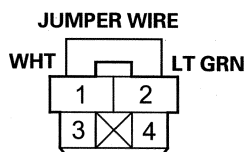
YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).
5. Disconnect the brake pedal position switch 4P connector (see page 19-6).

6. Connect the brake pedal position switch 4P connector terminals No. 1 and No. 2 with a jumper wire.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



Wire side of female terminals

7. Turn the ignition switch to ON (II).
8. Check the BRAKE SWITCH in the VSA DATA LIST with the HDS.

Does it indicate ON?

YES—Check the brake pedal position switch adjustment (see page 19-6). If it is OK, replace the brake pedal position switch (see page 19-6). ■

NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).
10. Disconnect the jumper wire.
11. Check the No. 24 (10 A) fuse in the under-dash fuse/relay box.

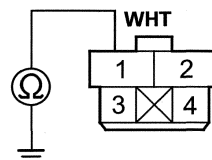
Is the fuse blown?

YES—Go to step 12.

NO—Reinstall the checked fuse, then go to step 22.

12. Check for continuity between brake pedal position switch 4P connector terminal No. 1 and body ground.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



Wire side of female terminals

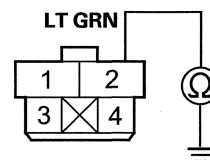
Is there continuity?

YES—Repair a short to body ground in the wire between the No. 24 (10 A) fuse in the under-dash fuse/relay box and the brake pedal position switch. ■

NO—Go to step 13.

13. Short the SCS line with the HDS.
14. Disconnect ECM/PCM connector A (49P) (see page 11-215).
15. Check for continuity between brake pedal position switch 4P connector terminal No. 2 and body ground.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the brake pedal position switch and the ECM/PCM. ■

NO—Install a new No. 24 (10 A) fuse in the under-dash fuse/relay box, then go to step 16.

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

16. Reconnect all connectors.
17. Turn the ignition switch to ON (II).
18. Clear the DTC with the HDS.
19. Turn the ignition switch to LOCK (0).
20. Test-drive the vehicle at 6 mph (10 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

21. Check for DTCs with the HDS.

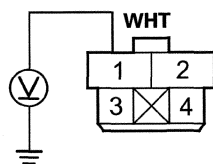
Is DTC 68-11 indicated?

YES—Go to step 32.

NO—The troubleshooting is complete. ■

22. Measure the voltage between brake pedal position switch 4P connector terminal No. 1 and body ground.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 23.

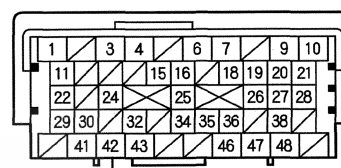
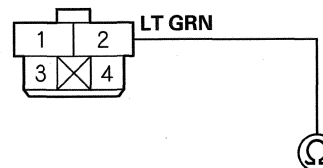
NO—Repair an open in the wire between the No. 24 (10 A) fuse in the under-dash fuse/relay box and the brake pedal position switch. ■

23. Short the SCS line with the HDS.
24. Disconnect ECM/PCM connector A (49P) (see page 11-215).

25. Check for continuity between brake pedal position switch 4P connector terminal No. 2 and ECM/PCM connector terminal A42.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR

Wire side of female terminals



BKSW (LT GRN)

ECM/PCM CONNECTOR A (49P)

Terminal side of female terminals

Is there continuity?

YES—Go to step 26.

NO—Repair an open in the wire between the ECM/PCM and the brake pedal position switch. ■

26. Reconnect all connectors.
 27. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
 28. Clear the DTC with the HDS.
 29. Turn the ignition switch to LOCK (0).
 30. Test-drive the vehicle at 6 mph (10 km/h) or more.
- NOTE: Drive the vehicle on the road, not on a lift.
31. Check for DTCs with the HDS.

Is DTC 68-11 indicated?

YES—Check for loose terminals in the ECM/PCM connector A (49P). If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then retest. If the ECM/PCM was substituted, go to step 1.

NO—The troubleshooting is complete. ■



32. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).

33. Turn the ignition switch to LOCK (0).

34. Test-drive the vehicle at 6 mph (10 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

35. Check for DTCs with the HDS.

Is DTC 68-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 68-12: Brake Pedal Position Switch Stuck ON

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Start the engine.

2. Check the BRAKE PRESSURE in the VSA DATA LIST with the HDS. Do not press the brake pedal.

Is there 10 MPa or more?

YES—Check the brake pedal height (see page 19-6). If the brake pedal height is OK, go to step 16.

NO—Go to step 3.

3. Check the BRAKE SWITCH in the VSA DATA LIST with the HDS while moving the brake pedal.

Does it indicate ON when the pedal is pressed, and OFF when the pedal is released?

YES—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

NO—Go to step 4.

4. Check the BRAKE SWITCH in the VSA DATA LIST with the HDS, and disconnect the brake pedal position switch 4P connector (see page 19-6).

Does the indicator change from ON to OFF?

YES—Replace the brake pedal position switch (see page 19-6).■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).

6. Short the SCS line with the HDS.

7. Disconnect ECM/PCM connector A (49P) (see page 11-215).

8. Turn the ignition switch to ON (II).

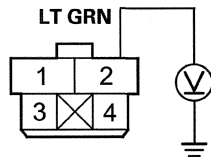
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VSA System Components

DTC Troubleshooting (cont'd)

9. Measure the voltage between brake pedal position switch 4P connector terminal No. 2 and body ground.

BRAKE PEDAL POSITION SWITCH 4P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair a short to power in the wire between the ECM/PCM and the brake pedal position switch. ■

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).
11. Reconnect all connectors.
12. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
13. Clear the DTC with the HDS.
14. Turn the ignition switch to LOCK (0) and then back to ON (II).
15. Check for DTCs with the HDS.

Is DTC 68-12 indicated?

YES—Check for loose terminals in the ECM/PCM connector A (49P). If the ECM/PCM was updated, substitute a known-good ECM/PCM (see page 11-7), then retest. If the ECM/PCM was substituted, go to step 1.

NO—The troubleshooting is complete. ■

16. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).

17. Turn the ignition switch to LOCK (0) and then back to ON (II).

18. Check for DTCs with the HDS.

Is DTC 68-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■



DTC 71-11: Different Diameter Tire Malfunction (Right-Front or Left-Rear)

DTC 71-12: Different Diameter Tire Malfunction (Left-Front or Right-Rear)

DTC 71-13: Different Diameter Tire Malfunction (Right-Front and Right-Rear)

DTC 71-14: Different Diameter Tire Malfunction (Left-Front and Left-Rear)

DTC 71-15: Different Diameter Tire Malfunction (Right-Front and Left-Front)

DTC 71-16: Different Diameter Tire Malfunction (Right-Rear and Left-Rear)

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).
- The DTC will be indicated when the vehicle has a different diameter tire(s) compared to the other tires.

1. Check the tires for proper inflation and the correct size (see page 18-6).
2. Turn the ignition switch to ON (II).
3. Clear the DTC with the HDS.
4. Turn the ignition switch to LOCK (0).
5. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

6. Check for DTCs with the HDS.

Is DTC 71-11, 71-12, 71-13, 71-14, 71-15, or 71-16 indicated?

YES—Replace tires as needed until all their diameters match (see page 18-6). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

DTC 81-11: Modulator-Control Unit Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 81-11 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

5. Update the VSA modulator-control unit if it does not have the latest software. (see page 19-255)
6. Turn the ignition switch to LOCK (0) and then back to ON (II).
7. Check for DTCs with the HDS.

Is DTC 81-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 81-12: Modulator-Control Unit Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

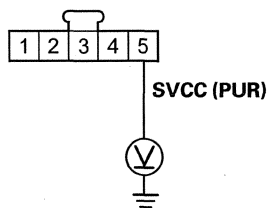
Is DTC 81-12 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the steering angle sensor 5P connector (see page 19-252).
7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).
8. Turn the ignition switch to ON (II).
9. Measure the voltage between steering angle sensor 5P connector terminal No. 5 and body ground.

STEERING ANGLE SENSOR 5P CONNECTOR



Wire side of female terminals

Is there 0.1 V or more?

YES—Repair a short to power in the wire between the steering angle sensor and the VSA modulator-control unit.■

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).
11. Reconnect all connectors.
12. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
13. Turn the ignition switch to LOCK (0) and then back to ON (II).
14. Check for DTCs with the HDS.

Is DTC 81-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 81-13: Modulator-Control Unit Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 81-13 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

6. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
7. Turn the ignition switch to LOCK (0).
8. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

9. Check for DTCs with the HDS.

Is DTC 81-13 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 81-14: Modulator-Control Unit Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Start the engine.
5. Turn the steering wheel from lock to lock several times.
6. Check for DTCs with the HDS.

Is DTC 81-14 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

7. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
8. Turn the ignition switch to LOCK (0).
9. Start the engine.
10. Turn the steering wheel from lock to lock several times.
11. Check for DTCs with the HDS.

Is DTC 81-14 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 83-11: PCM Malfunction (Engine)

DTC 83-12: PCM Malfunction (A/T)

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 83-11 or 83-12 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

6. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).
7. Clear the DTC with the HDS.
8. Turn the ignition switch to LOCK (0).
9. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

10. Check for DTCs with the HDS.

Is DTC 83-11 or 83-12 indicated?

YES—Go to step 11.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215).■

11. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).

12. Turn the ignition switch to LOCK (0).

13. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

14. Check for DTCs with the HDS.

Is DTC 83-11 or 83-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 84-11: VSA Sensor Neutral Position Memorization Incomplete

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Do the VSA sensor neutral position memorization (see page 19-253).
4. Turn the ignition switch to LOCK (0) and then back to ON (II).
5. Check for DTCs with the HDS.

Is DTC 84-11 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

6. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
7. Turn the ignition switch to LOCK (0) and then back to ON (II).
8. Check for DTCs with the HDS.

Is DTC 84-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-258).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 84-12: Steering Angle Sensor Neutral Position Memorization Incomplete

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle in a straight line at 37 mph (60 km/h) for 40 seconds or more.

NOTE: Drive the vehicle on the road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 84-12 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

6. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
7. Turn the ignition switch to LOCK (0).
8. Test-drive the vehicle in a straight line at 37 mph (60 km/h) for 40 seconds or more.

NOTE: Drive the vehicle on the road, not on a lift.

9. Check for DTCs with the HDS.

Is DTC 84-12 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 86-11: F-CAN Bus-Off Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).
- Troubleshoot any fuel and emissions DTCs first.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 86-11 indicated?

YES—Go to step 5.

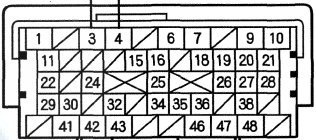
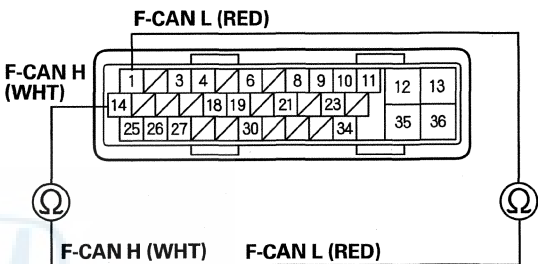
NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

5. Turn the ignition switch to LOCK (0).
6. Short the SCS line with the HDS.
7. Disconnect ECM/PCM connector A (49P) (see page 11-215).
8. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).

9. Check for continuity between VSA modulator-control unit 36P connector terminal and ECM/PCM connector A (49P) terminal (see table).

Sign	VSA Modulator-Control Unit 36P Connector Terminal	ECM/PCM Connector A (49P) Terminal
F-CAN L	No. 1	A4
F-CAN H	No. 14	A3

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR
Wire side of female terminals



ECM/PCM CONNECTOR A (49P)
Terminal side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair an open in the wire between the ECM/PCM and the VSA modulator-control unit.■



10. Reconnect all connectors.
11. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
12. Turn the ignition switch to LOCK (0) and then back to ON (II).
13. Check for DTCs with the HDS.

Is DTC 86-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit. (see page 19-256)■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 86-12: F-CAN Communication With PCM (Engine) Malfunction

DTC 86-13: F-CAN Communication With PCM (A/T) Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).
- Troubleshoot any fuel and emissions DTCs first.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 6 mph (10 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 86-12 or 86-13 indicated?

YES—If DTC 86-11 is indicated at the same time, do the DTC 86-11 troubleshooting first (see page 19-240). If DTC 86-11 is not indicated, go to step 6.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

6. Turn the ignition switch to LOCK (0).
7. Short the SCS line with the HDS.
8. Disconnect ECM/PCM connector A (49P) (see page 11-215).
9. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).

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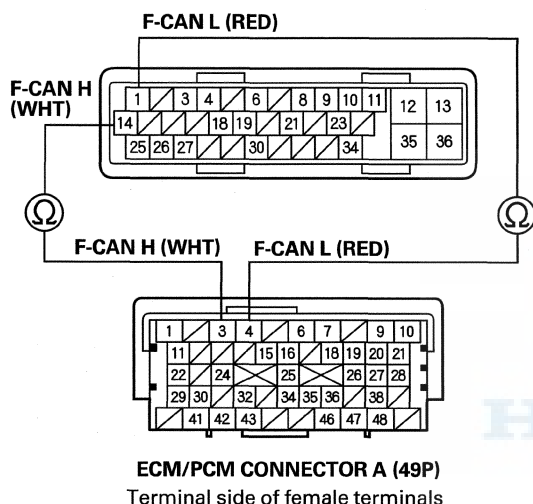
VSA System Components

DTC Troubleshooting (cont'd)

10. Check for continuity between the VSA modulator-control unit 36P connector terminal and ECM/PCM connector A (49P) terminal (see table).

Sign	VSA Modulator-Control Unit 36P Connector Terminal	ECM/PCM Connector A (49P) Terminal
F-CAN L	No. 1	A4
F-CAN H	No. 14	A3

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR
Wire side of female terminals



Is there continuity?

YES—Go to step 11.

NO—Repair an open in the wire between the ECM/PCM and the VSA modulator-control unit. ■

11. Reconnect all connectors.

12. Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7).

13. Clear the DTC with the HDS.

14. Turn the ignition switch to LOCK (0).

15. Test-drive the vehicle at 6 mph (10 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

16. Check for DTCs with the HDS.

Is DTC 86-12 or 86-13 indicated?

YES—Go to step 17.

NO—If the ECM/PCM was updated, troubleshooting is complete. If the ECM/PCM was substituted, replace the original ECM/PCM (see page 11-215). ■

17. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).

18. Turn the ignition switch to LOCK (0).

19. Test-drive the vehicle at 6 mph (10 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

20. Check for DTCs with the HDS.

Is DTC 86-12 or 86-13 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 86-14: F-CAN Communication With Gauge Control Module Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).
- Troubleshoot any fuel and emissions DTCs first.

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 86-14 indicated?

YES—If DTC 86-11 is indicated at the same time, do the DTC 86-11 troubleshooting first (see page 19-240). If DTC 86-11 is not indicated, go to step 5.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

5. Turn the ignition switch to LOCK (0) and then back to ON (II).

Do the gauge indicators come on?

YES—Go to step 6.

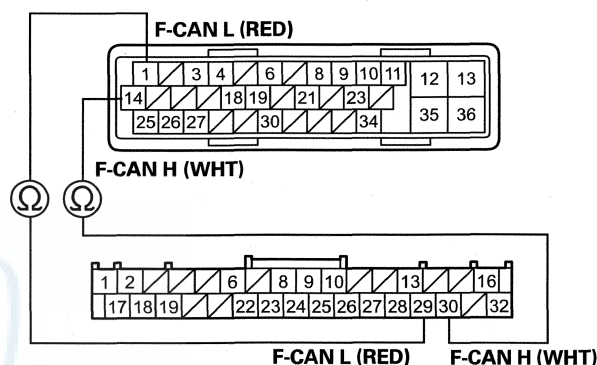
NO—Do the gauge control module self-diagnostic function (see page 22-274). ■

6. Turn the ignition switch to LOCK (0).
7. Disconnect the gauge control module 32P connector (see page 22-294).
8. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).

9. Check for continuity between the VSA modulator-control unit 36P connector terminal and gauge control module 32P connector terminal (see table).

Sign	VSA Modulator-Control Unit 36P Connector Terminal	Gauge Control Module 32P Connector Terminal
F-CAN L	No. 1	No. 29
F-CAN H	No. 14	No. 30

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR
Wire side of female terminals



GAUGE CONTROL MODULE 32P CONNECTOR
Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair an open in the wire between the gauge control module and the VSA modulator-control unit. ■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

10. Substitute a known-good gauge control module (see page 22-294).

11. Reconnect all connectors.

12. Turn the ignition switch to ON (II).

13. Clear the DTC with the HDS.

14. Turn the ignition switch to LOCK (0) and then back to ON (II).

15. Check for DTCs with the HDS.

Is DTC 86-14 indicated?

YES—Go to step 16.

NO—Replace the original gauge control module (see page 22-294).■

16. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).

17. Turn the ignition switch to LOCK (0) and then back to ON (II).

18. Check for DTCs with the HDS.

Is DTC 86-14 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

DTC 86-15: F-CAN Communication With Yaw Rate-Acceleration Sensor Malfunction

NOTE:

- Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).
- Troubleshoot any fuel and emissions DTCs first.

1. Turn the ignition switch to ON (II).

2. Clear the DTC with the HDS.

3. Turn the ignition switch to LOCK (0) and then back to ON (II).

4. Check for DTCs with the HDS.

Is DTC 86-15 indicated?

YES—If DTC 86-11 is indicated at the same time, do the DTC 86-11 troubleshooting first (see page 19-240). If DTC 86-11 is not indicated, go to step 5.

NO—If any other DTCs are indicated, go to the indicated DTCs troubleshooting. If DTCs are not indicated, intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

5. Turn the ignition switch to LOCK (0).

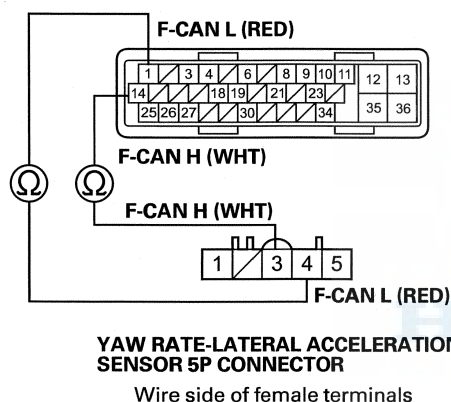
6. Disconnect the yaw rate-lateral acceleration sensor 5P connector (see page 19-253).

7. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).

8. Check for continuity between the VSA modulator-control unit 36P connector terminal and the yaw rate-lateral acceleration sensor 5P connector terminal (see table).

Sign	VSA Modulator-Control Unit 36P Connector Terminal	Yaw Rate-Lateral Acceleration Sensor 5P Connector Terminal
F-CAN L	No. 1	No. 4
F-CAN H	No. 14	No. 3

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR
Wire side of female terminals



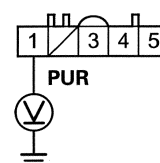
Is there continuity?

YES—Go to step 9.

NO—Repair an open in the wire between the yaw rate-lateral acceleration sensor and the VSA modulator-control unit. ■

9. Turn the ignition switch to ON (II).
10. Measure the voltage between yaw rate-lateral acceleration sensor 5P connector terminal No. 1 and body ground.

YAW RATE-LATERAL ACCELERATION SENSOR 5P CONNECTOR



Wire side of female terminals

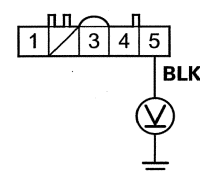
Is there battery voltage?

YES—Go to step 11.

NO—Repair an open in the wire between the No. 11 (7.5 A) fuse in the under-dash fuse/relay box and the yaw rate-lateral acceleration sensor. ■

11. Turn the ignition switch to LOCK (0).
12. Reconnect all connectors.
13. Turn the ignition switch to ON (II).
14. Measure the voltage between yaw rate-lateral acceleration sensor 5P connector terminal No. 5 and body ground.

YAW RATE-LATERAL ACCELERATION SENSOR 5P CONNECTOR



Wire side of female terminals

Is there 0.1 V or less?

YES—Replace the yaw rate-lateral acceleration sensor (see page 19-253). ■

NO—Repair an open in the wire between the yaw rate-lateral acceleration sensor and body ground (G502). ■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 104-11: Yaw Rate-Acceleration Sensor Internal Circuit Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 104-11 indicated?

YES—Replace the yaw rate-lateral acceleration sensor (see page 19-253). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

DTC 104-12: Yaw Rate-Acceleration Sensor Power Source Malfunction

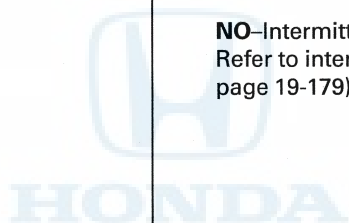
NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 104-12 indicated?

YES—If DTC 61-11 or 62-11 is indicated, check the battery (see page 22-68), and troubleshoot the alternator regulator circuit (see page 4-27). If DTC 61-11 or 62-11 is not indicated, replace the yaw rate-lateral acceleration sensor (see page 19-253). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■





DTC 108-11: Steering Angle Sensor Stuck

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0).
4. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

5. Check for DTCs with the HDS.

Is DTC 108-11 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179).■

6. Turn the ignition switch to LOCK (0).
7. Substitute a known-good steering angle sensor (see page 19-252).
8. Turn the ignition switch to ON (II).
9. Clear the DTC with the HDS.
10. Turn the ignition switch to LOCK (0).
11. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

12. Check for DTCs with the HDS.

Is DTC 108-11 indicated?

YES—Go to step 13.

NO—Replace the original steering angle sensor (see page 19-252).■

13. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).

14. Turn the ignition switch to LOCK (0).

15. Test-drive the vehicle at 19 mph (30 km/h) or more.

NOTE: Drive the vehicle on the road, not on a lift.

16. Check for DTCs with the HDS.

Is DTC 108-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting.■

(cont'd)

VSA System Components

DTC Troubleshooting (cont'd)

DTC 121-11: VSA Solenoid Valve Malfunction

DTC 122-11: VSA Solenoid Valve Malfunction

DTC 123-11: VSA Solenoid Valve Malfunction

DTC 124-11: VSA Solenoid Valve Malfunction

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Turn the ignition switch to ON (II).
2. Clear the DTC with the HDS.
3. Turn the ignition switch to LOCK (0) and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC 121-11, 122-11, 123-11, or 124-11 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■

5. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
6. Turn the ignition switch to LOCK (0) and then back to ON (II).
7. Check for DTCs with the HDS.

Is DTC 121-11, 122-11, 123-11, or 124-11 indicated?

YES—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256). ■

NO—If the VSA modulator-control unit was updated, troubleshooting is complete. If any other DTCs are indicated, go to the indicated DTCs troubleshooting. ■

DTC 158-01: ECU Software Update Failure

NOTE: Before you troubleshoot, record all freeze data and any on-board snapshot, and review the general troubleshooting information (see page 19-178).

1. Update the VSA modulator-control unit (see page 19-255).
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Check for DTCs with the HDS.

Is DTC 158-01 indicated?

YES—Replace the VSA modulator-control unit (see page 19-256). ■

NO—Intermittent failure, the system is OK at this time. Refer to intermittent failures troubleshooting (see page 19-179). ■



Symptom Troubleshooting

VSA cannot be turned OFF

NOTE: If the low tire pressure indicator turns ON, the VSA cannot be turned OFF. Check the tire pressure first.

1. Turn the ignition switch to LOCK (0).
2. Check the VSA OFF switch (see page 19-254).

Is the VSA OFF switch OK?

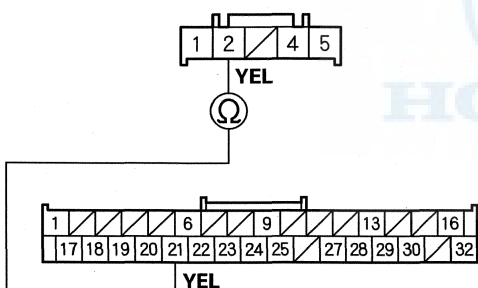
YES—Go to step 3.

NO—Replace the VSA OFF switch (see page 19-254). ■

3. Disconnect the VSA OFF switch 5P connector (see page 19-254).
4. Disconnect the gauge control module 32P connector (see page 22-294).
5. Check for continuity between gauge control module 32P connector terminal No. 21 and VSA OFF switch 5P connector terminal No. 2.

VSA OFF SWITCH 5P CONNECTOR

Wire side of female terminals



GAUGE CONTROL MODULE 32P CONNECTOR

Wire side of female terminals

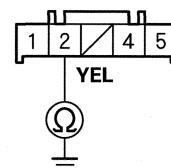
Is there continuity?

YES—Go to step 6.

NO—Repair an open in the wire between the gauge control module and the VSA OFF switch. ■

6. Check for continuity between VSA OFF switch 5P connector terminal No. 2 and body ground.

VSA OFF SWITCH 5P CONNECTOR



Wire side of female terminals

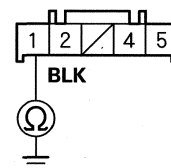
Is there continuity?

YES—Repair a short to body ground in the wire between the gauge control module and the VSA OFF switch. ■

NO—Go to step 7.

7. Check for continuity between VSA OFF switch 5P connector terminal No. 1 and body ground.

VSA OFF SWITCH 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good gauge control module (see page 22-294), and recheck. If it is OK, replace the original gauge control module (see page 22-294). ■

NO—Repair an open in the wire between the VSA OFF switch and body ground (G501). ■

(cont'd)

VSA System Components

Symptom Troubleshooting (cont'd)

ABS indicator, brake system indicator, and VSA indicator do not go off

1. Turn the ignition switch to LOCK (0).
2. Check the No. 11 (7.5 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Replace the fuse. Turn the ignition switch to ON (II), then turn it to LOCK (0) again. If the fuse blows again, repair the short to ground on the No. 11 (7.5A) fuse circuit. ■

NO—Reinstall the checked fuse, then go to step 3.

3. Check the No. 37 (30 A) fuse in the under-dash fuse/relay box.

Is the fuse blown?

YES—Replace the fuse. Turn the ignition switch to ON (II), then turn it to LOCK (0) again. If the fuse blows again, repair the short to ground on the No. 37 (30 A) fuse circuit. ■

NO—Reinstall the checked fuse, then go to step 4.

4. Do the gauge control module self-diagnostic function (see page 22-294).

Is the gauge control module OK?

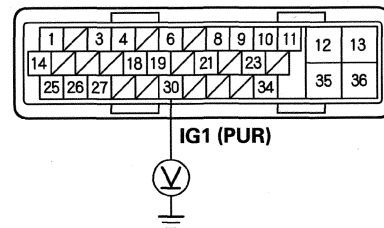
YES—Go to step 5.

NO—Substitute a known-good gauge control module (see page 22-294), and recheck. If it is OK, Replace the original gauge control module (see page 22-294). ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the VSA modulator-control unit 36P connector (see step 3 on page 19-256).
7. Turn the ignition switch to ON (II).

8. Measure the voltage between VSA modulator-control unit 36P connector terminal No. 30 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

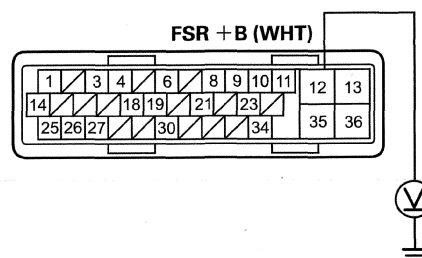
Is there battery voltage?

YES—Go to step 9.

NO—Repair an open in the wire between the No. 11 (7.5 A) fuse in the under-dash fuse/relay box and the VSA modulator-control unit. ■

9. Turn the ignition switch to LOCK (0).
10. Measure the voltage between VSA modulator-control unit 36P connector terminal No. 12 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

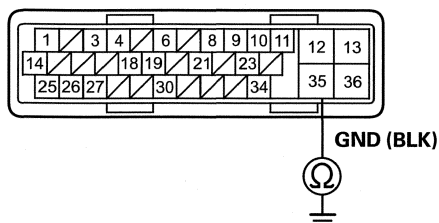
Is there battery voltage?

YES—Go to step 11.

NO—Repair an open in the wire between the No. 37 (30 A) fuse in the under-dash fuse/relay box and the VSA modulator-control unit. ■

11. Check for continuity between VSA modulator-control unit 36P connector terminal No. 35 and body ground.

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair an open in the wire between the VSA modulator-control unit and body ground (G202).■

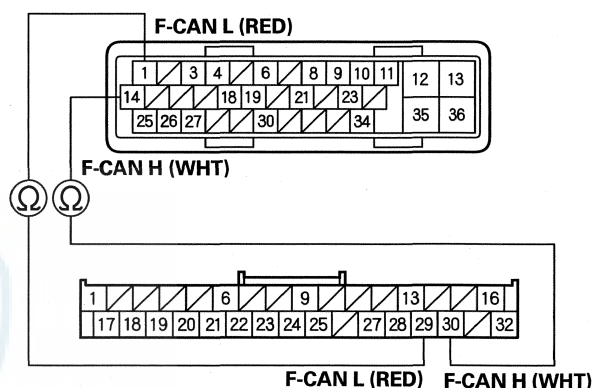
12. Disconnect the gauge control module 32P connector (see page 22-294).

13. Check for continuity between the VSA modulator-control unit 36P connector terminal and the gauge control module 32P connector terminal (see table).

Sign	VSA Modulator-Control Unit 36P Connector Terminal	Gauge Control Module 32P Connector Terminal
F-CAN L	No. 1	No. 29
F-CAN H	No. 14	No. 30

VSA MODULATOR-CONTROL UNIT 36P CONNECTOR

Wire side of female terminals



GAUGE CONTROL MODULE 32P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Go to step 14.

NO—Repair an open in the wire between the gauge control module and the VSA modulator-control unit.■

14. Reconnect all connectors.
15. Update the VSA modulator-control unit if it does not have the latest software (see page 19-255).
16. Turn the ignition switch to LOCK (0) and then back to ON (II).
17. Check the ABS indicator, the brake system indicator, and the VSA indicator for several seconds when the ignition switch is turned ON (II).

Do the indicators come on then go off?

YES—If the VSA modulator-control unit was updated, troubleshooting is complete.■

NO—Check for loose terminals in the VSA modulator-control unit 36P connector. If the VSA modulator-control unit was updated and the symptom/indication is still present, replace the VSA modulator-control unit (see page 19-256).■

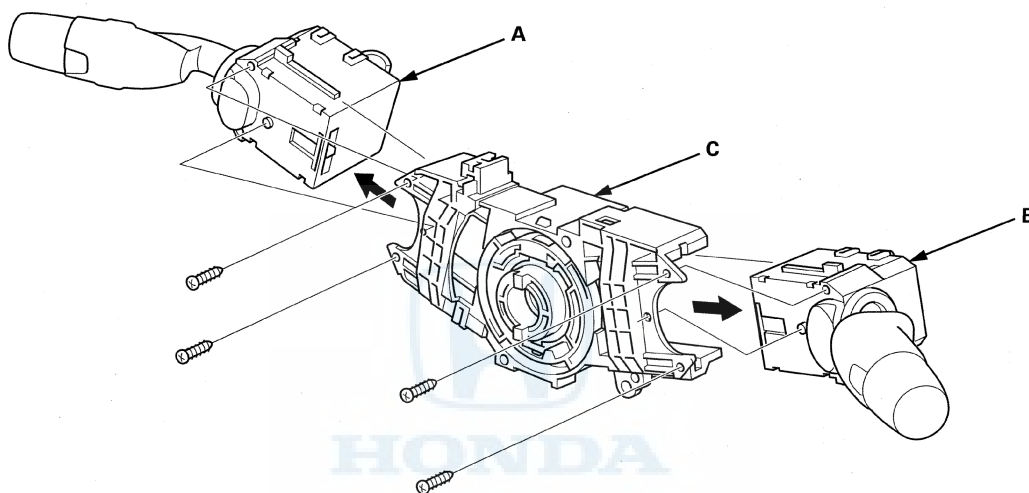
VSA System Components

Steering Angle Sensor Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15).

NOTE: Do not damage or drop the combination switch as the steering angle sensor is sensitive to shock and vibration.

1. With the wheels in the straight ahead position and the steering wheel centered, remove the steering wheel (see page 17-6).
2. Remove the steering column covers (see page 20-105) and the cable reel (see page 24-186).
3. Remove the combination switch assembly (see page 22-198).
4. Remove the combination light switch (A) and the wiper/washer switch (B) from the combination switch body assembly (C).



5. Install the combination switch body assembly in the reverse order of removal.

NOTE:

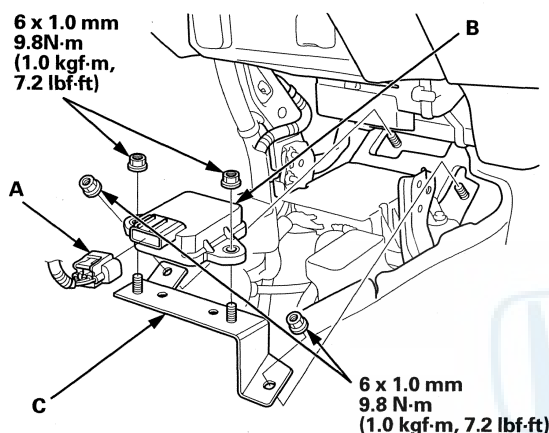
- Do not remove the steering angle sensor from the combination switch body.
- When installing the cable reel, set the turn signal canceling sleeve position so that the arrow points straight up (see page 24-187).
- Tighten the combination switch assembly/cable reel mounting screw in the proper sequence (see page 17-12).

Yaw Rate-Lateral Acceleration Sensor Replacement

NOTE:

- Do not damage or drop the sensor as it is sensitive.
- Do not use power tools when replacing the sensor.

1. Turn the ignition switch to LOCK (0).
2. Remove the center console (see page 20-93).
3. Disconnect the yaw rate-lateral acceleration sensor 5P connector (A), then remove the yaw rate-lateral acceleration sensor (B).

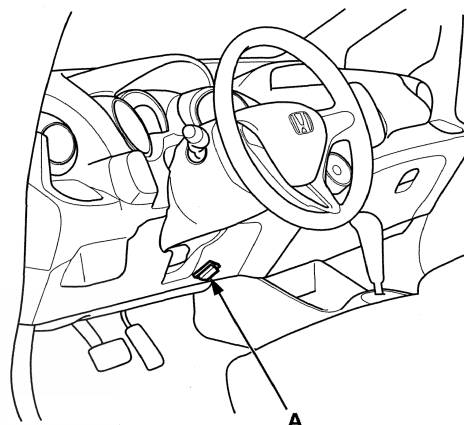


4. Check for deformation in the bracket (C). If necessary replace it.
5. Install the yaw rate-lateral acceleration sensor in the reverse order of removal.
6. Do the VSA sensor neutral position memorization (see page 19-253).

VSA Sensor Neutral Position Memorization

NOTE: Do not press the brake pedal during this procedure.

1. Park the vehicle on a flat and level surface, with the steering wheel in the straight ahead position.
2. With the ignition switch in LOCK (0), connect the HDS to the data link connector (DLC) (A) under the driver's side of the dashboard.



3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it does not, troubleshoot the DLC circuit (see page 11-193).
5. Select VSA ADJUSTMENT, then select ALL SENSORS with the HDS, and follow the screen prompts.

NOTE: See the HDS Help menu for specific instructions.

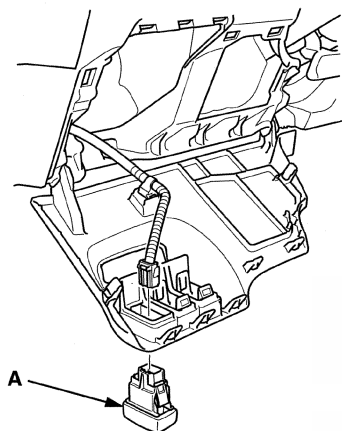
6. Turn the ignition switch to LOCK (0).

VSA System Components

VSA Off Switch Test/Replacement

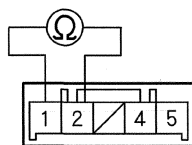
NOTE: If the low tire pressure indicator turns ON, the VSA cannot be turned OFF. Check the tire pressure first.

1. Turn the ignition switch to LOCK (0).
2. Remove the driver's dashboard lower cover (see page 20-97).
3. Push out the VSA OFF switch (A) from the driver's dashboard lower cover.



4. On the switch side, check for continuity between VSA OFF switch 5P connector terminals No. 1 and No. 2. There should be continuity when the button is released, and no continuity when the button is pressed.

VSA OFF SWITCH 5P CONNECTOR

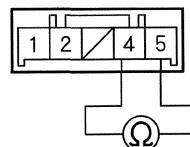


Terminal side of male terminals

Terminal	1	2
Position		
RELEASED	○	○
PRESSED		

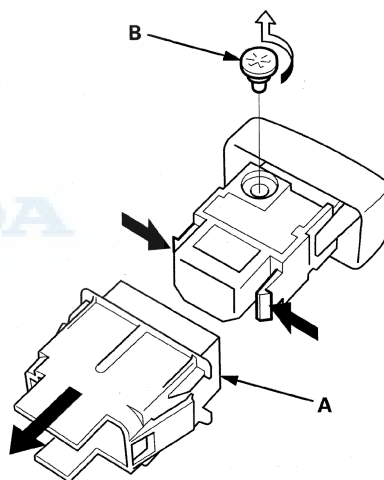
5. On the switch side, check for continuity between VSA OFF switch 5P connector terminals No. 4 and No. 5. There should be continuity at all times.

VSA OFF SWITCH 5P CONNECTOR



Terminal side of male terminals

6. If the continuity is not as specified, remove the cover (A), and replace the bulb (B).



7. Install the VSA OFF switch in the reverse order of removal.

VSA Modulator-Control Unit Update

Special Tools Required

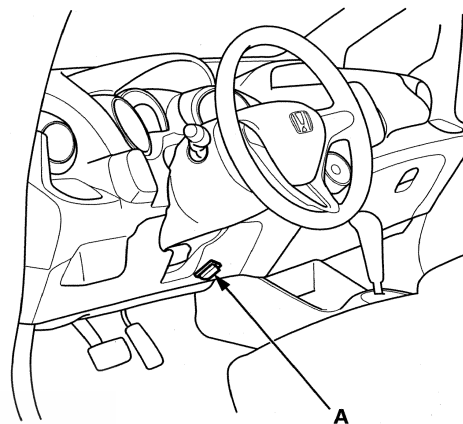
- Honda Interface Module (HIM)
- Honda Diagnostic System (HDS)
- HDS Pocket Tester
- MVCI unit with the latest control module (CM) update software installed

Use any one of these update tools.

NOTE:

- Use this procedure when you need to update the VSA modulator-control unit at anytime.
- Make sure the HDS/HIM has the latest software version.
- Before you update the VSA modulator-control unit, make sure the battery in the vehicle is fully charged, and connect a jumper battery (not a battery charger) to maintain system voltage.
- Never turn the ignition switch to LOCK (0) or ACCESSORY (I) during the update. If there is a problem with the update, leave the ignition switch ON (II).
- To prevent VSA modulator-control unit damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, door locks, etc.) during the update.
- To ensure the latest program is installed, do a VSA modulator-control unit update whenever the VSA modulator-control unit is substituted or replaced.
- You cannot update a VSA modulator-control unit with a program it already has. It will only accept a new program.
- High temperature in the engine compartment might cause the VSA modulator-control unit to become too hot to run the update. If the engine has been running before this procedure, open the hood and cool the engine compartment.
- If you need to diagnose the Honda interface module (HIM) because the HIM's red (#3) light came on or was flashing during the update, leave the ignition switch ON (II) when you disconnect the HIM from the data link connector (DLC). This will prevent VSA modulator-control unit damage.
- DTCs stored in memory are cleared when the VSA modulator-control unit is updated.

1. Turn the ignition switch to ON (II), but do not start the engine.
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Make sure the HDS communicates with the vehicle and the VSA modulator-control unit. If it does not, troubleshoot the DLC circuit (see page 11-193).
4. Select the update mode, and follow the screen prompts to update the VSA modulator-control unit.
5. If the software in the VSA modulator-control unit is the latest, disconnect the HDS/HIM from the DLC. If the software in the VSA modulator-control unit is not the latest, follow the instructions on the screen.
6. Do the VSA sensor neutral position memorization procedure (see page 19-253).

VSA System Components

VSA Modulator-Control Unit Removal and Installation

NOTICE

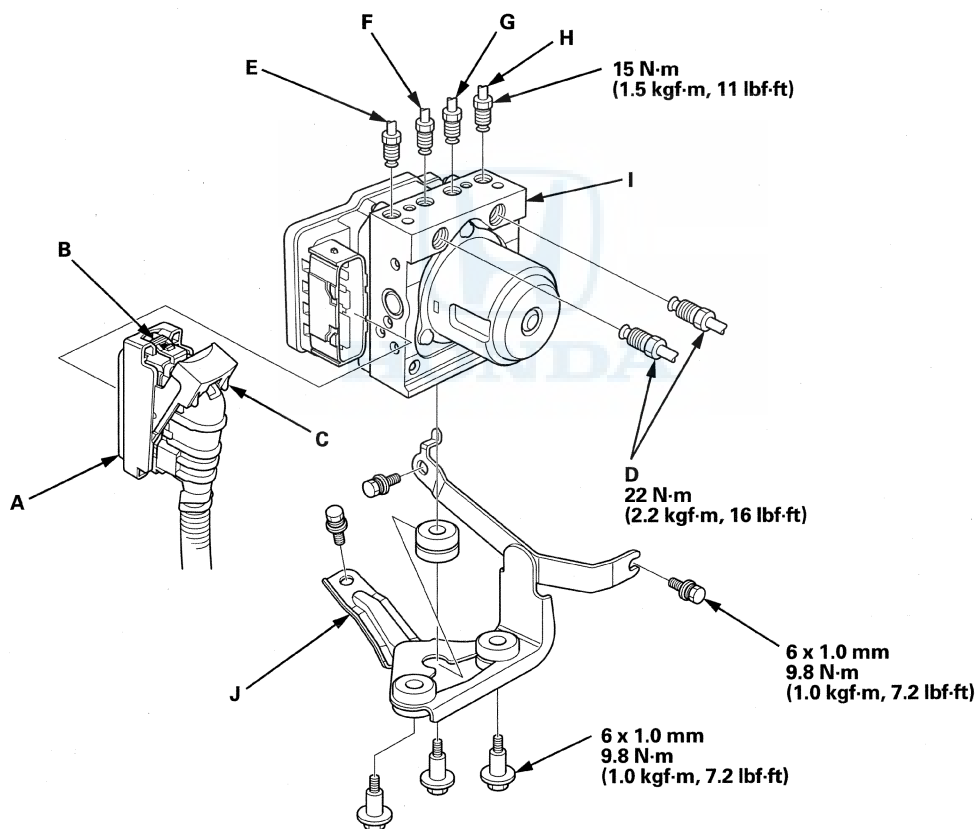
Do not spill brake fluid on the vehicle; it may damage the paint. If brake fluid gets on the paint, wash it off immediately with water.

NOTE:

- Be careful not to damage or deform the brake lines during removal and installation.
- To prevent the brake fluid from dripping, plug and cover the hose ends and joints with a shop towel.

Removal

1. Turn the ignition switch to LOCK (0).
2. Remove the washer reservoir (see page 22-264).
3. Disconnect the VSA modulator-control unit 36P connector (A) by pushing the lock (B) and pulling down the lever (C); the connector disconnects itself.



4. Disconnect the six brake lines from the VSA modulator-control unit.

NOTE: Brake lines are connected to the master cylinder (D) and to the left-rear (E), the right-front (F), the left-front (G), and the right-rear (H) brake systems.

5. Remove the VSA modulator-control unit (I) with the bracket (J) from the body.
6. Remove the VSA modulator-control unit from the bracket.



Installation

1. Install the VSA modulator-control unit onto the bracket.
2. Install the bracket with the VSA modulator-control unit to the body.
3. Reconnect the six brake lines, then tighten the flare nuts to the specified torque.
4. Align the connecting surface of the VSA modulator-control unit 36P connector to the VSA modulator-control unit.
5. Pull up the lever of the VSA modulator-control unit 36P connector, then confirm the connector is fully seated.
6. Install the washer reservoir (see page 22-264).
7. Bleed the brake system (see page 19-8).
8. Do the VSA modulator-control unit update (see page 19-255).
9. Do the VSA sensor neutral position memorization procedure (see page 19-253).

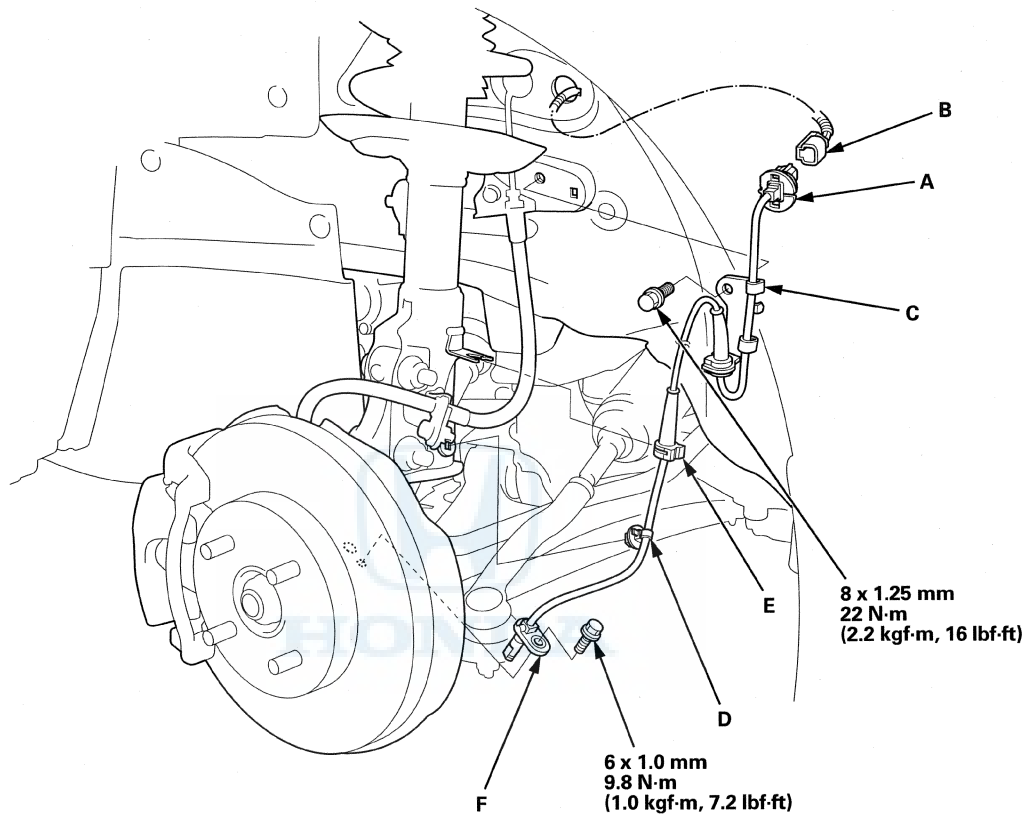


VSA System Components

Wheel Speed Sensor Replacement

Front

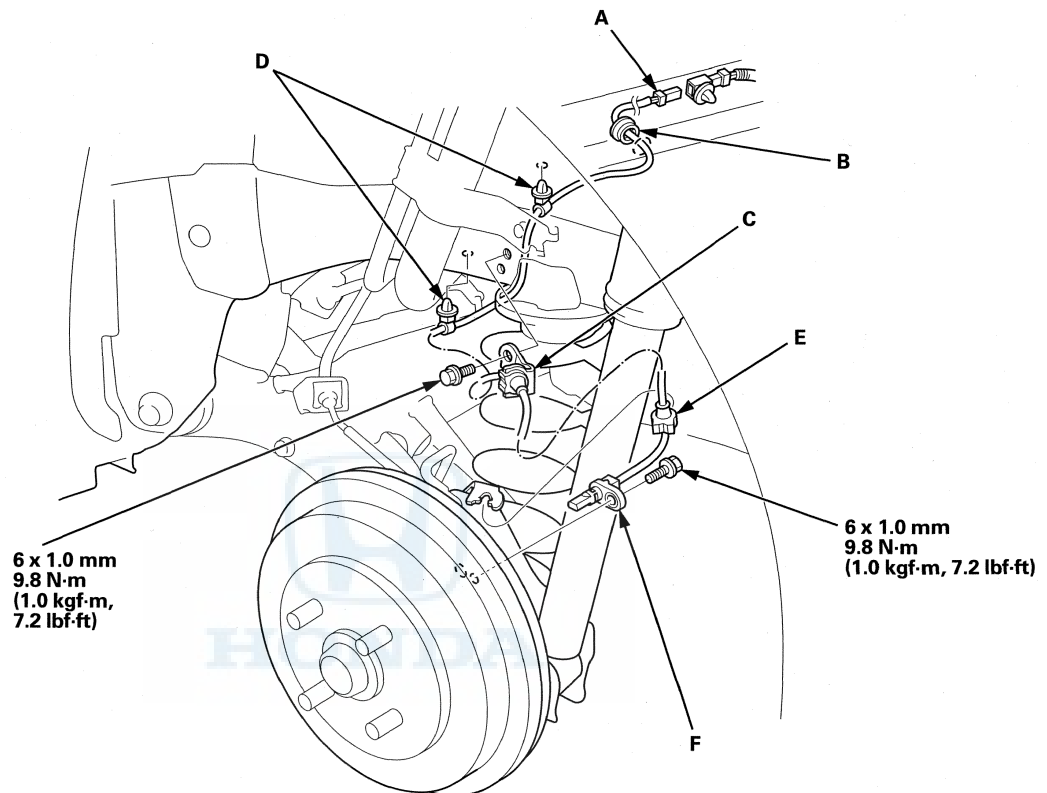
1. Turn the ignition switch to LOCK (0).
2. Remove the grommet (A), then disconnect the wheel speed sensor connector (B).



3. Remove the bracket (C), the clip (D), and the wire guide rubber (E).
4. Remove the bolt and the wheel speed sensor (F).
5. Install the wheel speed sensor in the reverse order of removal, and note these items:
 - Do not twist the sensor wires.
 - If the wheel speed sensor comes in contact with the wheel bearing, it is faulty.
 - Make sure the grommet is installed properly.
 - Make sure there is no debris in the sensor mounting hole.

Rear

1. Turn the ignition switch to LOCK (0).
2. Pull back the carpet under the rear seat, then disconnect the wheel speed sensor connector (A).



3. Remove the grommet (B), the bracket (C), the clips (D), and the wire guide rubber (E).
4. Remove the bolt and the wheel speed sensor (F).
5. Install the wheel speed sensor in the reverse order of removal, and note these items:
 - Do not twist the sensor wires.
 - If the wheel speed sensor comes in contact with the hub bearing unit, it is faulty.
 - Make sure the grommet is installed properly.
 - Make sure there is no debris in the sensor mounting hole.

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If body maintenance is required)

The Fit SRS includes a driver's airbag in the steering wheel hub, a front passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags, side airbags, side curtain airbags, and/or seat belt tensioners.
- Do not bump or impact the SRS unit, front impact sensors, or side impact sensors, especially when the ignition switch is in ON (II), or for at least 3 minutes after the ignition switch is turned to LOCK (0); otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, center console, dashboard, dashboard under cover, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.



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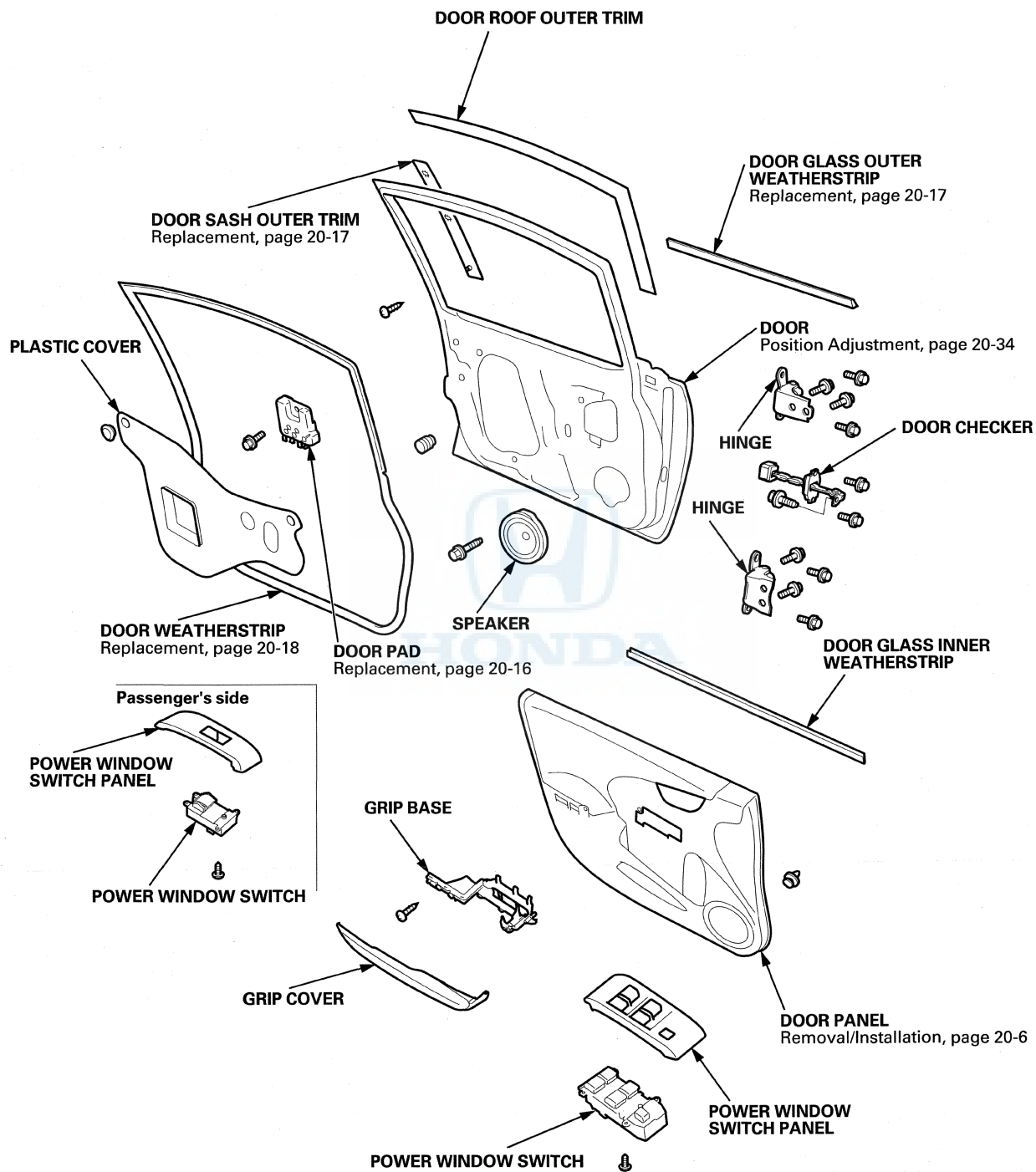
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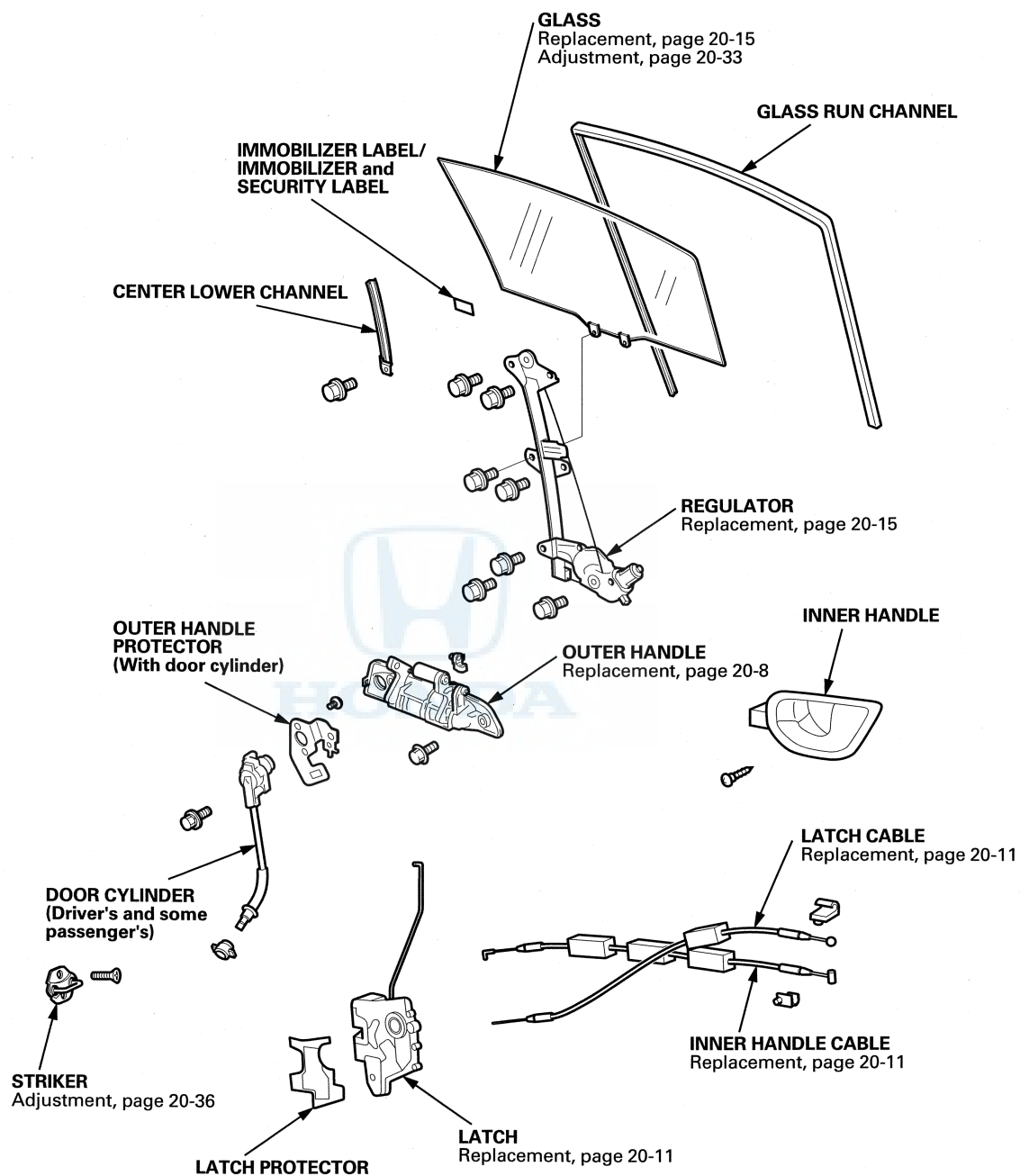
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Doors

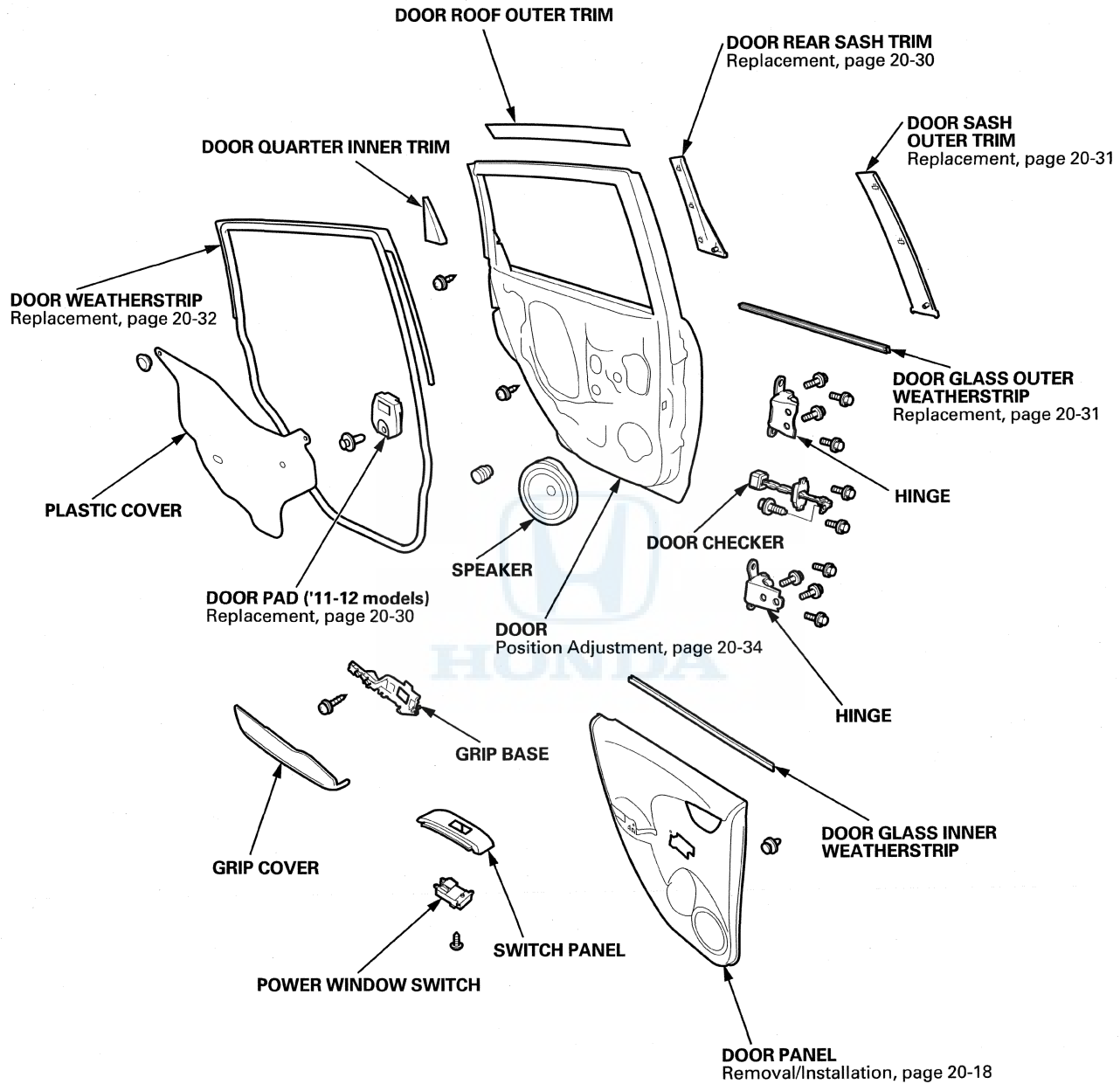
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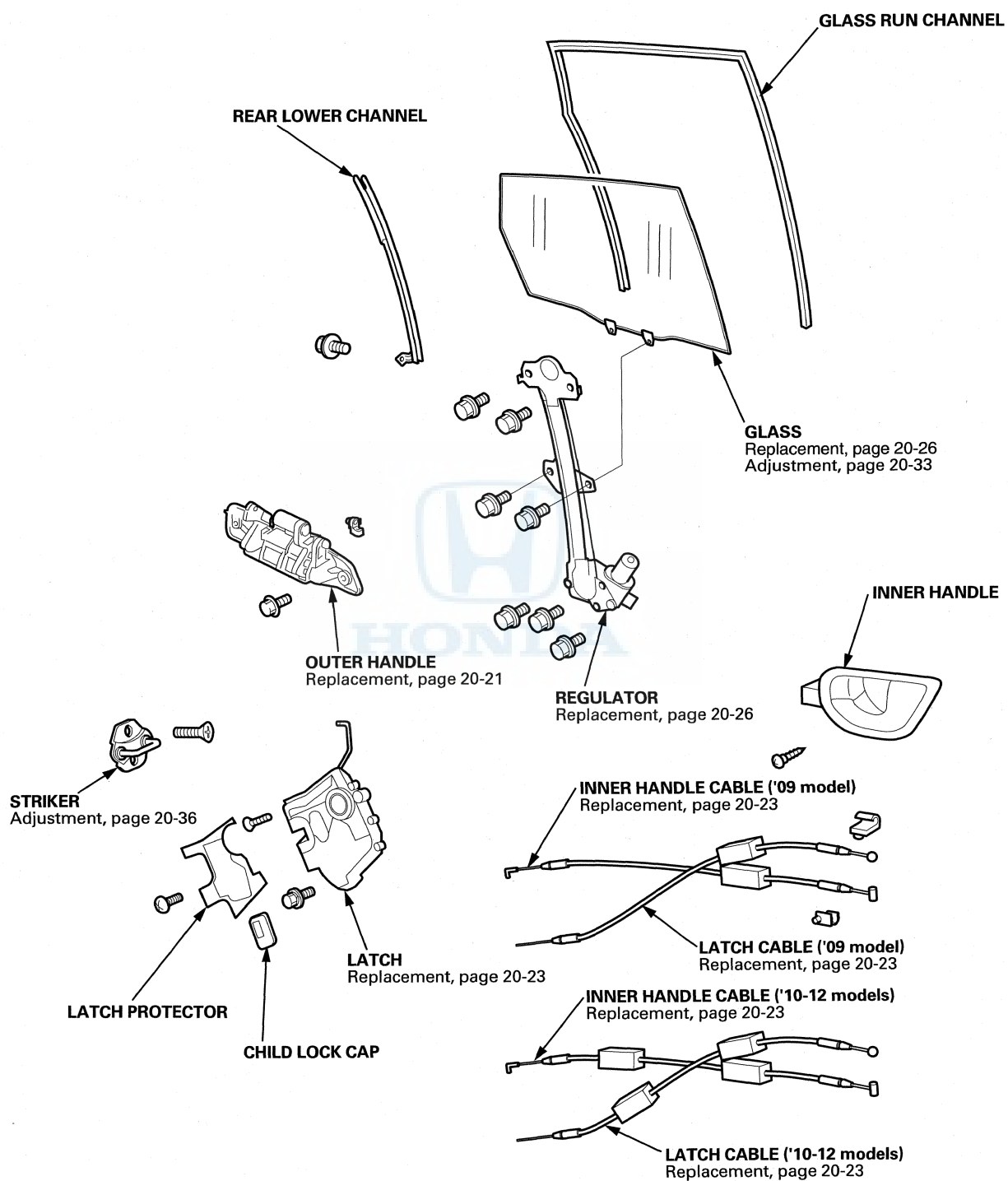




Doors

Component Location Index - Rear Door





Doors

Front Door Panel Removal/Installation

Special Tools Required

- KTC Trim Tool Set SOJATP2014*
- Trim Pad Remover, Snap-on A 177A or equivalent, commercially available

*Available through the Honda Tool and Equipment Program; call 888-424-6857

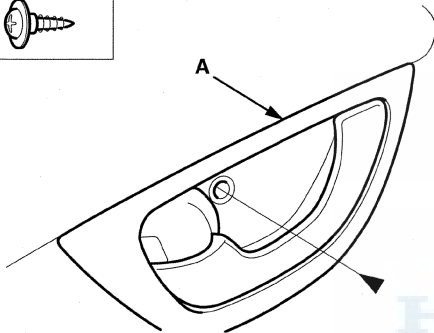
NOTE:

- Take care not to scratch the door or related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the screw securing the inner handle (A).

Fastener Location

► : Screw, 1

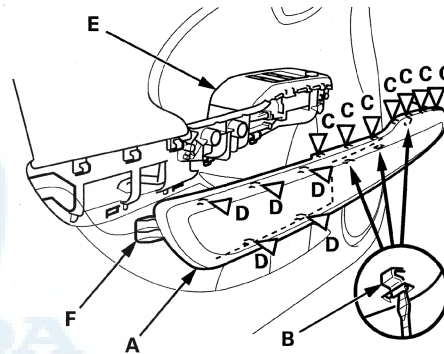


2. Remove the grip cover (A).

- 1. Pry out the front bottom edge of the cover, using a flat-tip screwdriver wrapped with protective tape, while pushing up the hooks (B).
- 2. From front to rear, pry out along the edge of the cover to release the hooks (C, D) from the power window switch panel (E).
- 3. Release the rear hook (F) by pulling the cover forward.

Fastener Locations

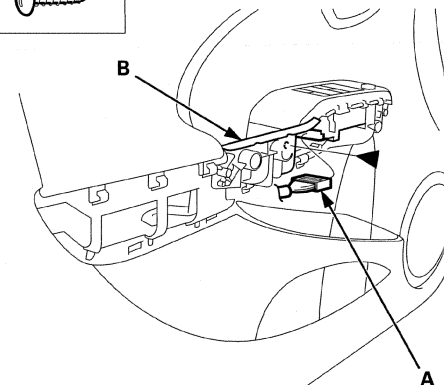
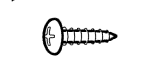
C ► : Hook, 7 D ► : Hook, 5



3. Disconnect the power window switch connector (A). Remove the screw from the grip base (B).

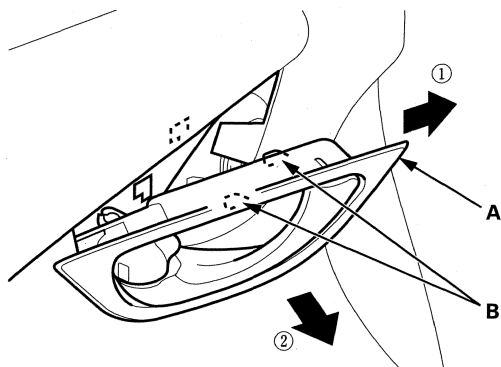
Fastener Location

► : Screw, 1

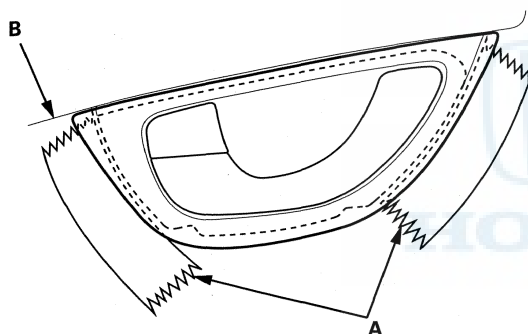




4. Pull the inner handle (A) forward and out half-way to release the hooks (B).



5. Apply protective tape (A) to the door panel (B) as shown.

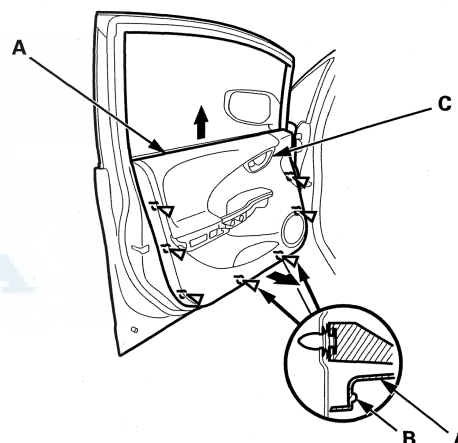
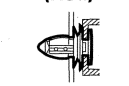


6. Remove the door panel (A) with as little bending as possible to avoid creasing or breaking it.

- 1. Start at the bottom edge of the door panel, release the clips that are just above the marks (B) on the edge of the panel with a commercially available trim pad remover.
 - 2. Detach the upper clips.
 - 3. Starting at the rear, pull the door panel upward.
- NOTE: Do not pull the door panel up too far, or the door panel will be damaged by the inner handle (C).

Fastener Locations

▷ : Clip, 7 (Red)

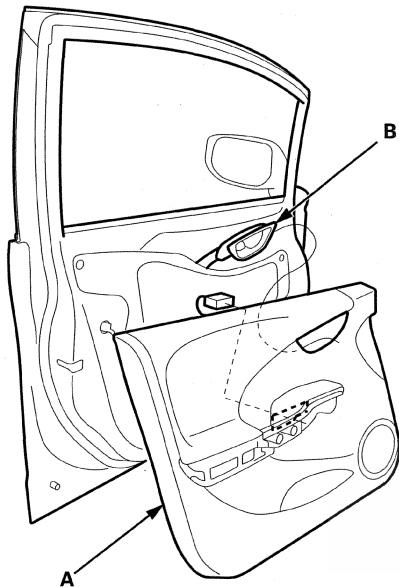


(cont'd)

Doors

Front Door Panel Removal/Installation (cont'd)

7. Remove the door panel (A) while pulling the inner handle (B) out through the hole in the door panel.



8. Install the door panel in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Make sure the power window switch connector is plugged in properly.
- When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.

Front Door Outer Handle Replacement

Special Tools Required

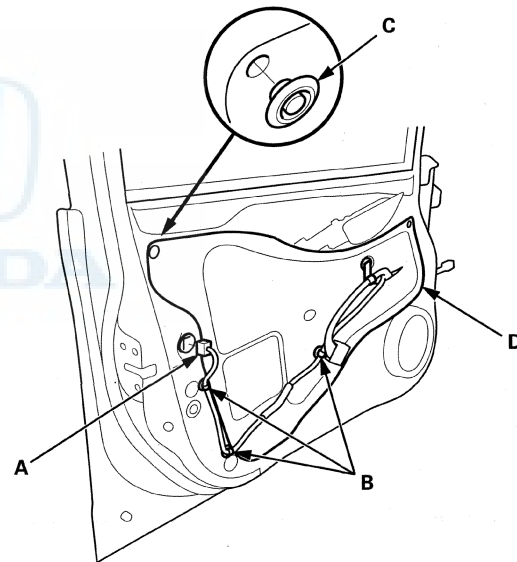
KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door or related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the door panel (see page 20-6).
2. Raise the glass fully.
3. With power door lock: Disconnect the power door lock actuator connector (A), and detach the harness clips (B).

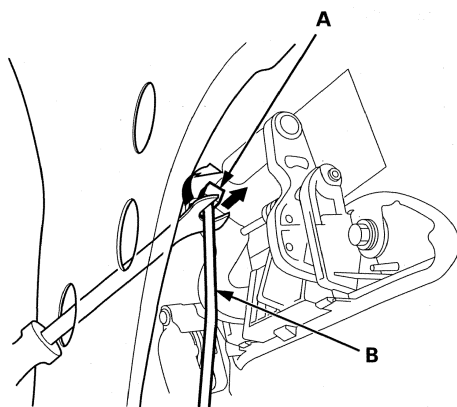


4. Remove the rear plug cap (C), then remove the plastic cover (D) as needed.

NOTE: If the plastic cover is damaged or torn, replace it.



5. Detach the rod fastener (A), then disconnect the outer handle rod (B) with a clip remover.



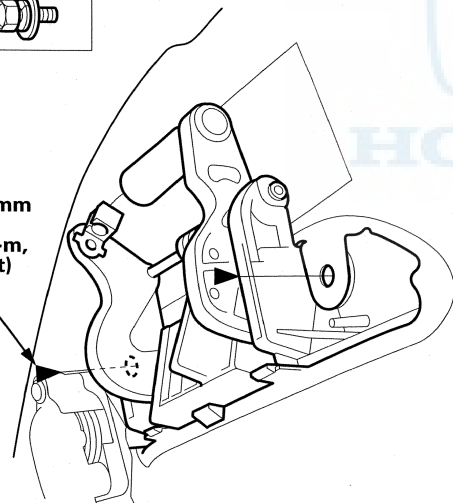
6. Remove the bolts.

Fastener Locations

▶ : Bolt, 2



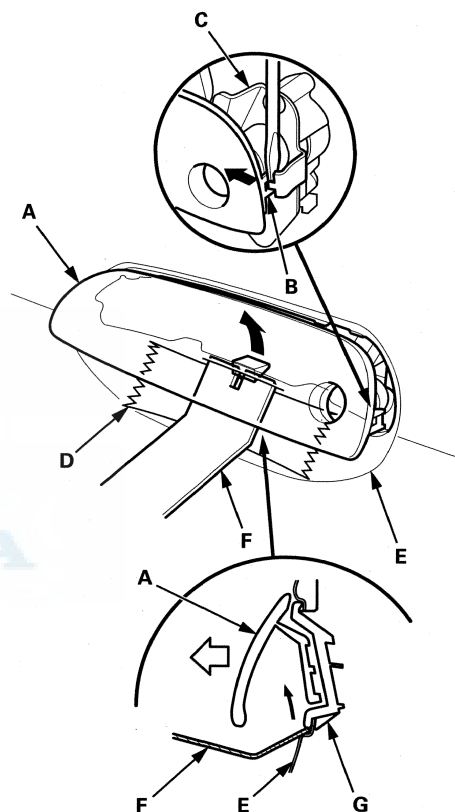
6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)



7. Remove the outer handle (A).

- 1. With door cylinder: Release the hook (B) of the outer handle protector (C).
- 2. Apply protective tape (D) to the door (E) as shown.
- 3. Pry out the outer handle with the appropriate trim tool (F) to release the hook (G), then remove it.

NOTE: Take care not to scratch the door.

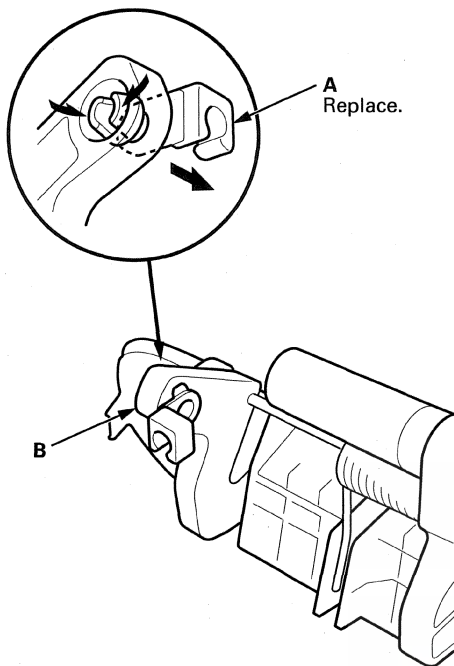


(cont'd)

Doors

Front Door Outer Handle Replacement (cont'd)

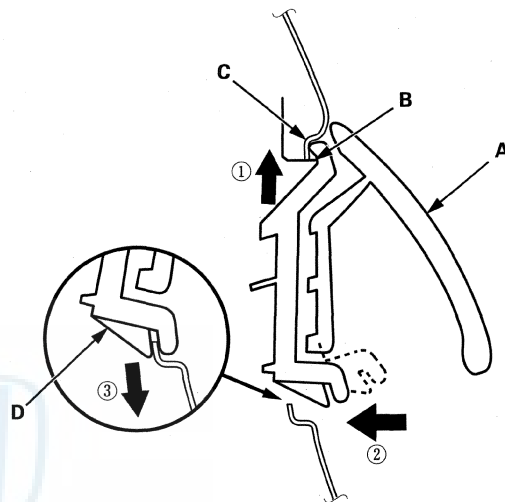
8. Remove the rod fastener (A) from the outer handle (B), then replace it with a new one.



9. Install the handle (A) in the following order.

- 1. Set the upper portion (B) of the handle to the edge (C) of the door handle opening.
- 2. While pulling up the handle, push the lower hook (D) into place.

NOTE: Push the hook into place securely.



10. Install the removed parts in the reverse order of removal, and note these items:

- Make sure that the actuator connector is plugged in properly, and that the outer handle rod is connected securely.
- Make sure the door handle works properly.
- When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.



Front Door Latch Replacement

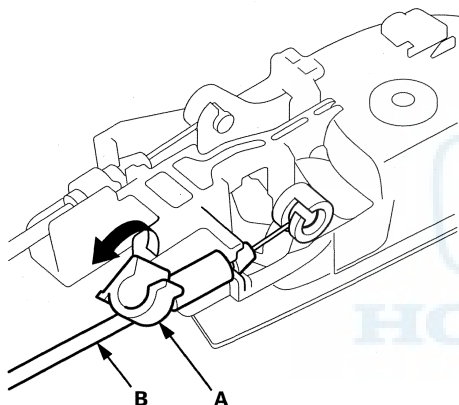
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door or related parts.

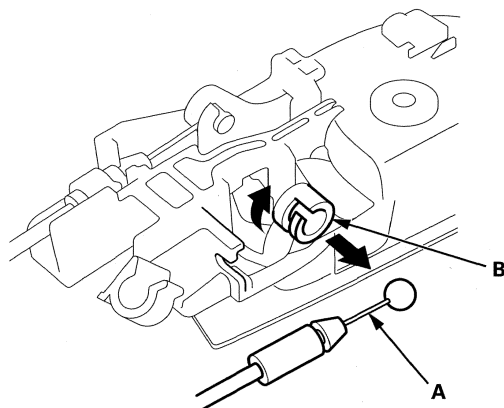
1. Raise the glass fully.
2. Remove the door panel (see page 20-6).
3. Disconnect the power door lock actuator connector, and detach the harness clips (see step 3 on page 20-8).
4. Remove the plastic cover, as needed (see step 4 on page 20-8).

Inner handle removal

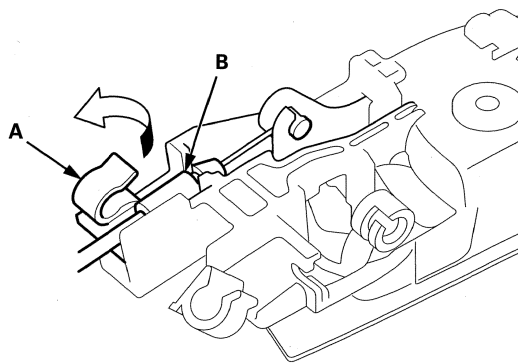
5. Detach the latch cable fastener (A) from the latch cable (B).



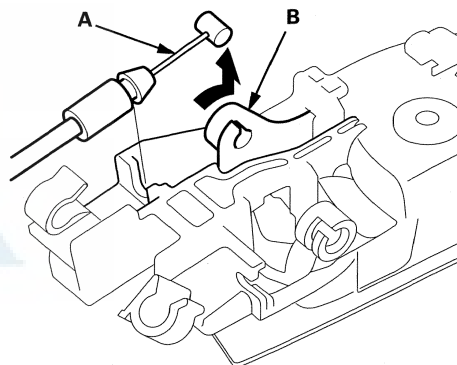
6. Disconnect the latch cable (A) from the lock knob (B).



7. Detach the inner handle cable fastener (A) from the inner handle cable (B).



8. Disconnect the inner handle cable (A) from the inner handle assembly (B).



(cont'd)

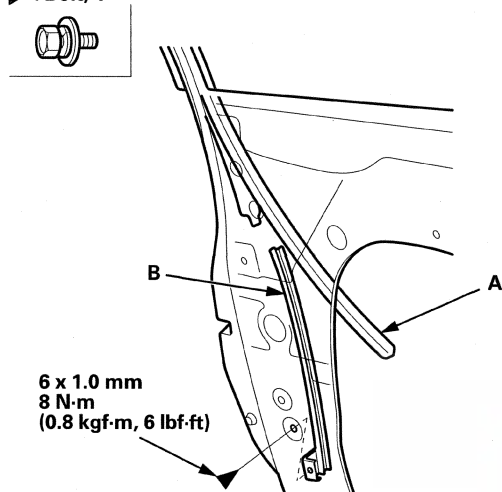
Doors

Front Door Latch Replacement (cont'd)

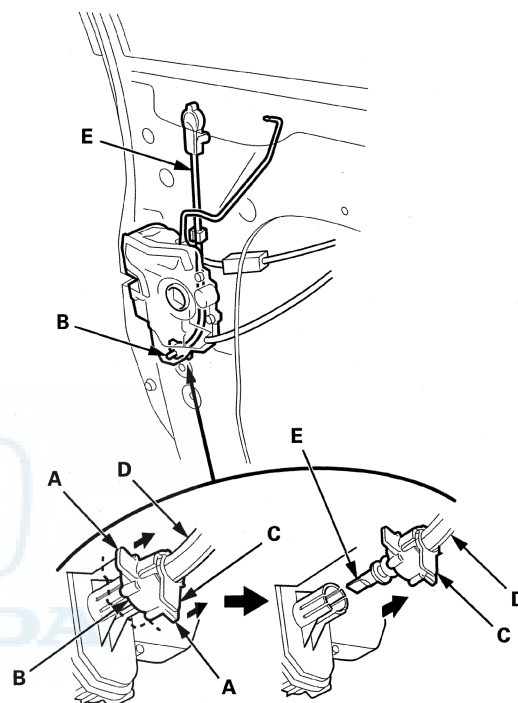
9. Pull the glass run channel (A) away as needed, and remove the bolt, then remove the center lower channel (B).

Fastener Location

► : Bolt, 1



10. Driver's door and passenger's door with door cylinder: Pull both side flanges (A) of the retainer (B) outward, and pull the middle flange portion (C) of the outer casing cover (D) out, then disconnect the cylinder cable (E) from the latch.

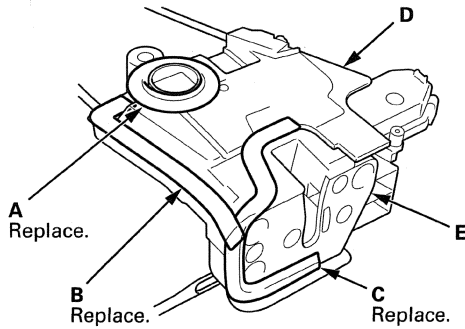


Doors

Front Door Latch Replacement (cont'd)

Cable replacement

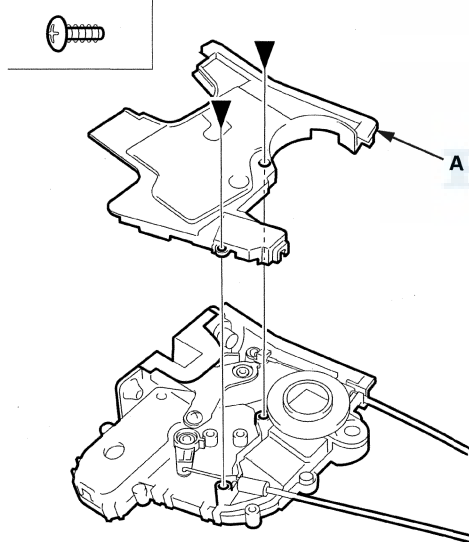
14. Remove the foam seals (A, B, C) from the latch protector (D) and the latch (E).



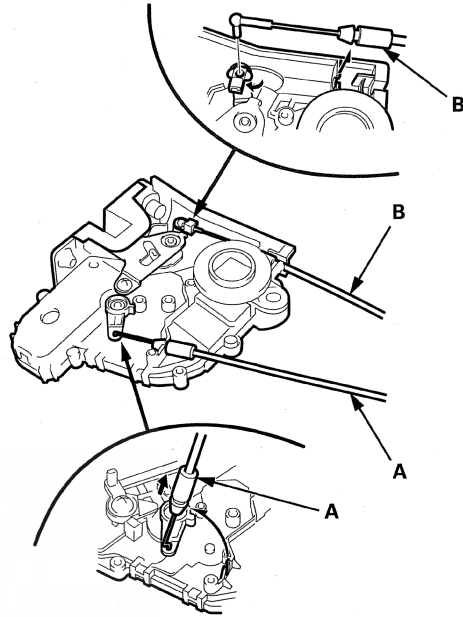
15. Remove the screws, then remove the latch protector (A).

Fastener Locations

► : Screw, 2



16. Disconnect the latch cable (A) and the inner handle cable (B).



17. Install the cables and the latch in the reverse order of removal, and note these items:

- Before reinstalling the latch protector, clean the latch and the latch protector surfaces with isopropyl alcohol where the new foam seals will be attached.
- After reinstalling the latch protector to the latch, attach the new foam seals to the protector and the latch.
- Make sure the latch cable and the inner handle cable are connected securely.
- Make sure that the actuator connector is plugged in properly, and that the outer handle rod and the cables are connected securely.
- Make sure the door locks and opens properly.
- When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.



Front Door Glass and Regulator Replacement

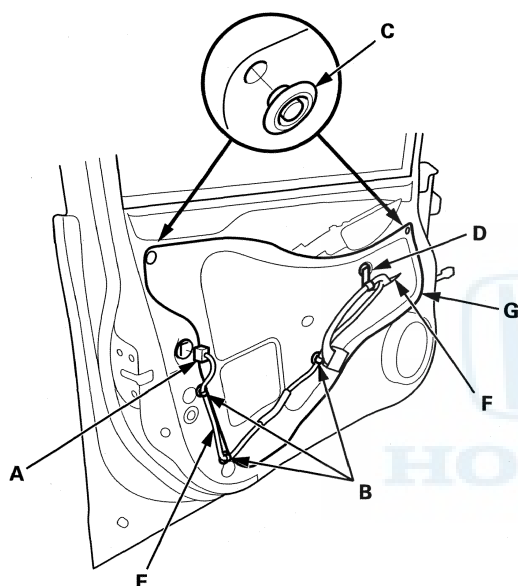
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door or related parts.

1. Remove the these items:

- Door panel (see page 20-6)
- Speaker (see page 23-70)

2. With power door lock: Disconnect the power door lock actuator connector (A), and detach the harness clips (B).



3. Remove the plug caps (C), and detach the harness clip (D). Pass the wire harnesses (E) through the slit (F) in the plastic cover (G), then remove the plastic cover.

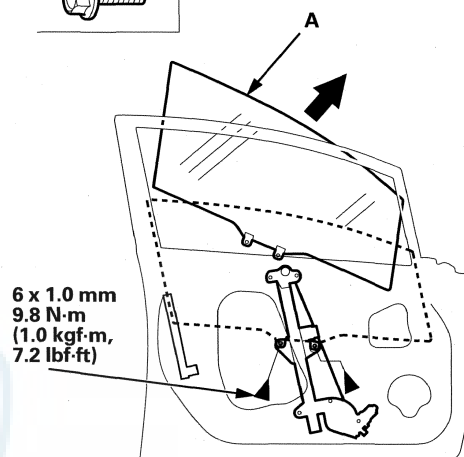
NOTE: If the plastic cover is damaged or torn, replace it.

4. Carefully raise the glass (A) until you can see the bolts, then remove them. Carefully pull the glass out through the window slot.

NOTE: Take care not to drop the glass inside the door.

Fastener Locations

► : Bolt, 2

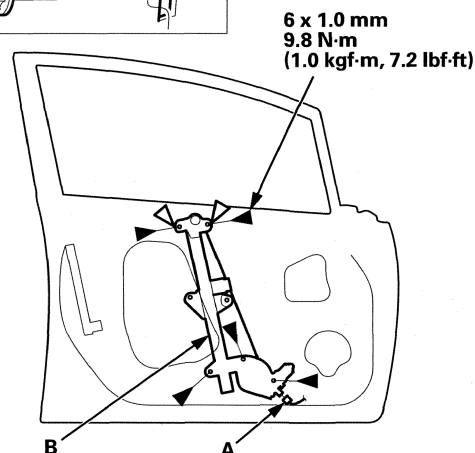
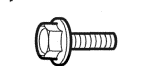


5. Disconnect the connector (A) from the regulator (B).

Fastener Locations

► : Bolt, 5

▷ : Hook, 2



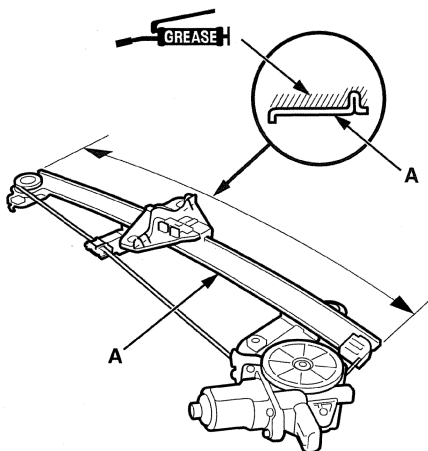
6. Remove the bolts, and release the hooks, then remove the regulator through the hole in the door.

(cont'd)

Doors

Front Door Glass and Regulator Replacement (cont'd)

7. Apply multipurpose grease to all the sliding surfaces of the regulator (A) where shown.



8. Install the glass and regulator in the reverse order of removal, and note these items:

- Move the glass up and down to make sure it moves freely without binding.
- Make sure that there is no clearance between the glass and glass run channel when the glass is closed.
- Adjust the position of the glass as necessary (see page 20-33).
- Driver's door: Do the power window control unit reset procedure (see page 22-231).
- When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
- Check for water leaks (see step 8 on page 20-34).
- Test-drive, and check for wind noise and rattles.
- Make sure the power door locks, the windows, and the power mirror operate properly.

Front Door Pad Replacement

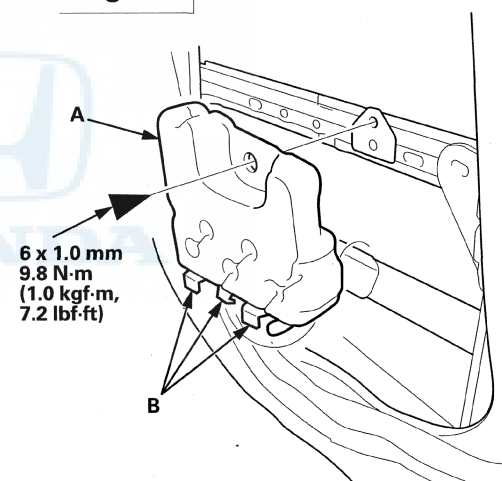
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door.

1. Remove the door panel (see page 20-6).
2. Disconnect the power door lock actuator connector, and detach the harness clips (see step 3 on page 20-8).
3. Remove the plastic cover, as needed (see step 4 on page 20-8).
4. Raise the glass fully.
5. Remove the bolt securing the pad (A), and release the hooks (B), then remove it.

Fastener Location

► : Bolt, 1



6. Install the pad in the reverse order of removal.

When installing the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.



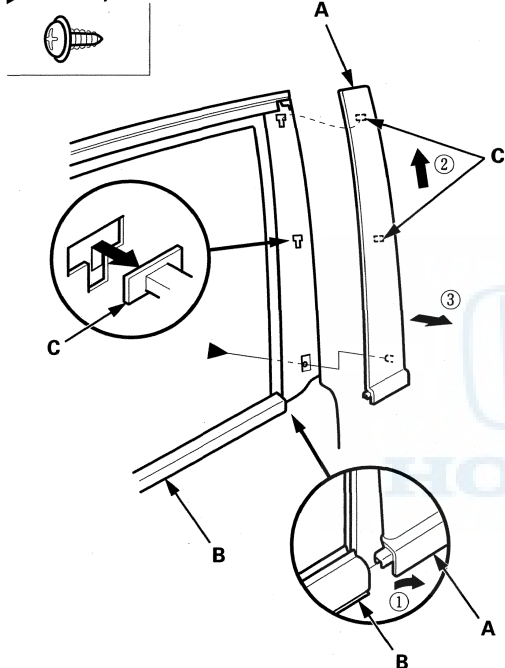
Front Door Sash Outer Trim Replacement

NOTE: Take care not to scratch the door or related parts.

1. Remove the door sash outer trim (A).
 - 1. Remove the screw from inside the door.
 - 2. Release the lower edge of the trim from the door glass outer weatherstrip (B).
 - 3. Pull the trim up to release the hooks (C) from the door, then remove the trim.

Fastener Location

► : Screw, 1



2. Install the trim in the reverse order of removal.

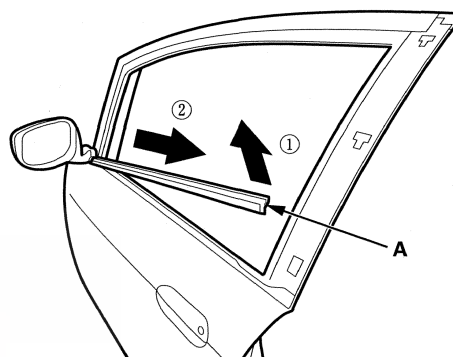
Make sure that there is no clearance between the rear edge of the door glass outer weatherstrip and the trim.

Front Door Glass Outer Weatherstrip Replacement

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door and related parts.

1. Lower the glass fully.
2. Remove the door sash outer trim (see page 20-17).
3. While lifting the rear of the door glass outer weatherstrip (A), slide the weatherstrip rearward, then remove the weatherstrip.



4. Install the weatherstrip in the reverse order of removal, and note these items:
 - Push the weatherstrip into place securely.
 - Make sure that there is no clearance between the rear edge of the weatherstrip and the door sash outer trim.

Doors

Front Door Weatherstrip Replacement

NOTE:

- Take care not to scratch the door or related parts.
- Use a clip remover to remove the clips.

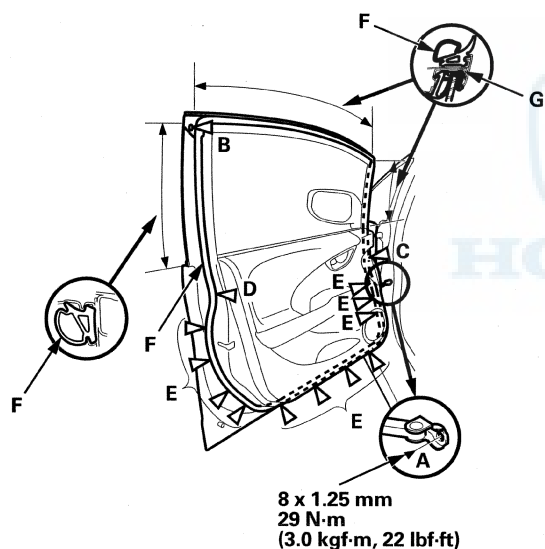
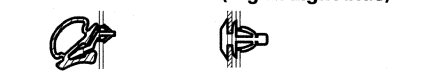
1. Remove the door checker mounting bolt (A) at the A-pillar.

Fastener Locations

A ▶ : Bolt, 1 B ▶ : Clip, 1 (Black) C ▶ : Clip, 1 (White)



D ▶ : Clip, 1 (Black) E ▶ : Clip, 11 (Left: Pink, Right: Light blue)



2. Detach the clips (B, C, D, E), then remove the door weatherstrip (F).
3. Install the weatherstrip in the reverse order of removal and note these items:
 - If the clips are damaged or stress-whitened, replace them with new ones.
 - Make sure the weatherstrip is installed in the holder (G) securely.
 - Apply medium strength liquid thread lock to the door stop mounting bolt before installation.
 - Check for water leaks (see step 8 on page 20-34).

Rear Door Panel Removal/Installation

Special Tools Required

- KTC Trim Tool Set SOJATP2014*
- Trim Pad Remover, Snap-on A 177A or equivalent, commercially available

*Available through the Honda Tool and Equipment Program; call 888-424-6857

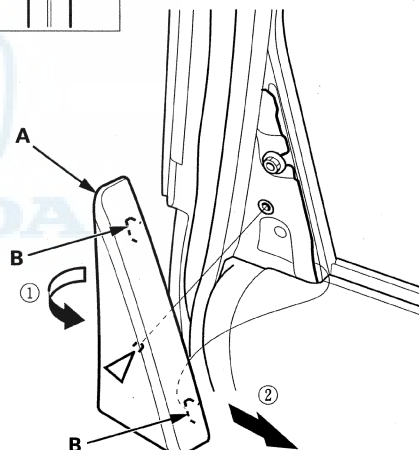
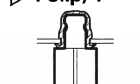
NOTE:

- Take care not to scratch the door or related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Pry up on the rear edge on the door quarter inner trim (A), using the appropriate trim tool, to detach the clip, then remove it by releasing the hooks (B).

Fastener Location

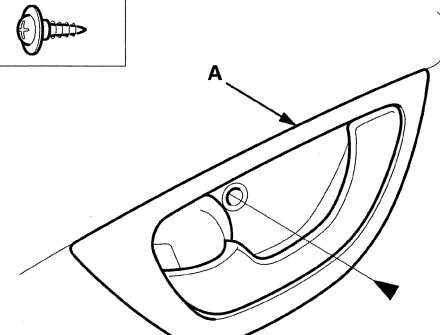
▶ : Clip, 1



2. Remove the screw securing the inner handle (A).

Fastener Location

▶ : Screw, 1



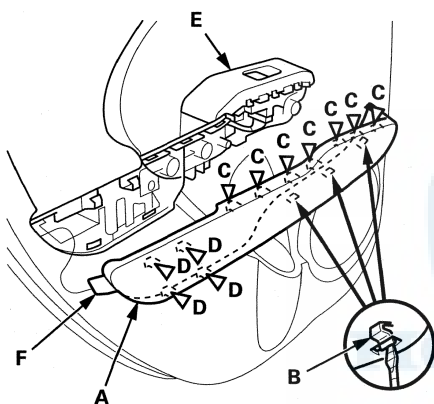


3. Remove the grip cover (A).

- 1. Pry out the front bottom edge of the cover, using a flat-tip screwdriver wrapped with protective tape, while pushing up the hooks (B).
- 2. From front to rear, pry out along the edge of the cover to release the hooks (C, D) from the power window switch panel (E).
- 3. Release the rear hook (F), while pulling the cover forward.

Fastener Locations

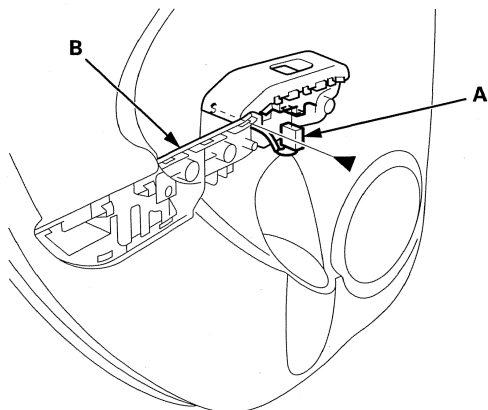
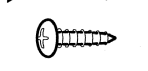
C ▷ : Hook, 7 D ▷ : Hook, 4



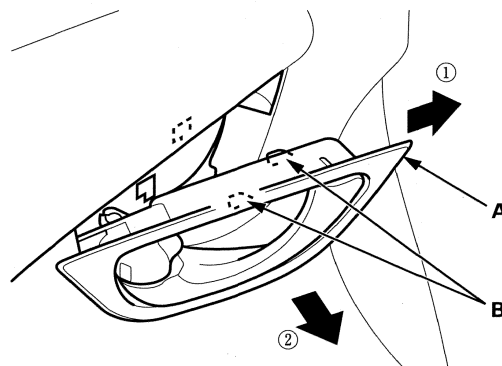
4. Disconnect the power window switch connector (A). Remove the screw from the grip base (B).

Fastener Location

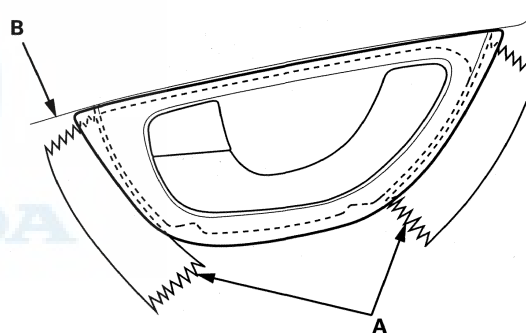
▶ : Screw, 1



5. Pull the inner handle (A) forward and out half-way to release the hooks (B).



6. Apply protective tape (A) to the door panel (B) as shown.



(cont'd)

Doors

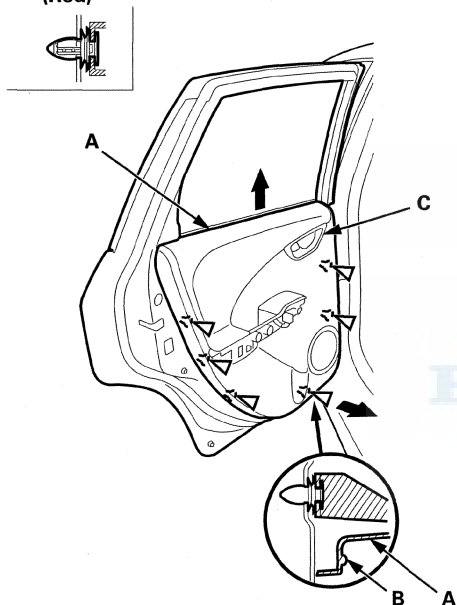
Rear Door Panel Removal/Installation (cont'd)

7. Remove the door panel (A) with as little bending as possible to avoid creasing or breaking it.

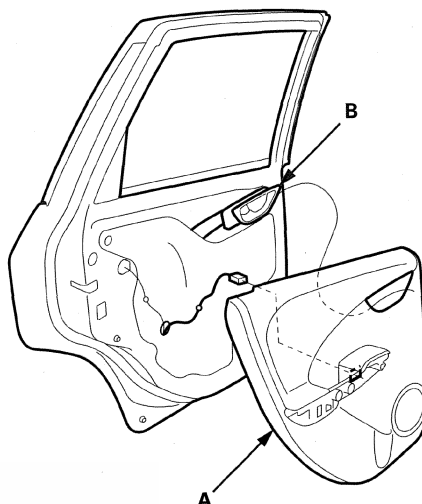
- 1. Start at the bottom edge of the door panel, release the clip that is just above the mark (B) on the edge of the panel with a commercially available trim pad remover.
 - 2. Detach the remaining clips.
 - 3. Starting at the rear, pull the door panel upward.
- NOTE: Do not pull the door panel up too far, or the door panel will be damaged by the inner handle (C).

Fastener Locations

▷ : Clip, 6 (Red)



8. Remove the door panel (A) while pulling the inner handle (B) out through the hole in the door panel.



9. Install the door panel in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Make sure the power window switch connector is plugged in properly.



Rear Door Outer Handle Replacement

Special Tools Required

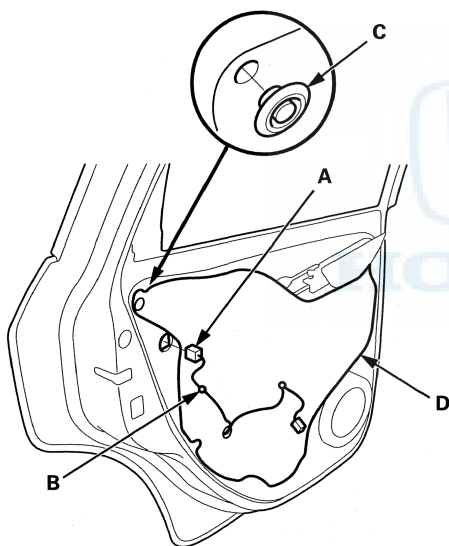
KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door or related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

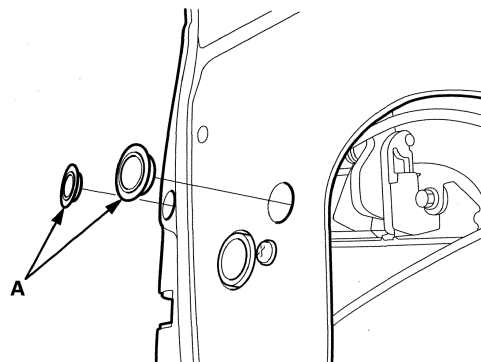
1. Remove the door panel (see page 20-18).
2. Raise the glass fully.
3. With power door lock: Disconnect the power door lock actuator connector (A), then detach the harness clip (B).



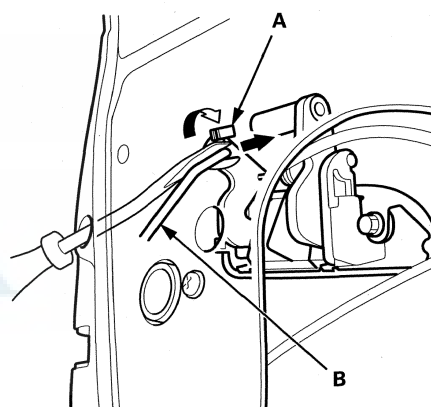
4. Remove the rear plug cap (C), then remove the plastic cover (D), as needed.

NOTE: If the plastic cover is damaged or torn, replace it.

5. Remove the maintenance caps (A).



6. Detach the rod fastener (A), then disconnect the outer handle rod (B) with a clip remover.



(cont'd)

Doors

Rear Door Outer Handle Replacement (cont'd)

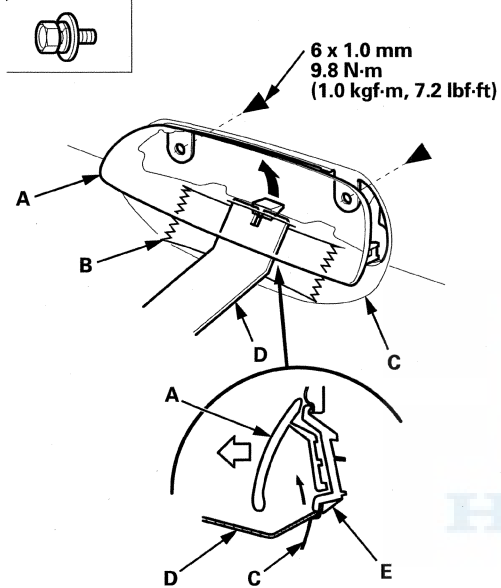
7. Remove the outer handle (A).

- 1. Remove the bolts.
- 2. Apply protective tape (B) to the door (C) as shown.
- 3. Pry out the outer handle with the appropriate trim tool (D) to release the hook (E), then remove it.

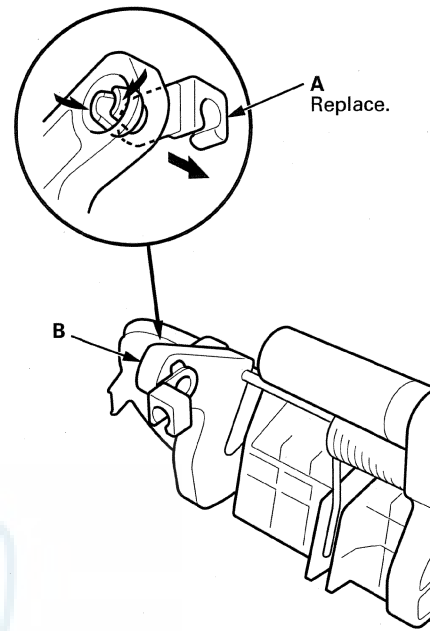
NOTE: Take care not to scratch the door.

Fastener Locations

► : Bolt, 2



8. Remove the rod fastener (A) from the outer handle (B), then replace it with a new one.



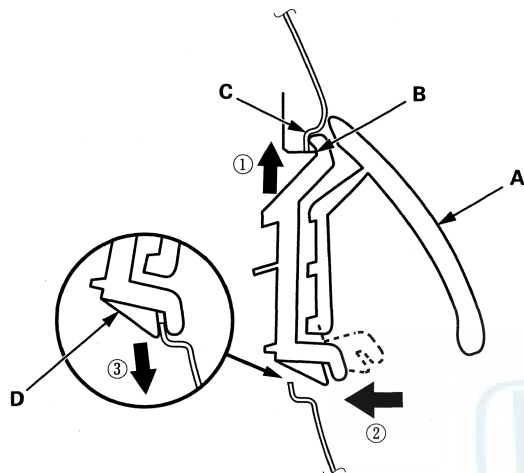


Rear Door Latch Replacement

9. Install the handle (A) in the following order.

- 1. Set the upper portion (B) of the handle to the edge (C) of the door panel.
- 2. While pulling up the handle, push the lower hook (D) into place.

NOTE: Push the hook into place securely.



10. Install the removed parts in the reverse order of removal, and note these items:

- Make sure that the actuator connector is plugged in properly, and that the outer handle rod is connected securely.
- Make sure the door handle works properly.
- When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.

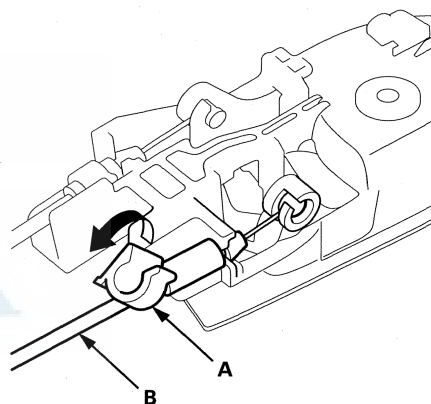
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door or related parts.

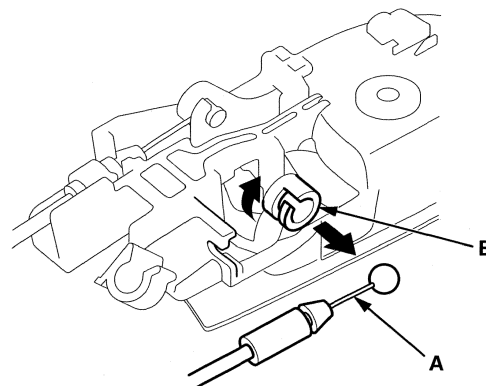
1. Raise the glass fully.
2. Remove the door panel (see page 20-18).
3. Disconnect the power door lock actuator connector, then detach the harness clip (see step 3 on page 20-21).
4. Remove the plastic cover, as needed (see step 4 on page 20-21).

Inner handle removal

5. Detach the latch cable fastener (A) from the latch cable (B).



6. Disconnect the latch cable (A) from the lock knob (B).

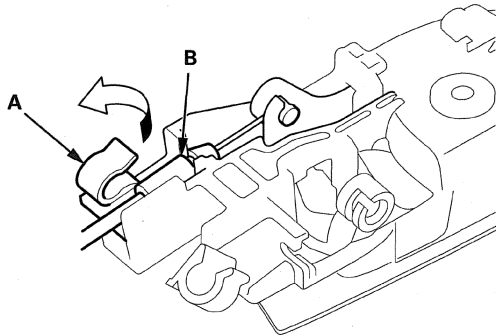


(cont'd)

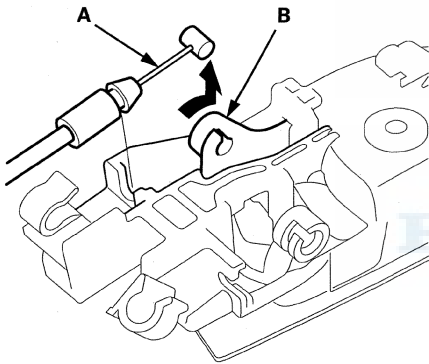
Doors

Rear Door Latch Replacement (cont'd)

7. Detach the inner handle cable fastener (A) from the inner handle cable (B).



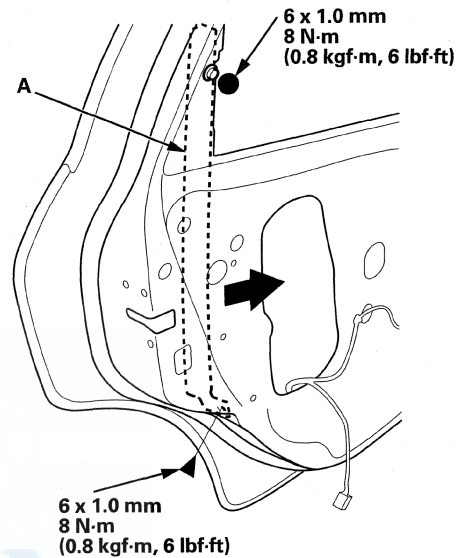
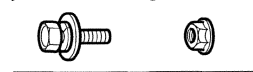
8. Disconnect the inner handle cable (A) from the inner handle assembly (B).



9. Remove the bolt, and loosen the nut, then pull the rear lower channel (A) forward.

Fastener Locations

► : Bolt, 1 ● : Nut, 1

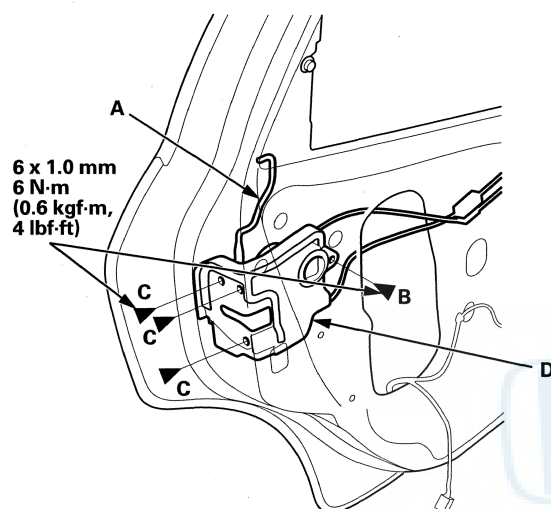




10. Disconnect the outer handle rod (A) (see step 6 on page 20-21).

Fastener Locations

B ▶ : Screw, 1 C ▶ : Screw, 3

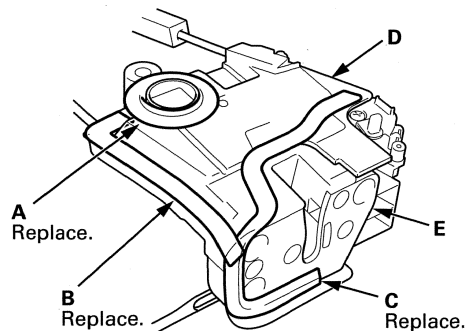


11. Remove the screws (B, C), then remove the latch (D) through the gap between the rear lower channel and the door.

NOTE: Take care not to bend the latch cable or the inner handle cable.

Cable replacement

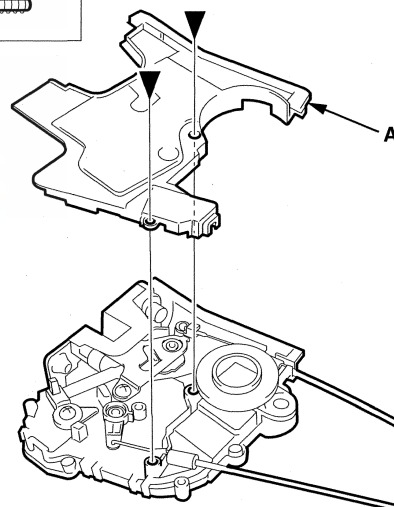
12. Remove the foam seals (A, B, C) from the latch protector (D) and the latch (E).



13. Remove the screws, then remove the latch protector (A).

Fastener Locations

▶ : Screw, 2

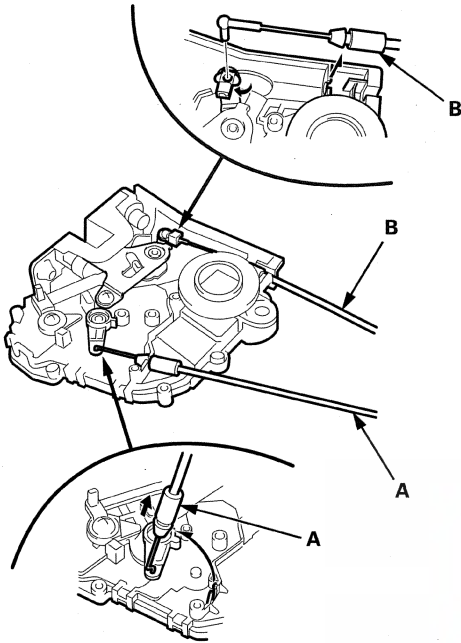


(cont'd)

Doors

Rear Door Latch Replacement (cont'd)

14. Disconnect the latch cable (A) and the inner handle cable (B).



15. Install the cable in the reverse order of removal, and note these items:

- Before reinstalling the latch protector, clean the latch and the latch protector surfaces with isopropyl alcohol where the new foam seals will be attached.
- After reinstalling the latch protector to the latch, attach the new foam seals to the protector and the latch.
- Make sure that the actuator connector is plugged in properly, and that the outer handle rod and the cables are connected securely.
- Make sure the door locks and opens properly.
- When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.

Rear Door Glass and Regulator Replacement

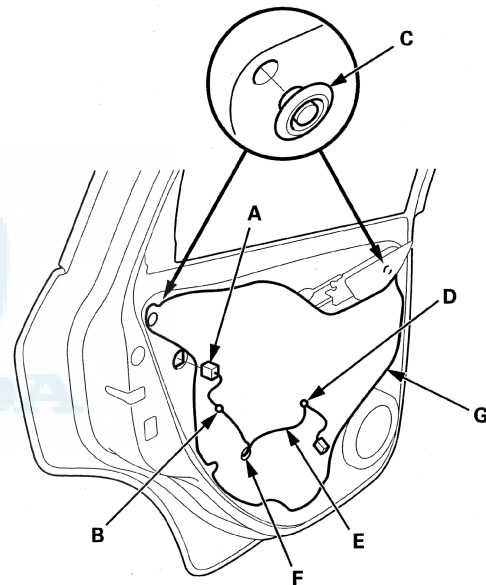
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door or related parts.

1. Remove the these items:

- Rear door glass outer weatherstrip (see page 20-31)
- Rear door rear sash trim (see page 20-30)
- Rear door panel (see page 20-18)
- Speaker (see page 23-70)

2. With power door lock: Disconnect the power door lock actuator connector (A), then detach the harness clip (B).



3. Remove the plug caps (C), and detach the harness clip (D). Pass the wire harness (E) through the hole (F) in the plastic cover (G), then remove the plastic cover.

NOTE: If the plastic cover is damaged or torn, replace it.

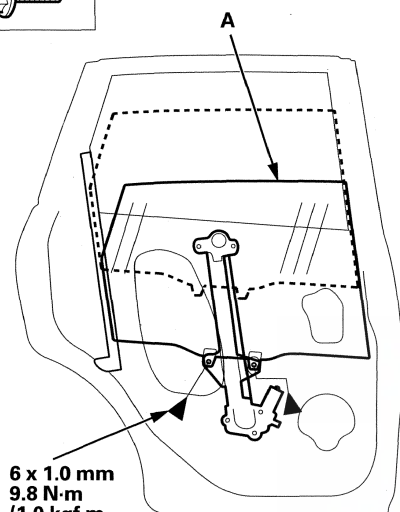


4. Carefully move the glass (A) until you can see the bolts, then remove them.

NOTE: Take care not to drop the glass inside the door.

Fastener Locations

► : Bolt, 2

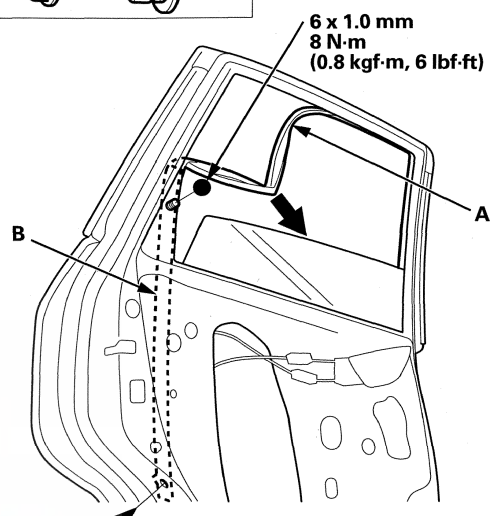
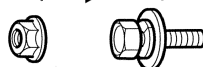


6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)

5. Pull the glass run channel (A) away as needed. Loosen the nut, and remove the bolt securing the rear lower channel (B).

Fastener Locations

● : Nut, 1 ► : Bolt, 1



6 x 1.0 mm
8 N·m
(0.8 kgf·m, 6 lbf·ft)

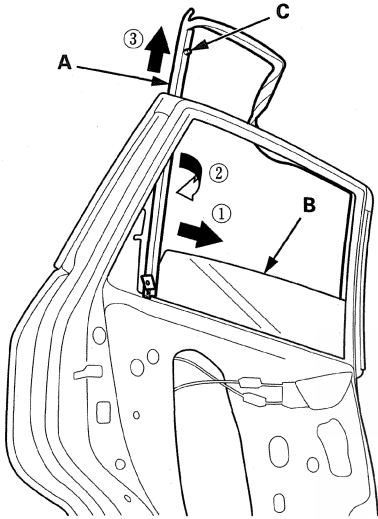
(cont'd)

Doors

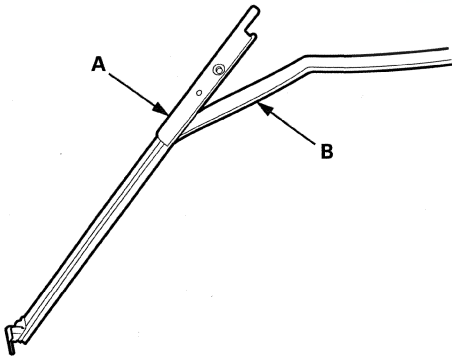
Rear Door Glass and Regulator Replacement (cont'd)

6. Release the rear lower channel (A) from the glass (B).

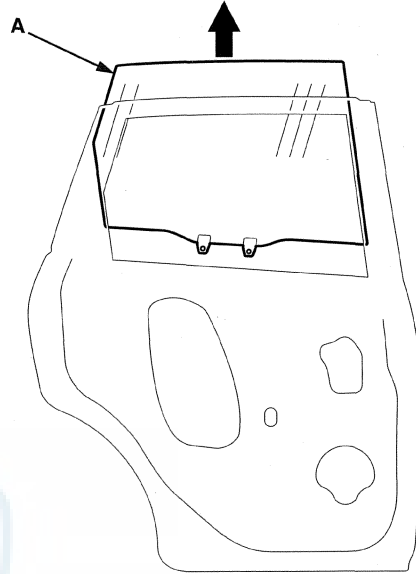
- 1. Pull the channel forward, then remove the nut portion (C) from the door.
- 2. Twist the channel to pass it through the gap between the door panel and the rear sash.
- 3. Pull the channel up to remove it.



7. Remove the rear lower channel (A) from the glass run channel (B).



8. Carefully remove the glass (A) out through the window slot. Take care not to drop the glass inside the door.

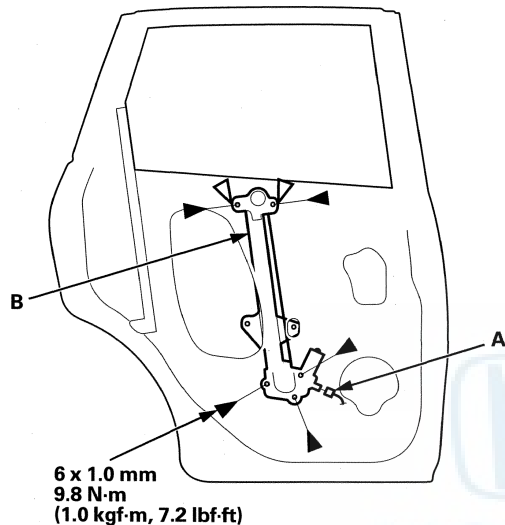
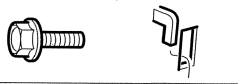




9. Disconnect and detach the connector (A) from the regulator (B).

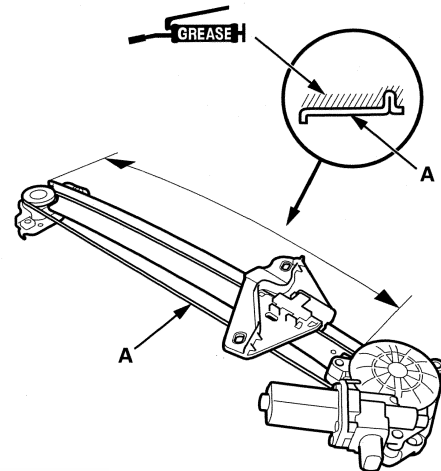
Fastener Locations

► : Bolt, 5 ▷ : Hook, 2



10. Remove the bolts, pull the regulator up to release the hooks, then remove the regulator through the hole in the door.

11. Apply multipurpose grease to all the sliding surfaces of the regulator (A) where shown.



12. Install the glass and regulator in the reverse order of removal, and note these items:

- Move the glass up and down to make sure it moves freely without binding.
- Make sure that there is no clearance between the glass and glass run channel when the glass is closed.
- Adjust the position of the glass as necessary (see page 20-33).
- When reinstalling the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.
- Check for water leaks (see step 8 on page 20-34).
- Test-drive, and check for wind noise and rattles.
- Make sure the power door locks and the windows operate properly.

Doors

Rear Door Pad Replacement

'11-12 models

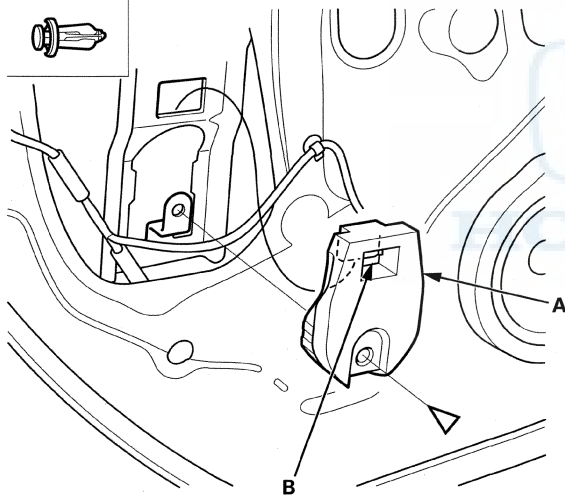
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door.

1. Remove the door panel (see page 20-18).
2. Disconnect the power door lock actuator connector, and detach the harness clips (see step 3 on page 20-21).
3. Remove the plastic cover, as needed (see step 4 on page 20-21).
4. Raise the glass fully.
5. Remove the clip securing the pad (A), and release the hooks (B), then remove it.

Fastener Location

▷ : Clip, 1



6. Install the pad in the reverse order of removal.

When installing the door panel, make sure the plastic cover is installed properly and sealed around its outside perimeter to seal out water.

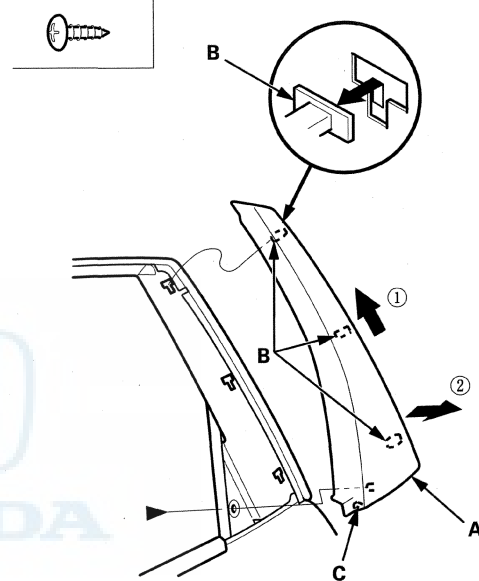
Rear Door Rear Sash Trim Replacement

NOTE: Take care not to scratch the door or related parts.

1. Remove the door quarter inner trim (see step 1 on page 20-18).
2. Remove the screw securing the trim to the door quarter.

Fastener Location

▷ : Screw, 1



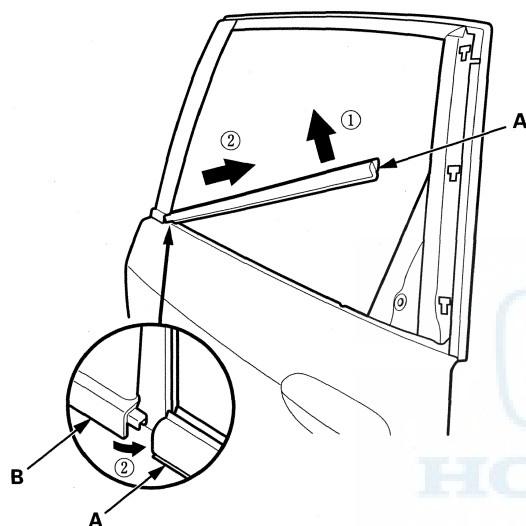
3. Pull up the door rear sash trim (A) to release the hooks (B, C), then remove it from the door.
4. Install the trim in the reverse order of removal.



Rear Door Glass Outer Weatherstrip Replacement

NOTE:

- Put on gloves to protect your hands.
 - Take care not to scratch the door or related parts.
1. Remove the rear door rear sash trim (see page 20-30).
 2. While lifting the rear of the door glass outer weatherstrip (A), slide the weatherstrip rearward to release the front edge of the weatherstrip from the door sash outer trim (B), then remove the weatherstrip.



3. Install the weatherstrip in the reverse order of removal, and note these items:
 - Push the weatherstrip into place securely.
 - Make sure that there is no clearance between the front edge of the weatherstrip and the door sash outer trim.

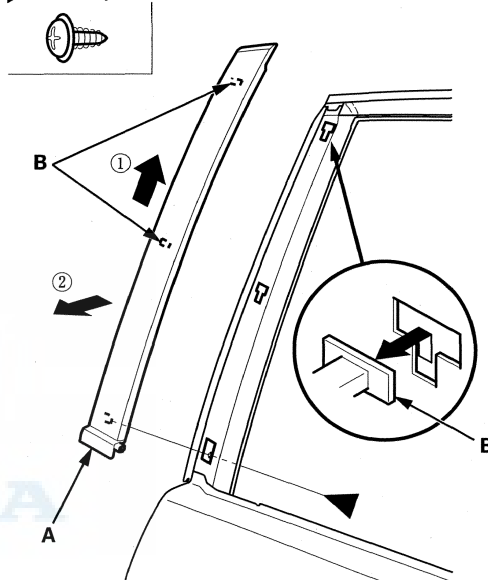
Rear Door Sash Outer Trim Replacement

NOTE: Take care not to scratch the door or related parts.

1. Remove these items:
 - Rear door rear sash trim (see page 20-30).
 - Rear door glass outer weatherstrip (see page 20-31).
2. Remove the screw from inside the door.

Fastener Location

► : Screw, 1



3. Pull the rear door sash outer trim (A) up to release the hooks (B) from the door, then remove the trim.
4. Install the trim in the reverse order of removal.

Doors

Rear Door Weatherstrip Replacement

NOTE:

- Take care not to scratch the door or related parts.
- Use a clip remover to remove the clips.

1. Remove these items:

- Rear door rear sash trim (see page 20-30)
- Rear door glass outer weatherstrip (see page 20-31)
- Rear door sash outer trim (see page 20-31)

2. Remove the door checker mounting bolt (A) at the B-pillar.

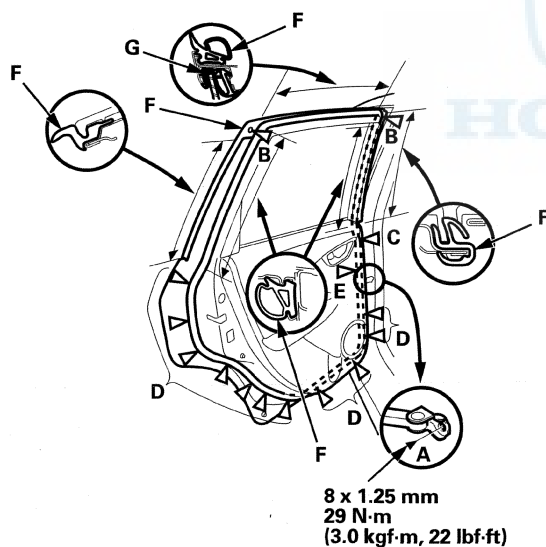
Fastener Locations

A ► : Bolt, 1 B ► : Clip, 2 (Black) C ► : Clip, 1 (White)



D ► : Clip, 11 (Left: Pink) (Right: Light blue)

E ► : Clip, 1



3. Detach the clips (B, C, D, E), then remove the door weatherstrip (F).

4. Install the weatherstrip in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Make sure the weatherstrip is installed in the holder (G) securely.
- Apply medium strength liquid thread lock to the door stop mounting bolt before installation.
- Check for water leaks (see step 8 on page 20-34).

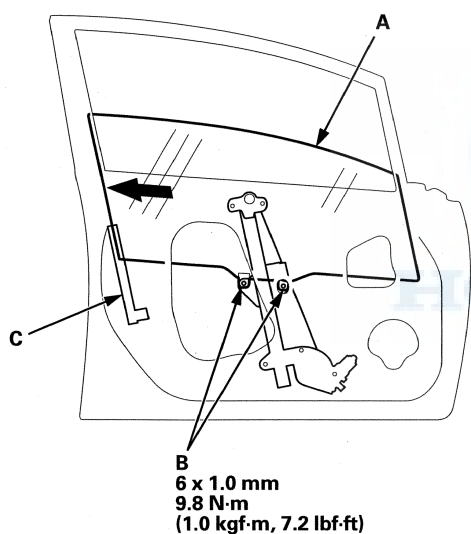


Door Glass Adjustment

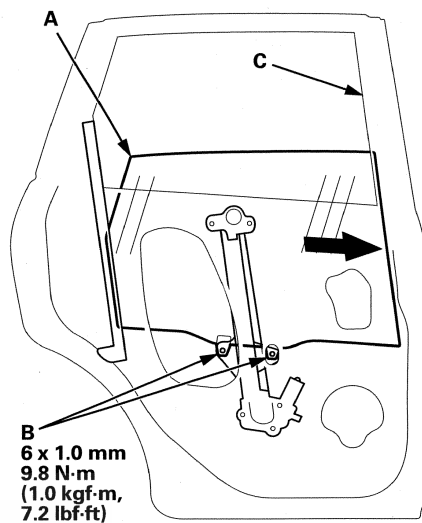
NOTE: Check the weatherstrips and glass run channel for damage or deterioration, and replace them if necessary.

1. Place the vehicle on a firm, level surface.
2. Remove these items:
 - Door panel:
 - Front door (see page 20-6)
 - Rear door (see page 20-18)
 - Plastic cover:
 - Front door (see step 3 on page 20-15)
 - Rear door (see step 3 on page 20-26)
3. Carefully move the glass (A) until you can see the glass mounting bolts (B), then loosen them.

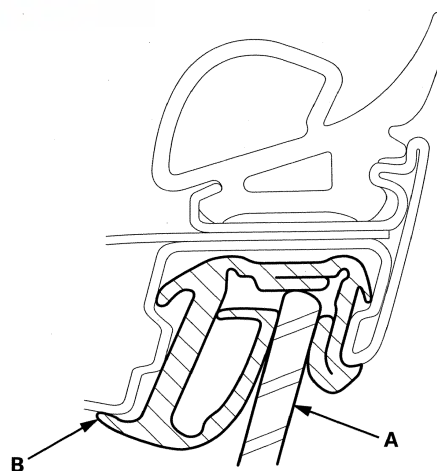
Front door



Rear door



4. Push the glass against the channel (C), then tighten the glass mounting bolts.
5. Check that the glass moves smoothly.
6. Raise the glass fully, and check for gaps. Also check that the glass (A) contacts the glass run channel (B) evenly.



7. Attach the plastic cover, making sure it is sealed around its outside perimeter to seal out water.

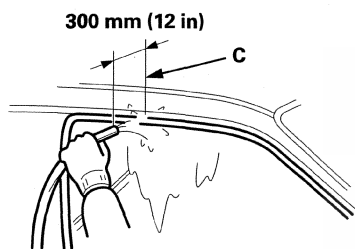
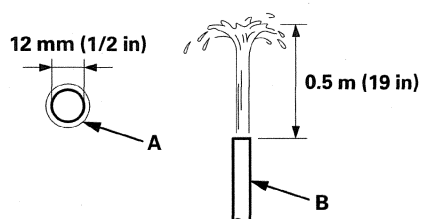
(cont'd)

Doors

Door Glass Adjustment (cont'd)

8. Check for water leaks. Run water over the roof and on the sealing area as shown, and note these items:

- Use a 12 mm (1/2 in) diameter hose (A).
- Adjust the rate of water flow as shown (B).
- Do not use a nozzle.
- Hold the hose about 300 mm (12 in) away from the door (C).



9. Reinstall the door panel:

- Front door (see page 20-6)
- Rear door (see page 20-18)

10. Driver's door: Do the power window control unit reset procedure (see page 22-231).

Door Position Adjustment

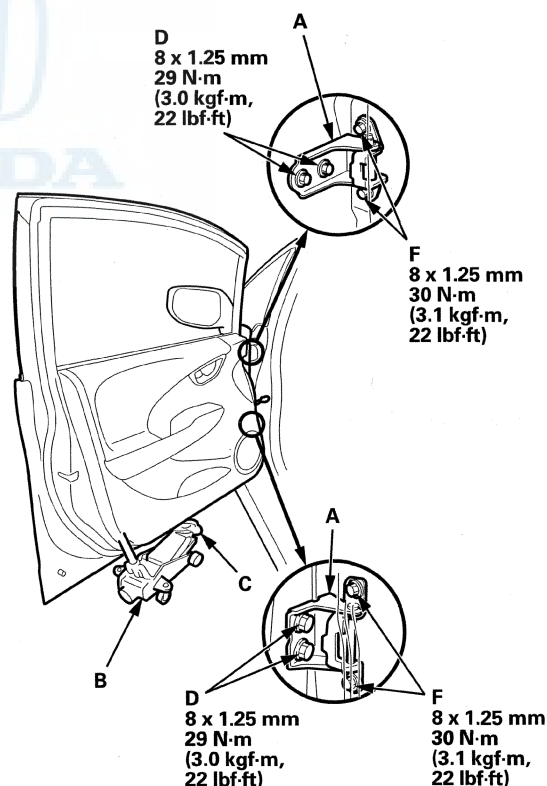
NOTE: Check for a flush fit with the body, then check for equal gaps between the front, rear, and bottom door edges and the body. Check that the door and body edges are parallel.

1. Place the vehicle on a firm level surface when adjusting the doors.

2. Adjust at the hinges (A):

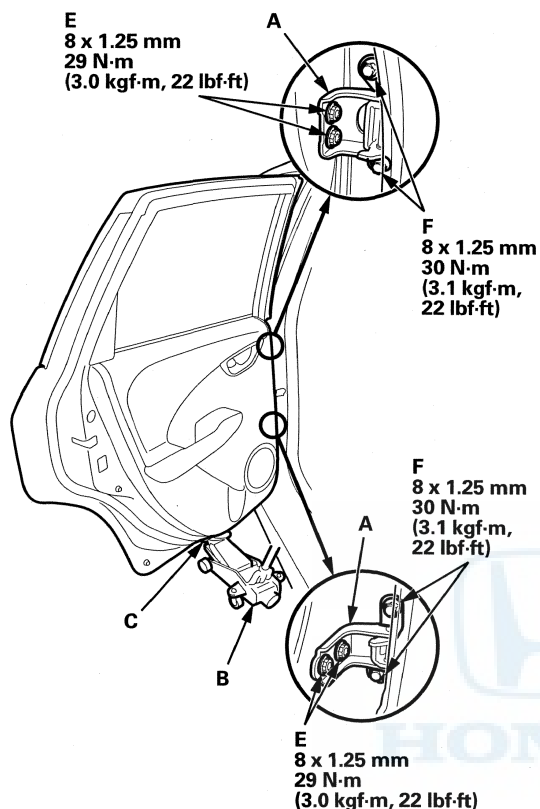
- Pad a floor jack (B) with shop towels (C), then use the jack to support the door while adjusting it.
- On the front door: Remove the front inner fender. (see page 20-178) Loosen the hinge mounting bolts (D) slightly, and move the door backward or forward, up or down as necessary to equalize the gaps.
- On the rear door: Loosen the hinge mounting bolts (E) slightly, and move the door backward or forward, up or down as necessary to equalize the gaps.

Front door





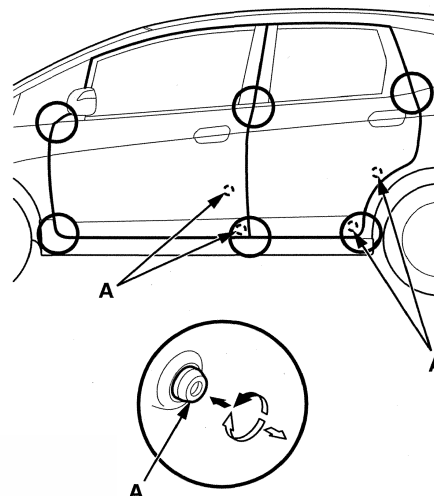
Rear door



3. If necessary, replace the door mounting bolts with the adjusting bolts made specifically for door adjustment, then adjust at the door: Loosen the door mounting bolts (F) slightly, and move the door up or down as necessary to equalize the gaps, and move it in or out until it's flush with the body.

NOTE: Refer to the Parts Catalog if you need to use an adjusting bolt.

4. Check that the door and body edges are parallel. If necessary, adjust the door cushions (A) to make the rear of the doors flush with the body.



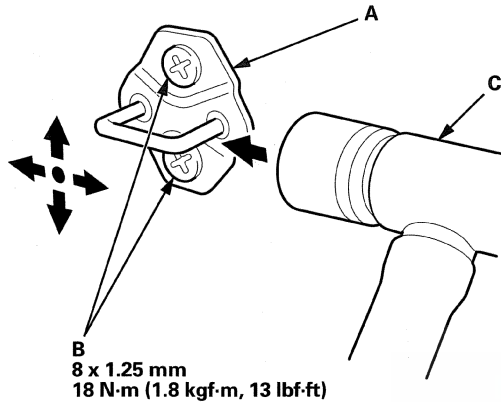
5. Make sure the door opens without popping or binding and latches securely without slamming. If not, adjust the striker (see page 20-36).
6. Apply touch-up paint to the hinge mounting bolts, and around the hinges.
7. Check for water leaks (see step 8 on page 20-34).

Doors

Door Striker Adjustment

Make sure the door opens without popping or binding and latches securely without slamming it. If necessary, adjust the striker (A): The striker nuts are fixed, but the striker can be adjusted slightly up or down, and in or out.

1. Loosen the screws (B).

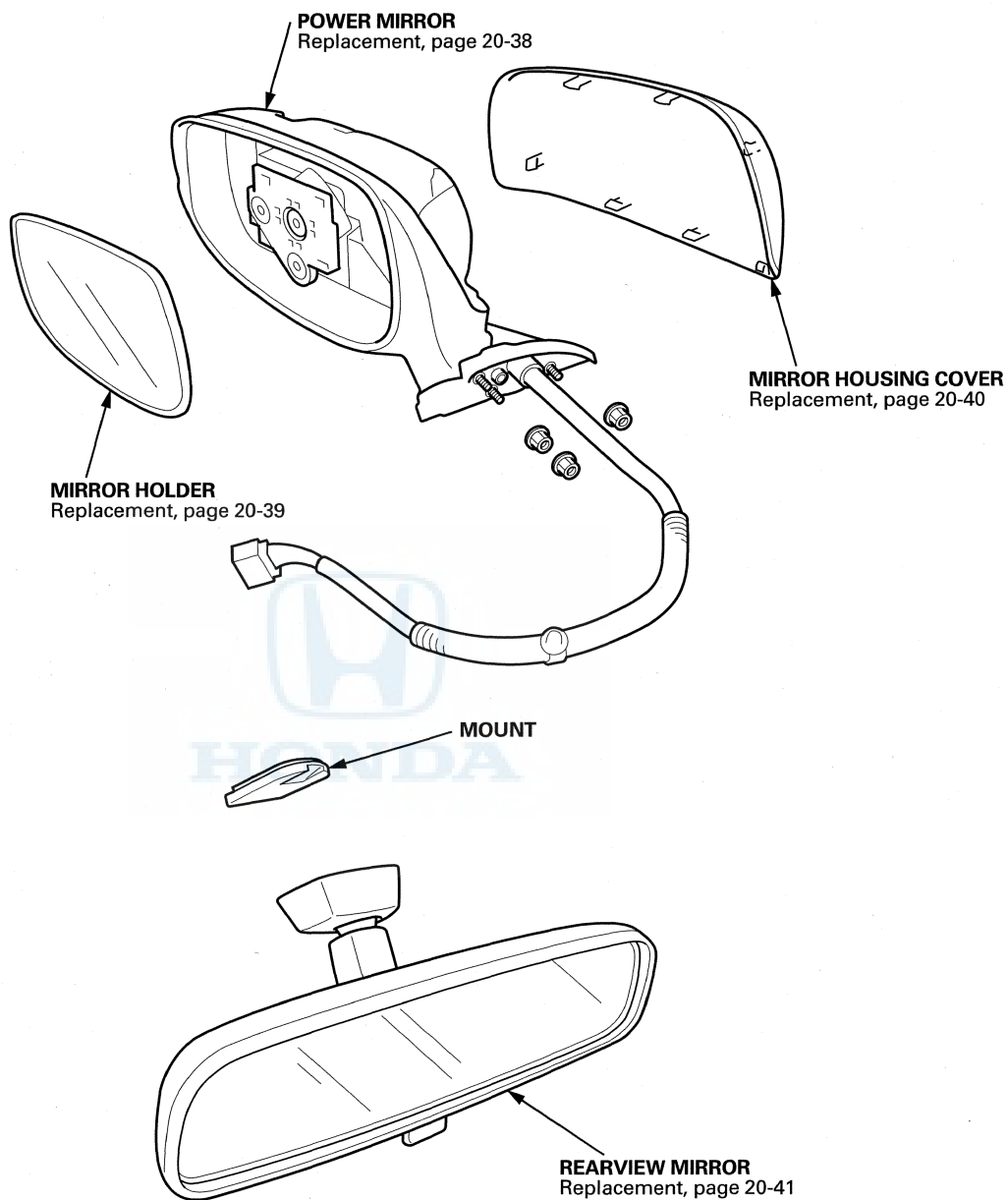


2. Wrap the striker with a shop towel, then adjust the striker by tapping it with a plastic hammer (C). Do not tap the striker too hard.
3. Lightly tighten the screws.
4. Hold the outer handle out, and push the door against the body to be sure the striker allows a flush fit. If the door latches properly, tighten the screws to the specified torque and recheck.

Mirrors



Component Location Index



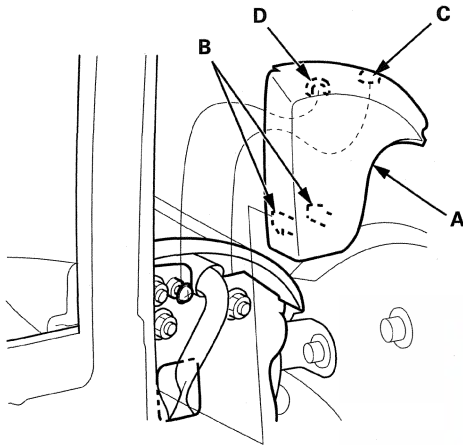
Mirrors

Power Mirror Replacement

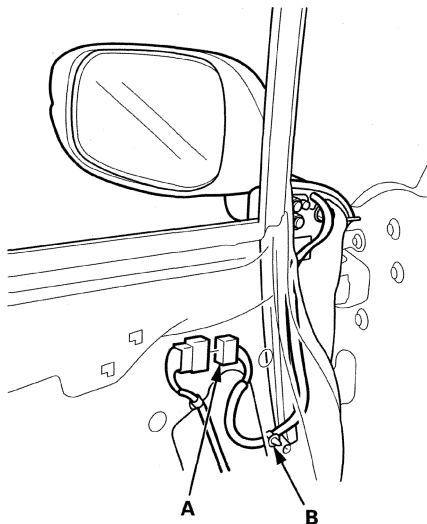
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the door or related parts.

1. Carefully pull the bottom edge of the mirror mount cover (A) out to release the lower hooks (B), and remove the cover by lifting it upward to release the upper hooks (C, D).



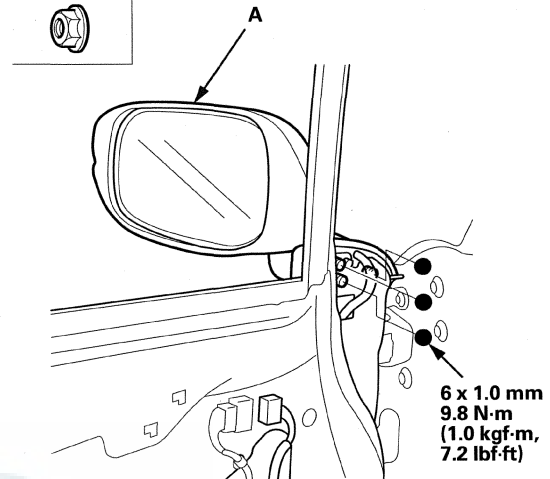
2. Remove the front door panel (see page 20-6).
3. Raise the glass fully.
4. Remove the plastic cover as needed (see step 3 on page 20-15), then disconnect the connector (A), and detach the harness clip (B).



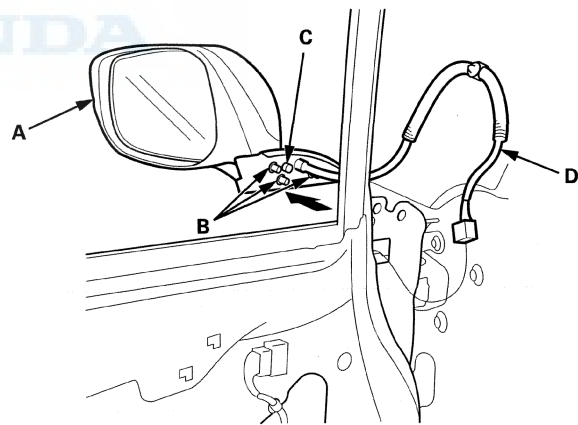
5. While holding the mirror (A), remove the nuts.

Fastener Locations

● : Nut, 3



6. Remove the mirror (A) by pulling the threaded studs (B), the screw (C), and the wire harness (D) out through the holes in the door. Take care not to scratch the door or the mirror.



7. Install the mirror in the reverse order of removal, and note these items:

- Make sure the connector is plugged in properly.
- Push the clip and hooks into place securely.

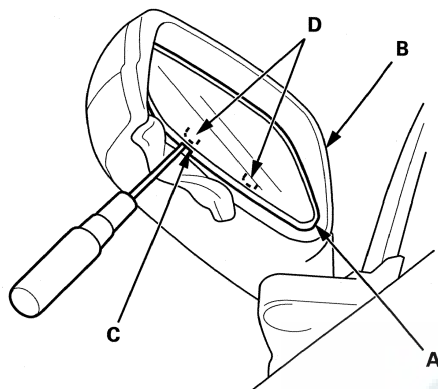


Mirror Holder Replacement

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the mirror housing or related parts.

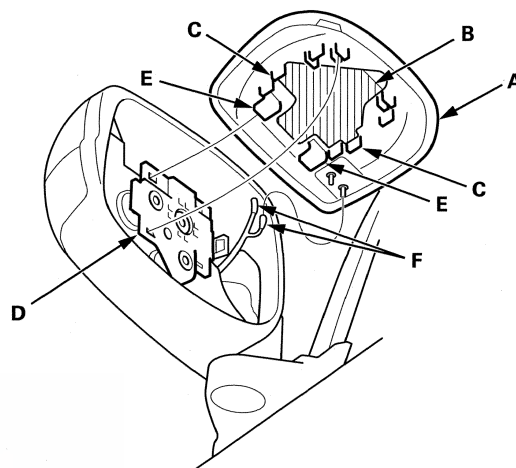
1. Tilt the mirror fully upward, or carefully push on the top edge of the mirror holder (A) by hand.



2. Put a shop towel in the opening between the lower edge of the mirror holder and the mirror housing (B) to prevent scratches. Insert a flat-tip screwdriver wrapped with protective tape through the guide notches (C) of the mirror holder, and detach the bottom clips (D).

3. Carefully pull out the bottom edge of the mirror holder (A) to separate the adhesive (B), then release the side clips (C).

NOTE: In cold weather, gently heat the mirror holder to at least 68 °F (20 °C) before removing it.



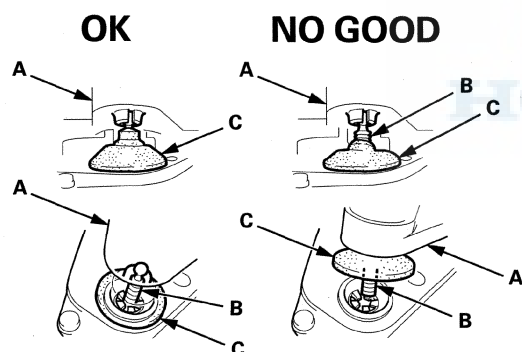
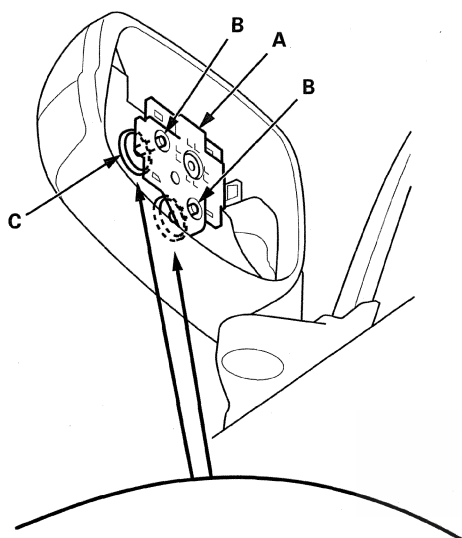
4. Separate the mirror holder from the actuator (D) by releasing the hooks (E). If equipped, disconnect the mirror defogger connectors (F).

(cont'd)

Mirrors

Mirror Holder Replacement (cont'd)

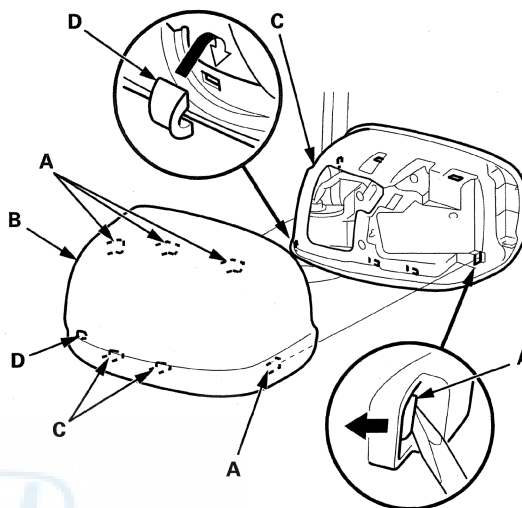
- Before reinstalling the mirror holder to the inner holder (A) of the actuator, make sure the actuator rods (B) are securely mounted in the holes, and that the boots (C) properly cover each rod.



- If equipped, reconnect the mirror defogger connectors.
- Reattach the hooks of the mirror holder to the actuator, then position the mirror holder on the actuator. Carefully push on the side and bottom clips of the mirror holder until the mirror holder locks into place.
- Check the actuator operation.

Mirror Housing Cover Replacement

- Remove the mirror holder (see page 20-39).
- From the mirror holder opening, release the tabs (A) of the mirror housing cover (B).

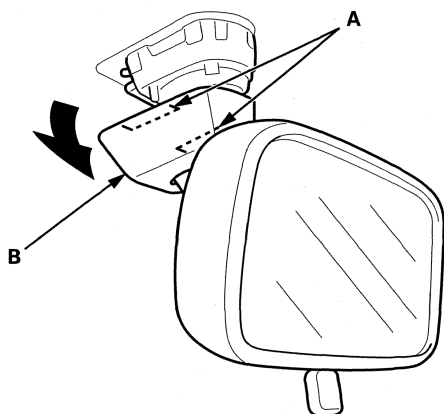


- Release the hooks (C, D), then remove the mirror housing cover.
- Install the mirror housing cover in the reverse order of removal.

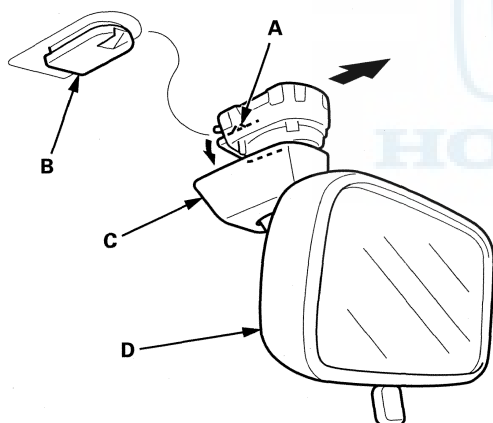


Rearview Mirror Replacement

1. Release the hooks (A), then pull the mirror base cover (B) down.

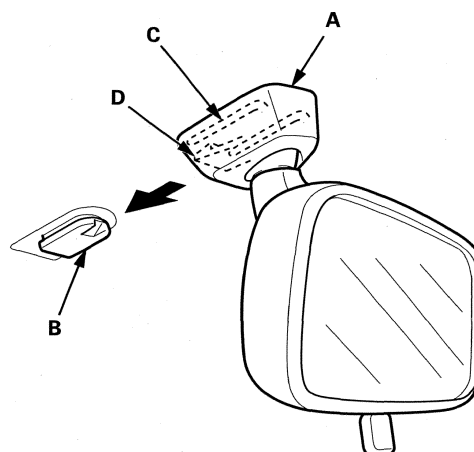


2. Pull the hook (A) down to release it from the mount (B), and slide the mirror base (C) rearward, then remove the rearview mirror (D).



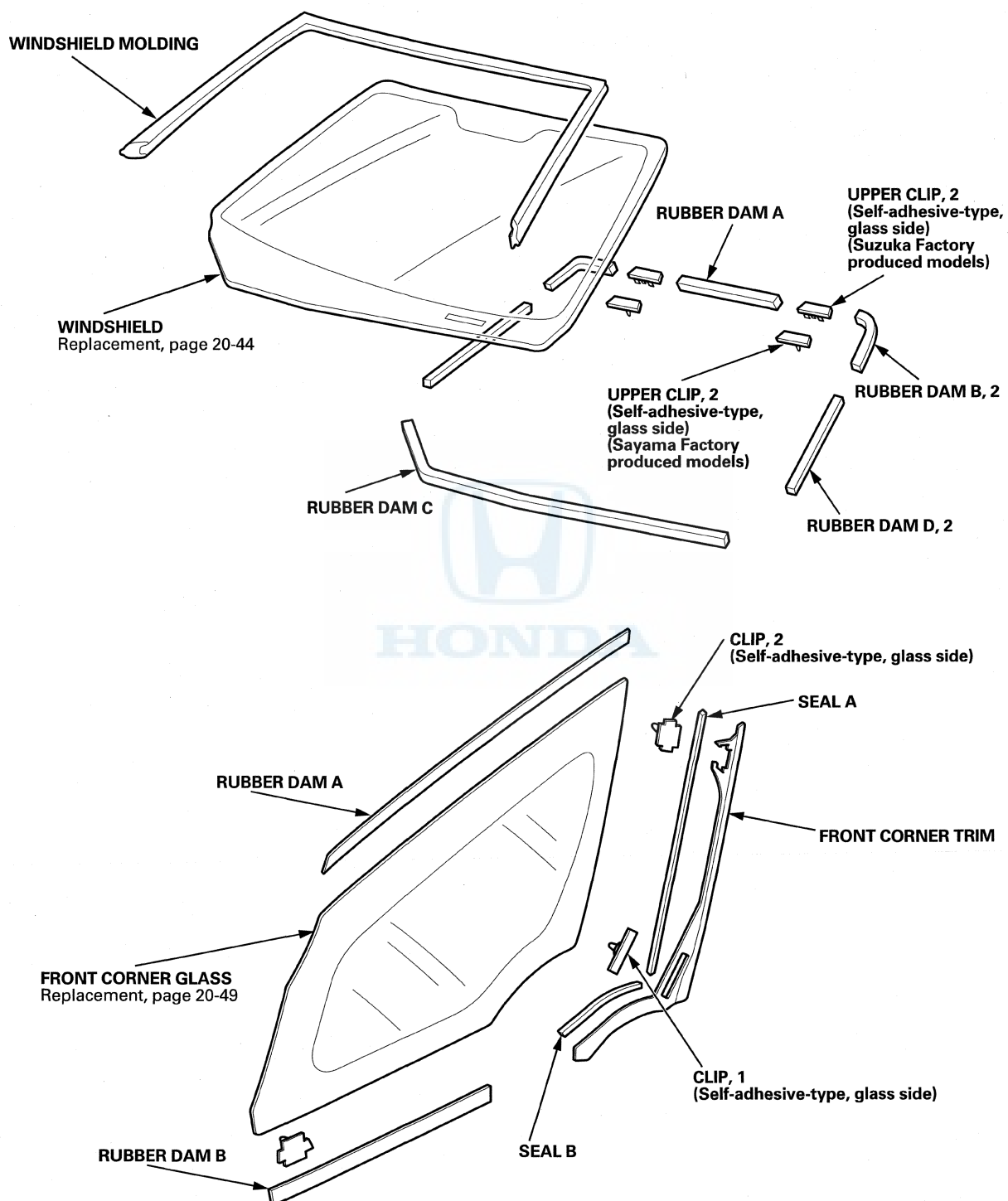
3. Install the mirror base cover on the mirror base securely.

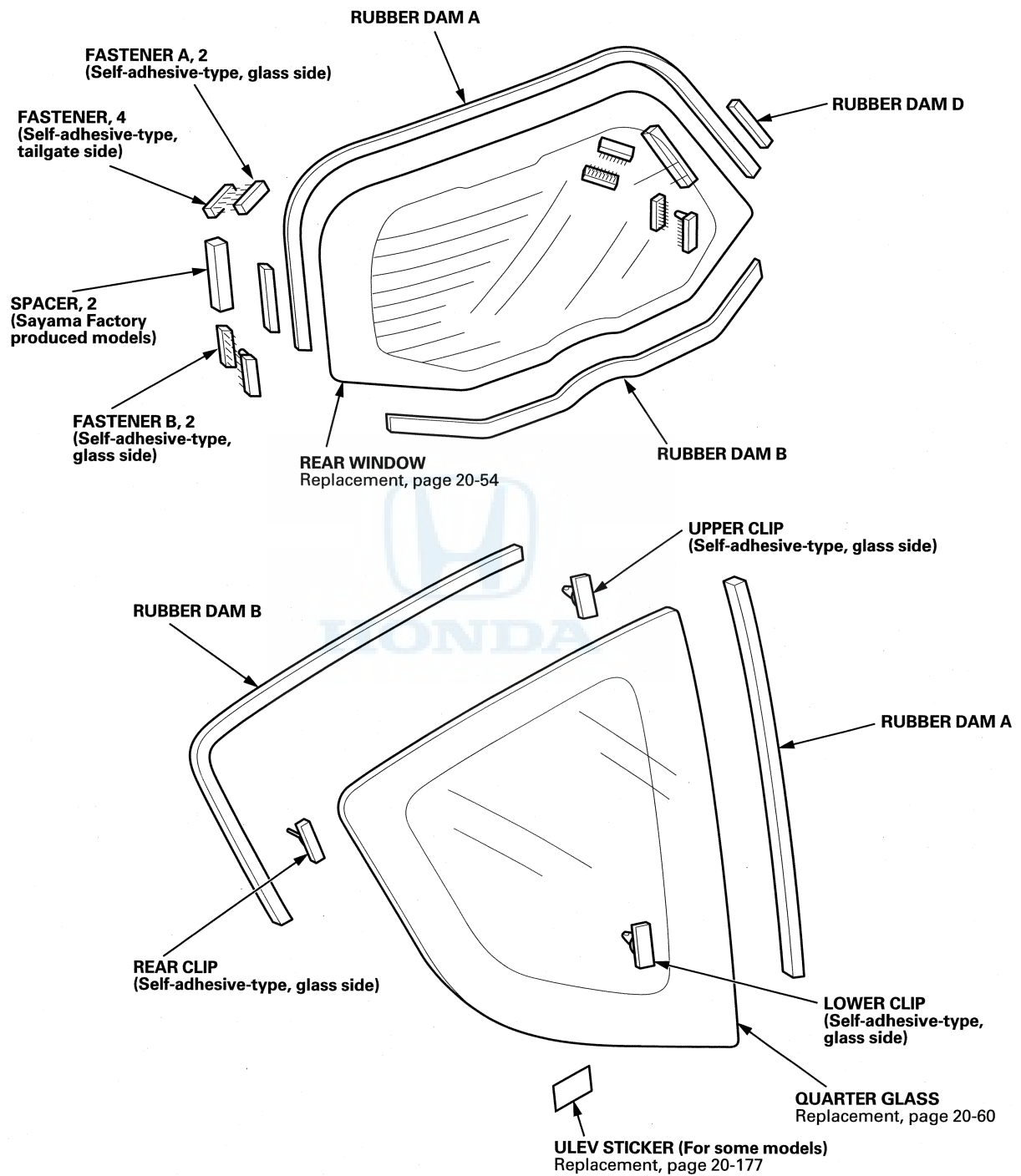
4. Fit the mirror base (A) over the mount (B), and secure the rearview mirror with the spring (C) and hook (D).



Glass

Component Location Index





Glass

Windshield Replacement

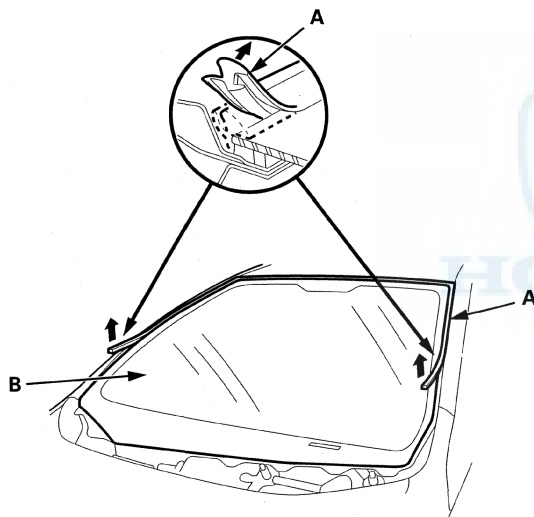
NOTE:

- Put on gloves to protect your hands.
- Wear eye protection while cutting the glass adhesive with a piano wire.
- Use seat covers to avoid damaging any surface.
- Glass adhesive can be efficiently cut with a commercially available auto glass tool. See the tool manufacturer's instructions for details.

1. Remove these items:

- Cowl cover (see page 20-168)
- Rearview mirror (see page 20-41)
- A-pillar trim, both sides (see page 20-69)

2. Remove the molding (A) from the edge of the windshield (B). If necessary, cut the molding with a utility knife.



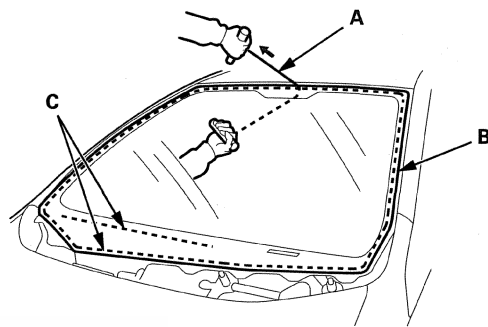
3. If you are reinstalling the old windshield, make alignment marks across the glass and body with a grease pencil.

4. Pull down the front portion of the headliner (see page 20-86). Take care not to bend the headliner excessively, or you may crease or break it.

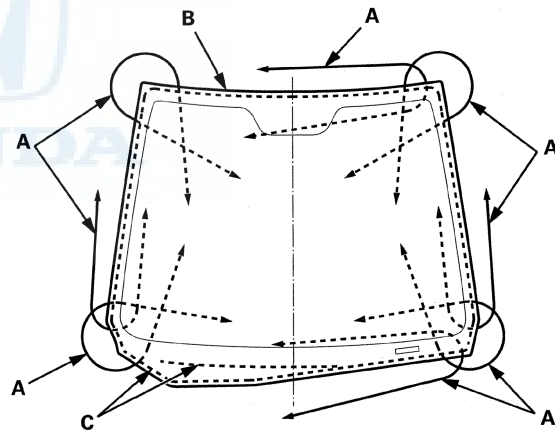
5. Apply protective tape along the edge of the dashboard and body. Make a hole with an awl through the rubber dam and adhesive from inside the vehicle at a corner portion of the windshield. Push a piece of piano wire through the hole, and wrap each end around a piece of wood.

6. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the windshield (B) as possible to prevent damage to the body and dashboard.

Carefully cut through the rubber dam and adhesive (C) around the entire windshield.



Cutting positions





7. Carefully remove the windshield.

8. Scrape smooth the old adhesive, using a knife, until there is a thickness of about 2 mm (0.08 in) on the bonding surface around the entire windshield opening flange:

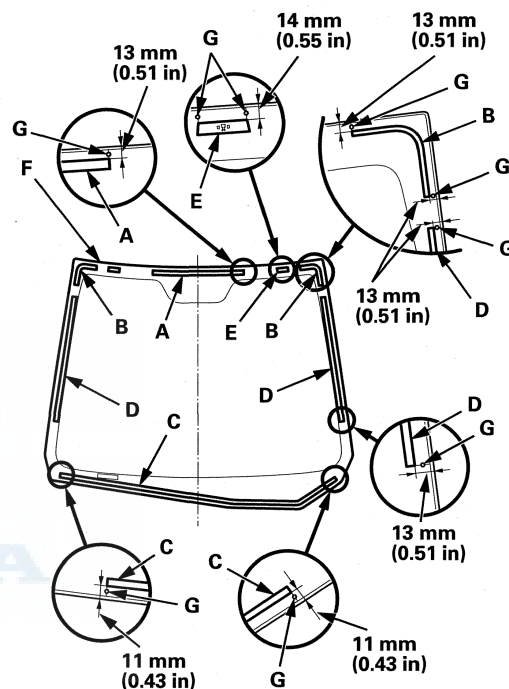
- Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
- Remove the rubber dams and upper clips from the body.
- Replace the dashboard seal with a new one.

9. Clean the body bonding surface with a shop towel dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the clean surface.

10. If you are reinstalling the old windshield, use a putty knife to scrape off all of the old adhesive, the upper clips, and the rubber dams from the windshield. Clean the bonding surfaces on the inside face and the edge of the windshield with isopropyl alcohol. Make sure the bonding surface is kept free of water, oil, and grease.

11. Attach rubber dams A, B, C, and D and the upper clips (E) with adhesive tape to the inside face of the windshield (F) as shown:

- Make sure the rubber dams and upper clips line up with the alignment marks (G).
- Be careful not to touch the windshield where adhesive will be applied.



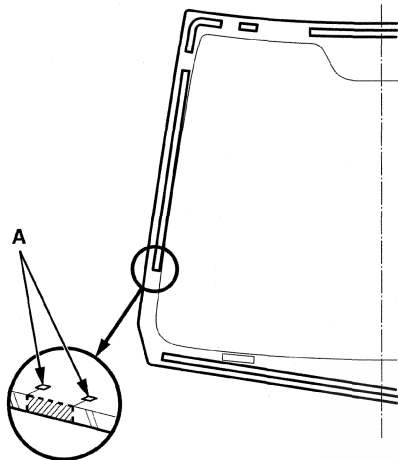
(cont'd)

Glass

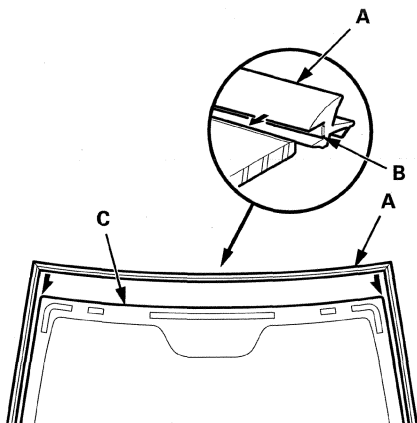
Windshield Replacement (cont'd)

12. Apply a light coat of glass primer to the windshield edges where you will install the new molding. Use the alignment marks (A) as a guide. After the primer dries, lightly wipe it off with gauze or cheesecloth.

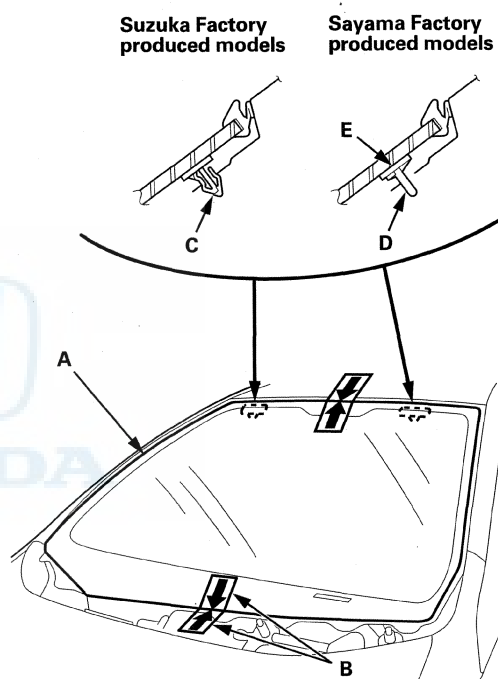
//// : Apply primer here.



13. Keep water, dust, and abrasive materials away from the primed surfaces. Attach the molding (A) with adhesive tape (B) to the edge of the windshield (C):
- Be sure each corner of the molding lines up with the corners of the windshield.
 - Be careful not to touch the windshield where adhesive will be applied.



14. If you are installing a new windshield, set the windshield (A) in the opening, and center it. Make alignment marks (B) across the windshield and body with a grease pencil at the four points shown. Make sure both upper clips (C) are in the body holes (Suzuka Factory produced models). Make sure both pins (D) from the upper clips (E) contact the edge of the body holes (Sayama Factory produced models). Be careful not to touch the windshield where adhesive will be applied.



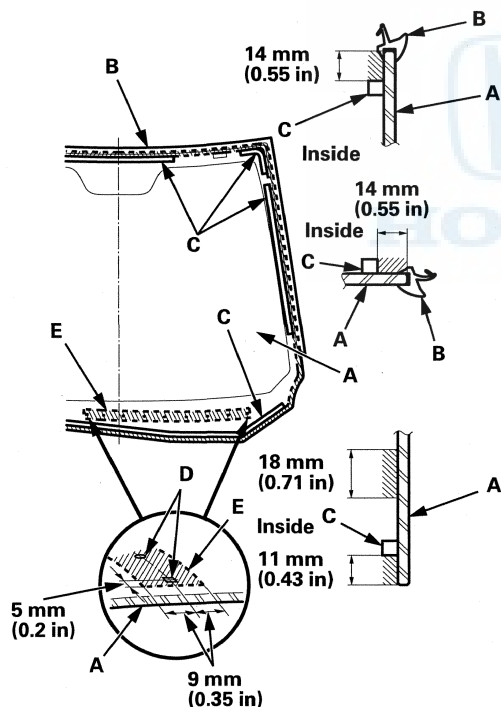
15. Remove the windshield.



16. Apply a light coat of glass primer to the windshield (A) along the edge of the molding (B) and the rubber dams (C) as shown, then lightly wipe it off with gauze or cheesecloth:

- Apply glass primer to the bottom (E) of the windshield, using the printed dots (D) on the windshield as a guide.
- Apply glass primer to the molding.
- Do not apply body primer to the windshield, and be careful not to mix up the body and glass primer sponges.
- Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the windshield properly, causing a leak after the windshield is installed.
- Keep water, dust, and abrasive materials away from the primed surface.

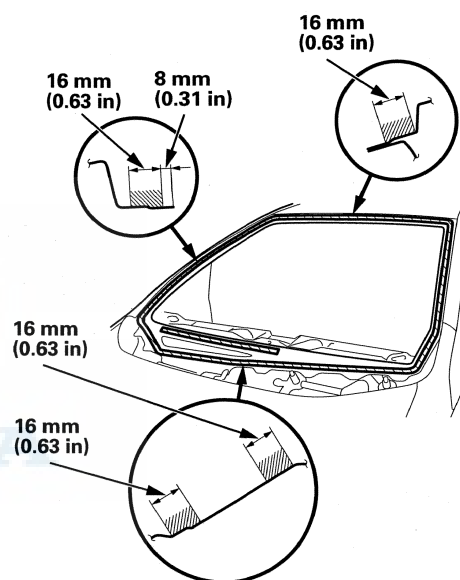
//// : Apply glass primer here.



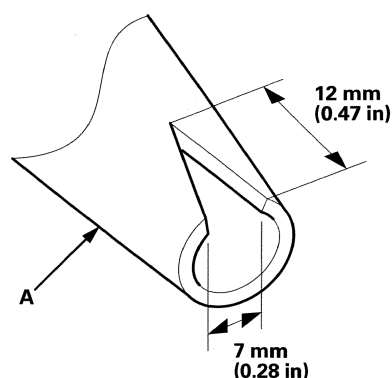
17. Carefully apply a light coat of body primer to any exposed paint or metal on the windshield mounting flange. Let the body primer dry for at least 10 minutes:

- Do not apply body primer to any remaining original adhesive on the flange.
- Be careful not to mix up the body and glass primer sponges.
- Never touch the primed surfaces with your hands.
- Mask off the dashboard before applying the primer.

//// : Apply body primer to exposed paint as shown.



18. Cut a "V" in the end of the nozzle (A) on the adhesive cartridge as shown.

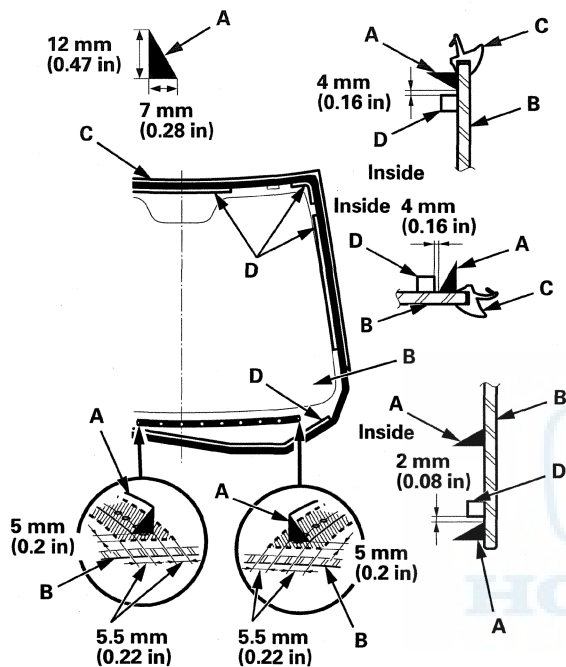


(cont'd)

Glass

Windshield Replacement (cont'd)

19. Put the cartridge in a caulking gun, and run a continuous bead of adhesive (A) on the windshield (B) along the edge of the molding (C) and rubber dams (D) as shown. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.



20. Use suction cups to hold the windshield over the opening, align it with the alignment marks made in step 3 or step 14, and set it down on the adhesive. Lightly push on the windshield until its edges are fully seated on the adhesive all the way around.

NOTE: Do not open or close any of the doors for about an hour until the adhesive is dry.

21. Remove the excess adhesive with a putty knife or a shop towel dampened with isopropyl alcohol.
22. Wait at least one hour for the adhesive to dry, then spray water over the windshield and check for leaks. Mark leaking areas, and let the windshield dry, then seal with sealant. Let the vehicle stand for at least 4 hours after windshield installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.
23. Reinstall all remaining removed parts. Install the rearview mirror after the adhesive has dried thoroughly. Advise the customer not to do the following things for 2 to 3 days:
- Slam the doors with all the windows rolled up.
 - Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).



Front Corner Glass Replacement

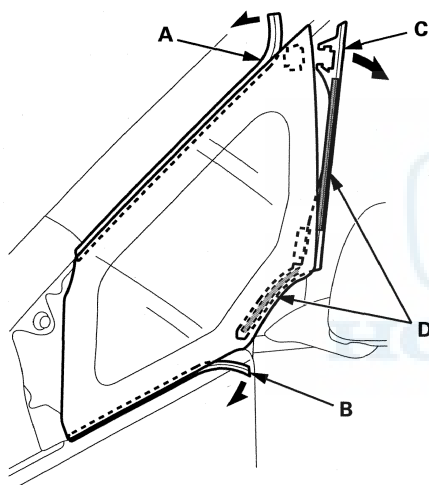
NOTE:

- Put on gloves to protect your hands.
- Wear eye protection while cutting the glass adhesive.
- Use seat covers to avoid damaging any surfaces.
- The front corner trim and the front corner glass clips are damaged during glass removal and must be replaced.

1. Remove these items:

- A-pillar corner trim (see page 20-167)
- A-pillar trim, both sides (see page 20-69)

2. Remove rubber dams A and B from the edge of the front corner glass. If necessary, cut the rubber dams with a utility knife.



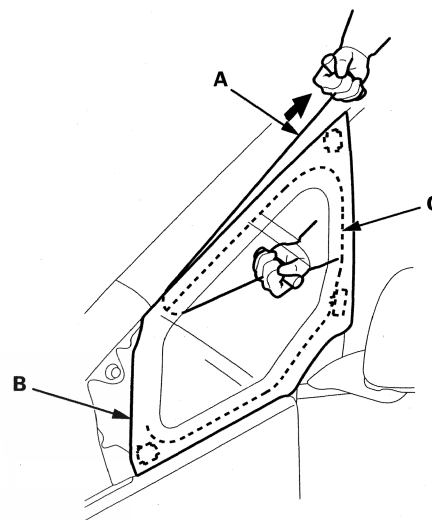
3. Remove the front corner trim (C).

- 1. Pull out the upper edge of the front corner trim.
- 2. Pull out the lower edge of the front corner trim while detaching it from the adhesive (D), then remove it.

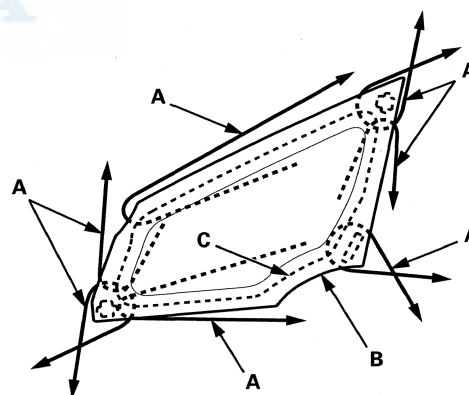
NOTE: Always replace the front corner trim with a new one.

4. Apply protective tape along the inside and outside edges of the body. Make a hole with an awl through the adhesive from inside the vehicle at a corner of the front corner glass. Push a piece of piano wire through the hole, and wrap each end around a piece of wood.

5. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the front corner glass (B) as possible to prevent damage to the body, and carefully cut through the adhesive (C) around the entire front corner glass.



Cutting positions



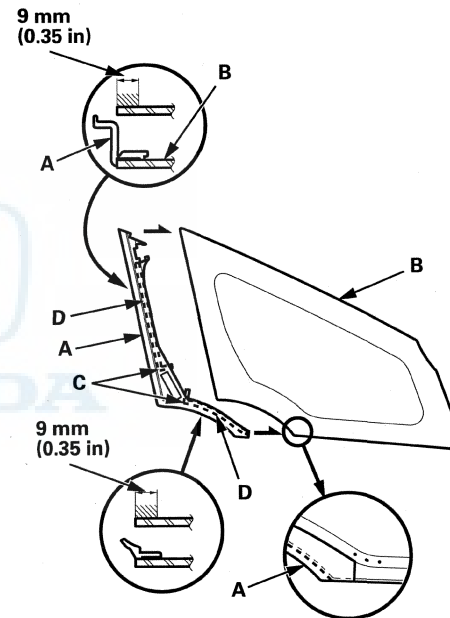
(cont'd)

Glass

Front Corner Glass Replacement (cont'd)

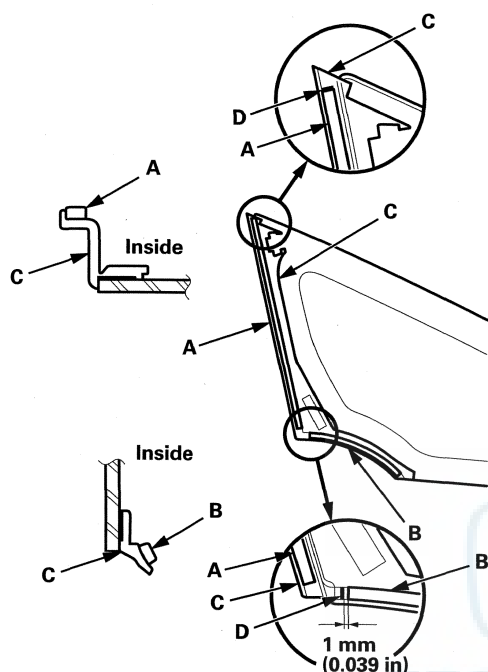
6. Carefully remove the front corner glass.
7. Scrape smooth the old adhesive, using a knife, until there is a thickness of about 2 mm (0.08 in) on the bonding surface around the entire front corner glass opening flange:
 - Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
 - Remove the clips and the rubber dams from the body.
8. Clean the body bonding surface with a shop towel dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.
9. If you are reinstalling the old front corner glass, use a putty knife to scrape off all of the old adhesive and the clips from the front corner glass. Clean the bonding surface on the inside face of the front corner glass and the edge of the glass with isopropyl alcohol. Make sure the bonding surface is kept free of water, oil, and grease.
10. Apply glass primer to the inside face of the corner glass, and let the primer dry, then attach the front corner trim (A) with adhesive tape to the front corner glass (B) as shown.
 - Be careful not to touch the glass where adhesive will be applied.
 - Make sure the rear, top, and bottom trim edges of the trim and the glass line up.
 - After placing the trim on the glass, remove the adhesive backing (C) from the adhesive tape (D), then press the adhesive portions into place.

//// : Apply primer here.



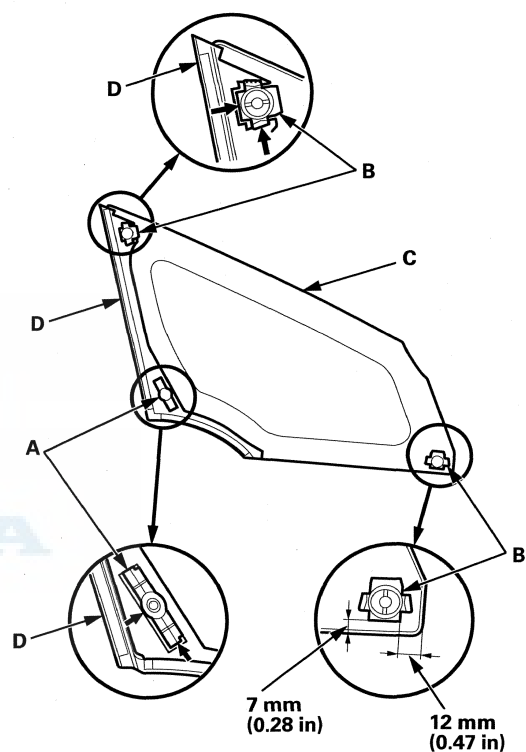


11. Attach seals A and B to the inside face of the quarter glass trim (C). Be sure the top edges of the seals line up with the alignment lines (D) on the trim as shown.



12. Attach clips A and B with adhesive tape to the inside face of the front corner glass (C) as shown:

- Be careful not to touch the glass where adhesive will be applied.
- Make sure the upper corner of the upper of clips B contacts the inner shape of the front corner trim (D).
- Make sure the upper and front edges of clip A fit into the hole in the front corner trim.



(cont'd)

Glass

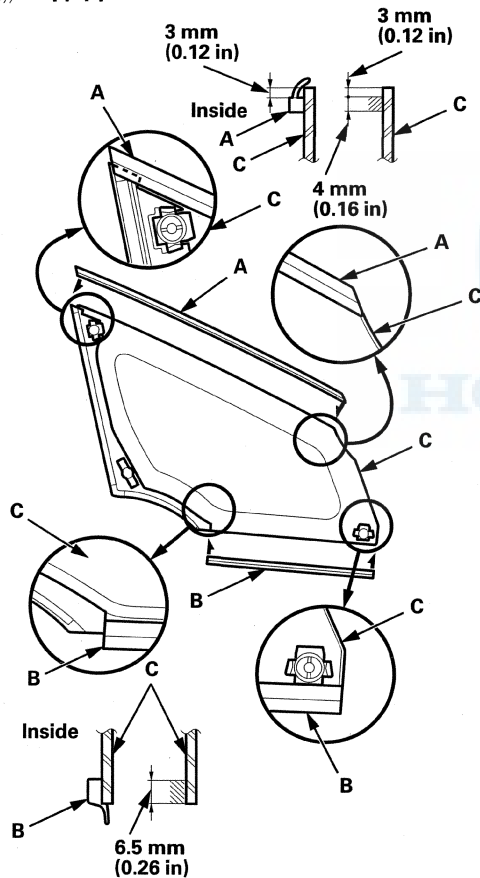
Front Corner Glass Replacement (cont'd)

13. Apply glass primer to the inside face of the front corner glass as shown, and let the primer dry, then attach rubber dams A and B with adhesive tape to the inside face of the front corner glass (C).

NOTE:

- Be careful not to touch the front corner glass where adhesive will be applied.
- Be sure the rear edge of each rubber dam contacts with the edge of the front corner trim.
- Cut the rubber dams flush with the front edge of the front corner glass.

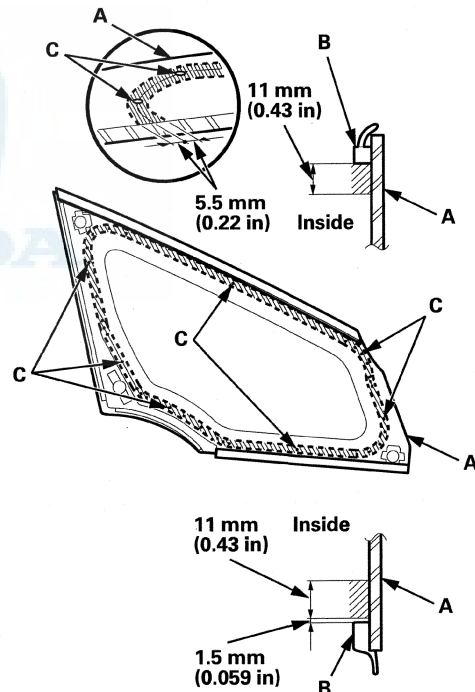
//// : Apply primer here.



14. Apply a light coat of glass primer to the inside face of the front corner glass (A) along the edge of the rubber dams (B) as shown, then lightly wipe it off with gauze or cheesecloth:

- Apply the glass primer to the front and rear portions of the front corner glass, using the printed dots (C) on the front corner glass as a guide.
- Do not apply body primer to the front corner glass, and be careful not to mix up the body and glass primer sponges.
- Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the front corner glass properly, causing a leak after the front corner glass is installed.
- Keep water, dust, and abrasive materials away from the primed surface.

//// : Apply glass primer here.

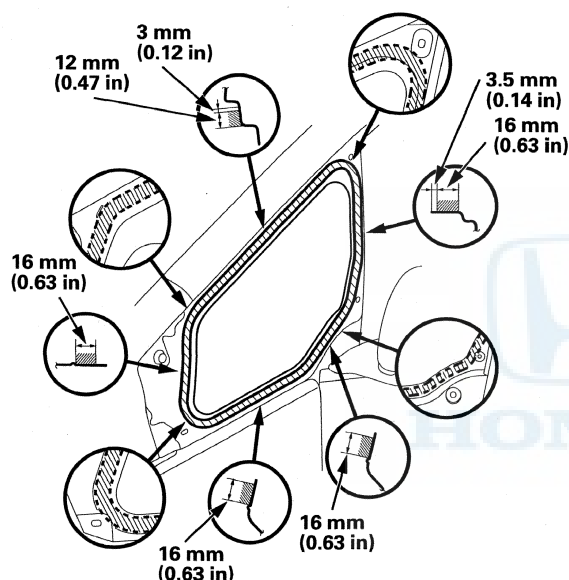




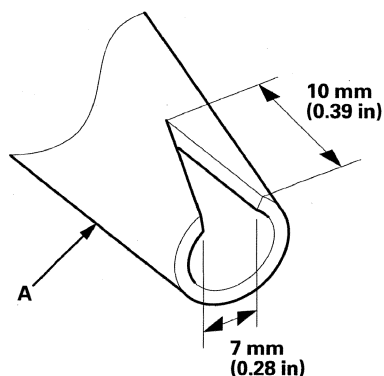
15. Apply a light coat of body primer to any exposed paint or metal around the front corner glass mounting flange. Let the body primer dry for at least 10 minutes:

- Do not apply glass primer to the body, and be careful not to mix up glass and body primer sponges.
- Do not apply body primer to any remaining original adhesive on the flange.
- Never touch the primed surfaces with your hands.
- Mask off the dashboard before applying the primer.

//// : Apply body primer to exposed paint as shown.



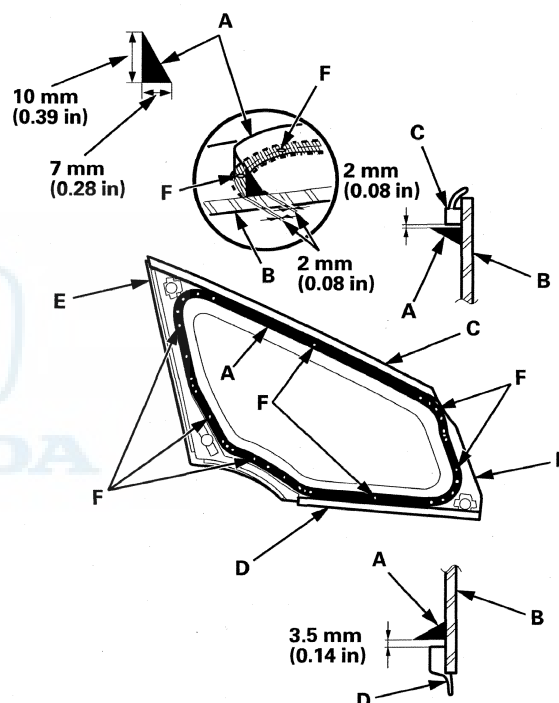
16. Cut a "V" in the end of the nozzle (A) on the adhesive cartridge as shown.



17. Put the cartridge in a caulking gun, and run a continuous bead of adhesive (A) around the edge of the front corner glass (B), along the rubber dams (C, D), and along the front corner trim (E) as shown.

Apply the adhesive to the front and rear portions of the front corner glass, using the printed dots (F) on the front corner glass as a guide.

Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.



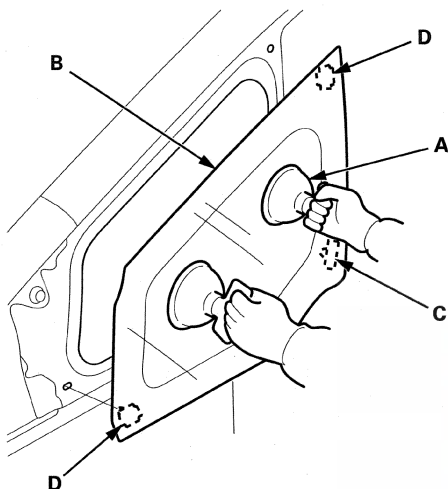
(cont'd)

Glass

Front Corner Glass Replacement (cont'd)

18. Use suction cups (A) to hold the front corner glass (B) over the opening, align it with the clips (C, D), and set it down on the adhesive. Lightly push on the front corner glass until its edges are fully seated on the adhesive all the way around.

NOTE: Do not open or close any of the doors for about an hour until the adhesive is dry.



19. Remove the excess adhesive with a putty knife or a shop towel dampened with isopropyl alcohol.
20. Wait at least one hour for the adhesive to dry, then spray water over the front corner glass and check for leaks. Mark the leaking areas and let the front corner glass dry, then seal with sealant. Let the vehicle stand for at least 4 hours after front corner glass installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.
21. Reinstall all remaining removed parts.

NOTE: Advise the customer not to do the following things for 2 to 3 days:

- Slam the doors with all the windows rolled up.
- Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

Rear Window Replacement

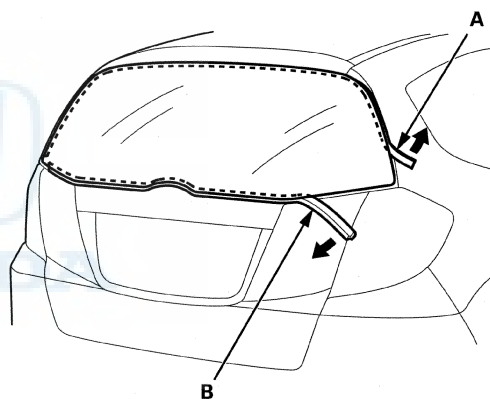
NOTE:

- Put on gloves to protect your hands.
- Wear eye protection while cutting the glass adhesive with a piano wire.
- Use seat covers to avoid damaging any surfaces.
- Do not damage the rear window defogger grid lines or terminals.

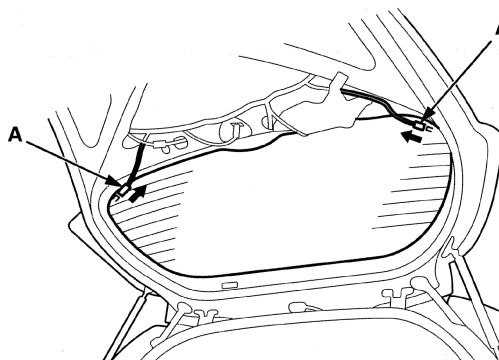
1. Remove these items:

- Tailgate lower trim panel (see page 20-78)
- Tailgate spoiler, for some models (see page 20-175)
- High mount brake light (see page 22-207)
- Rear window wiper arm (see page 22-264)

2. Remove rubber dams A and B from the edge of the rear window. If necessary, cut the rubber dam with a utility knife.

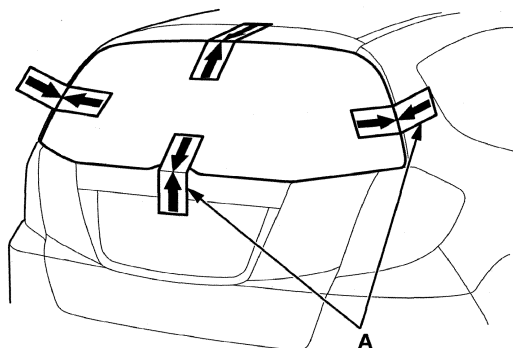


3. Disconnect the rear window defogger connectors (A).



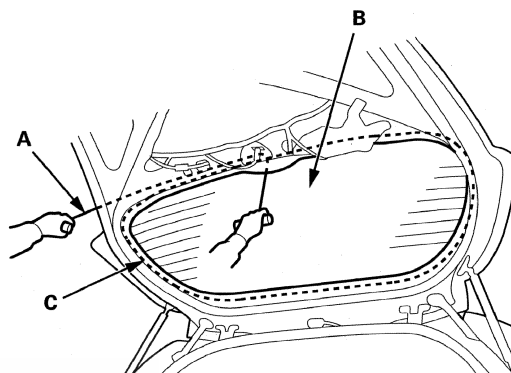


4. If you are reinstalling the old rear window, make alignment marks (A) across the glass and body with a grease pencil.

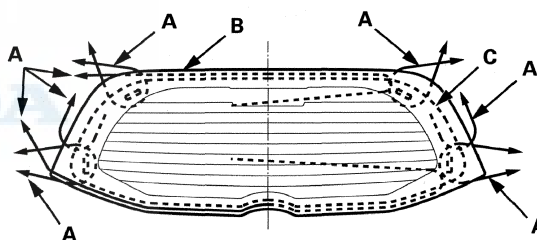


5. Apply protective tape along the inside and outside edges of the tailgate. Make a hole with an awl through the adhesive from inside the vehicle at a corner of the rear window. Push a piece of piano wire through the hole, and wrap each end around a piece of wood.

6. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the rear window (B) as possible to prevent damage to the tailgate, and carefully cut through the adhesive (C) around the entire rear window.



Cutting positions



(cont'd)

Glass

Rear Window Replacement (cont'd)

7. Carefully remove the rear window.

8. Scrape smooth the old adhesive, using a knife, until there is a thickness of about 2 mm (0.08 in) on the bonding surface around the entire rear window opening flange:

- Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
- Remove the fasteners from the tailgate.

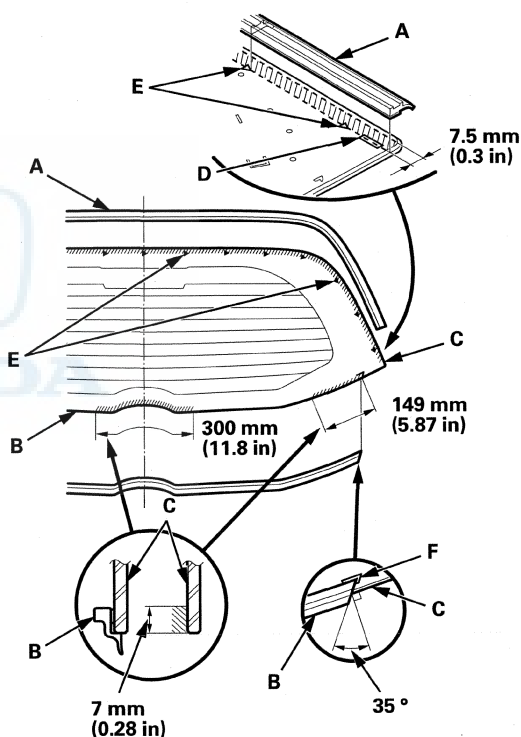
9. Clean the tailgate bonding surface with a shop towel dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.

10. If you are reinstalling the old rear window, use a putty knife to scrape off all of the old adhesive, the fasteners (Suzuka Factory produced models), the spacers (Sayama Factory produced models), and the rubber dams from the rear window. Clean the bonding surface on the inside face and the edge of the rear window with isopropyl alcohol. Make sure the bonding surface is kept free of water, oil, and grease.

11. Apply glass primer to the inside face of the rear window (C) as shown, and let the primer dry, then attach rubber dams A and B with adhesive tape to the inside face of the rear window.

- Be sure the rubber dam A lines up with alignment marks (D, E).
- Be careful not to touch the rear window where adhesive will be applied.
- Cut both ends of rubber dam A flush with the bottom edge of the rear window.
- Cut both ends of rubber dam B along the alignment marks (F) as shown.

//// : Apply primer here.

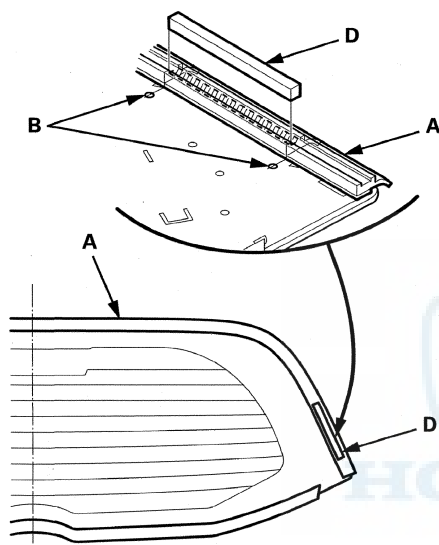




12. Apply primer to the areas of rubber dam A where rubber dams D attach as shown, then attach rubber dams D with adhesive tape to rubber dam A as shown.

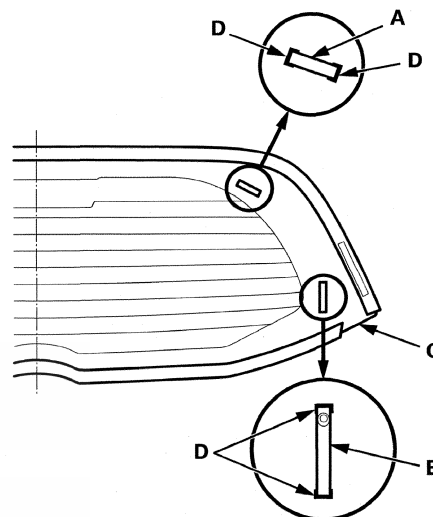
- Be sure the rubber dams D line up with the alignment marks (B).
- Be careful not to touch the rear window where adhesive will be applied.

//// : Apply primer here.



13. Attach fasteners A and B with adhesive tape to the inside face of the rear window (C) as shown.

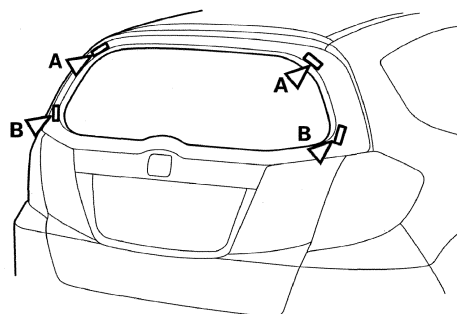
- Be sure the fasteners line up with the alignment marks (D).
- Be careful not to touch the rear window where adhesive will be applied.



14. Attach the fasteners (A, B) with adhesive tape to the tailgate as shown.

Fastener Locations

A▷ : Fastener, 2 B▷ : Fastener, 2

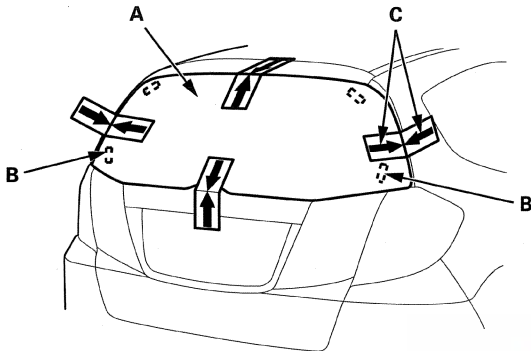


(cont'd)

Glass

Rear Window Replacement (cont'd)

15. If you are installing a new rear window, set the rear window (A) in the opening, and center it. Make alignment marks (C) across the rear window and body with a grease pencil at the four points shown. Make sure fasteners B contact with the holes of the tailgate corners. Be careful not to touch the rear window where adhesive will be applied.

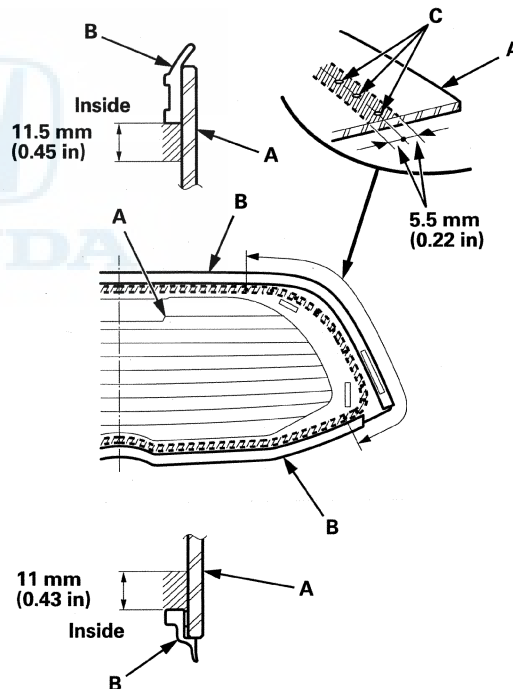


16. Remove the rear window.

17. Apply a light coat of glass primer around the edge of the rear window (A) and along the rubber dams (B) as shown, then lightly wipe it off with gauze or cheesecloth:

- Apply the glass primer to both side portions of the rear window, using the printed dots (C) on the rear window as a guide.
- Do not apply body primer to the rear window, and be careful not to mix up the body and glass primer sponges.
- Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the rear window properly, causing a leak after the rear window is installed.
- Keep water, dust, and abrasive materials away from the primed surfaces.

//// : Apply glass primer here.

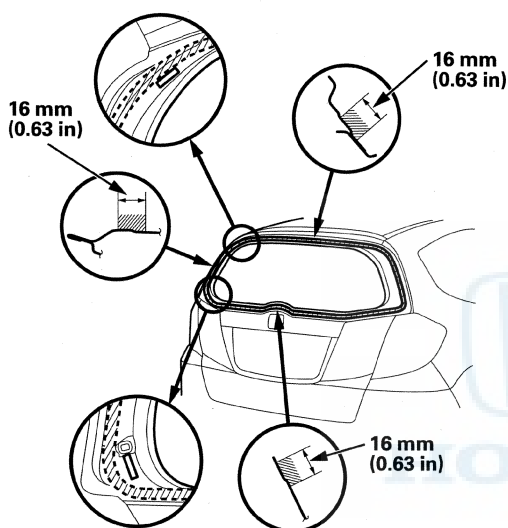




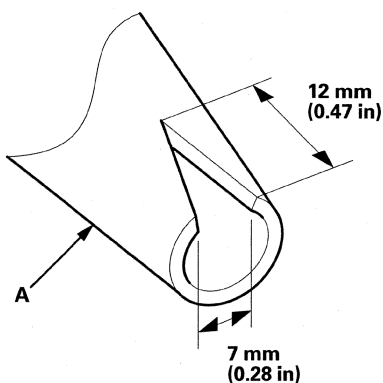
18. Apply a light coat of body primer to any exposed paint or metal around the flange where new adhesive will be applied. Let the body primer dry for at least 10 minutes:

- Do not apply body primer to any remaining original adhesive on the flange.
- Be careful not to mix up the body and glass primer sponges.
- Never touch the primed surfaces with your hands.

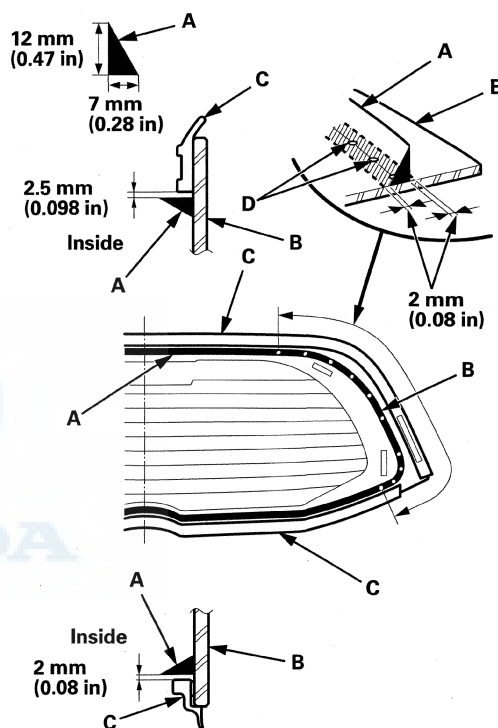
 : Apply body primer to any exposed paint as shown.



19. Cut a "V" in the end of the nozzle (A) on the adhesive cartridge as shown.



20. Put the cartridge in a caulking gun, and run a continuous bead of adhesive (A) around the edge of the rear window (B) and along the rubber dams (C) as shown. Apply the adhesive to both side portions of the rear window, using the printed dots (D) on the rear window as a guide. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.



21. Use suction cups to hold the rear window over the opening, align it with the alignment marks you made in step 4 or step 15, and set it down on the adhesive. Lightly push on the rear window until its edges are fully seated on the adhesive all the way around.

NOTE: Do not open or close any of the doors for about an hour until the adhesive is dry.

22. Remove the excess adhesive with a putty knife or a shop towel dampened with isopropyl alcohol.

23. Wait at least one hour for the adhesive to dry, then spray water over the rear window and check for leaks. Mark the leaking areas, let the rear window dry, then seal with sealant. Let the vehicle stand for at least 4 hours after rear window installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.

24. Reinstall all remaining removed parts.

(cont'd)

Glass

Rear Window Replacement (cont'd)

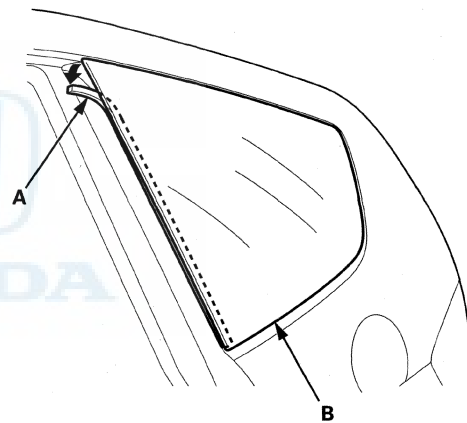
NOTE: Advise the customer not to do the following things for 2 to 3 days:

- Slam the doors with all the windows rolled up.
- Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).

Quarter Glass Replacement

NOTE:

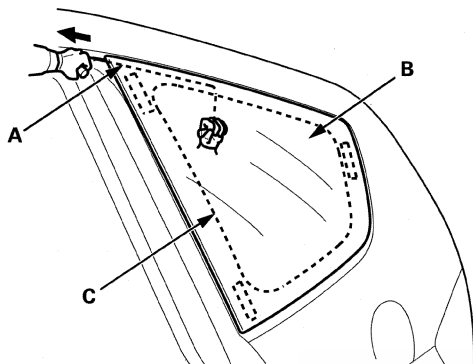
- Put on gloves to protect your hands.
 - Wear eye protection while cutting the glass adhesive with a piano wire.
 - Use seat covers to avoid damaging any surfaces.
1. Remove these items:
 - Rear door inner seal, as needed (see step 3 on page 20-68)
 - Tailgate weatherstrip, as needed (see page 20-160)
 - Cargo area side trim panel, as needed (see page 20-76)
 - Quarter pillar trim (see page 20-74)
 2. Remove the rubber dam (A) from the front edge of the quarter glass (B). If necessary, cut the rubber dam with a utility knife.



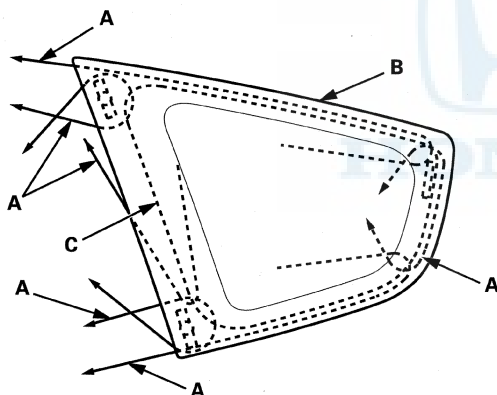
3. Apply protective tape to along the inside and outside edges of the body. Make a hole with an awl through the adhesive from inside the vehicle. Push a piece of piano wire through the hole, and wrap each end around a piece of wood.



4. With a helper on the outside, pull the piano wire (A) back and forth in a sawing motion. Hold the piano wire as close to the quarter glass (B) as possible to prevent damage to the body, and carefully cut through the adhesive (C) around the entire quarter glass.

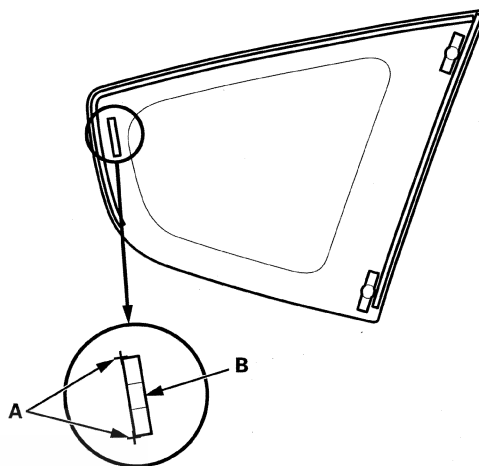


Cutting positions



5. Carefully remove the quarter glass.
6. Scrape smooth the old adhesive, using a knife, until there is a thickness of about 2 mm (0.08 in) on the bonding surface around the entire quarter glass opening flange:
- Do not scrape down to the painted surface of the body; damaged paint will interfere with proper bonding.
 - Remove the clips and rubber dams from the body.
7. Clean the body bonding surface with a shop towel dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.

8. If you are reinstalling the old quarter glass, make alignment marks (A) along the edge of the old rear clip (B) as shown for installing the new rear clip.



9. If you are reinstalling the old quarter glass, use a putty knife to scrape off all of the old adhesive, clips and the rubber dams from the quarter glass. Clean the bonding surfaces on the inside face and the edge of the quarter glass with isopropyl alcohol. Make sure the bonding surface is kept free of water, oil, and grease.

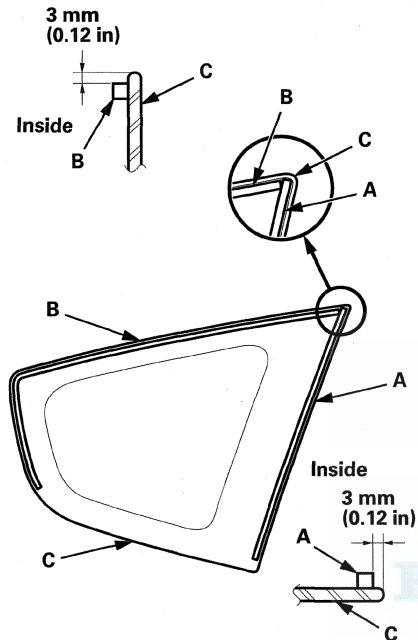
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Glass

Quarter Glass Replacement (cont'd)

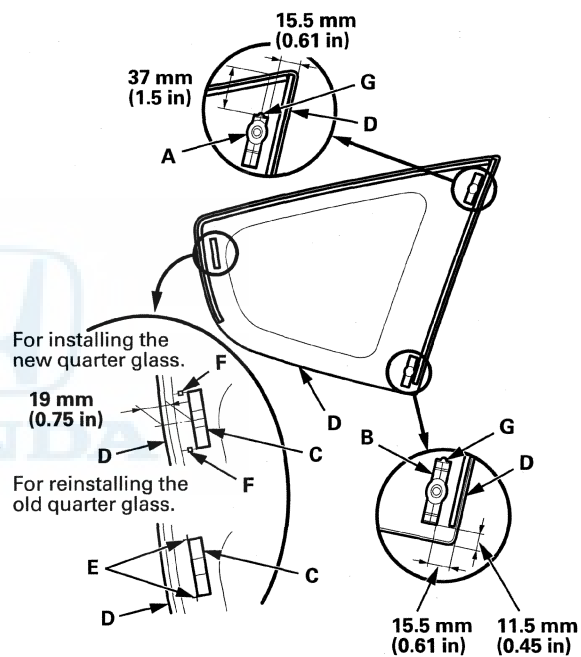
10. Attach rubber dam A and rubber dam B with adhesive tape to the inside face of the quarter glass (C) as shown:

- Be careful not to touch the quarter glass where adhesive will be applied.
- Be sure rubber dam B contacts with rubber dam A.



11. Attach clips A, B, and C with adhesive tape to the inside face of the quarter glass (D) as shown:

- If you are reinstalling the old quarter glass, align clip C with the alignment marks (E) you made in step 8.
- If you are installing a new quarter glass, align clip C with the alignment marks (F) on the glass.
- Make sure the index tabs (G) on clips A and B face the top of the glass.
- Be careful not to touch the quarter glass where adhesive will be applied.

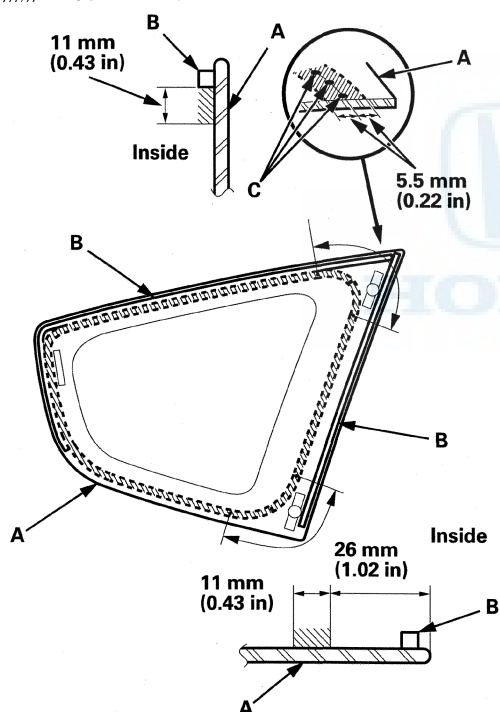




12. Apply a light coat of glass primer along the edge of the quarter glass (A) and rubber dams (B) as shown, then lightly wipe it off with gauze or cheesecloth:

- Apply the glass primer to the corner portions of the quarter glass, using the printed dots (C) on the quarter glass as a guide.
- Do not apply body primer to the quarter glass, and be careful not to mix up the body and glass primer sponges.
- Never touch the primed surfaces with your hands. If you do, the adhesive may not bond to the quarter glass properly, causing a leak after the quarter glass is installed.
- Keep water, dust, and abrasive materials away from the primed surfaces.

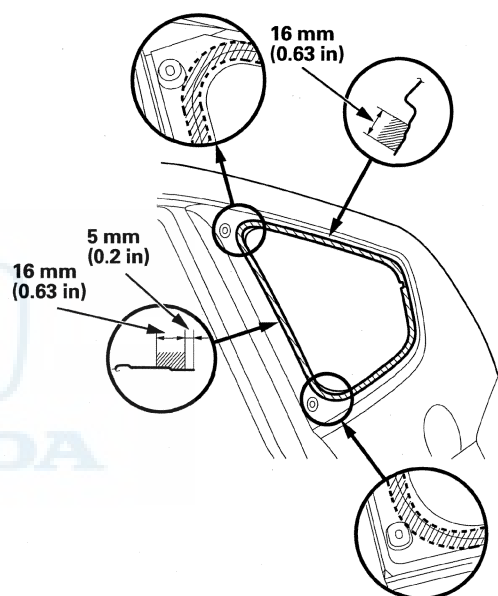
//// : Apply glass primer here.



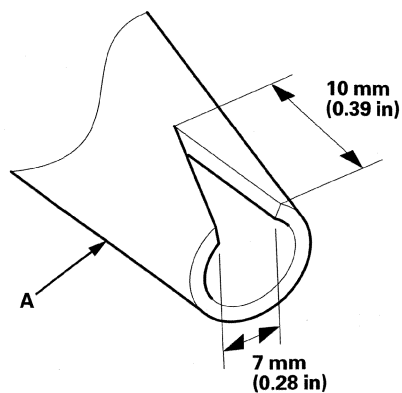
13. Apply a light coat of body primer to any exposed paint or metal around the flange where new adhesive will be applied. Let the body primer dry for at least 10 minutes:

- Do not apply body primer to any remaining original adhesive on the flange.
- Be careful not to mix up the body and glass primer sponges.
- Never touch the primed surfaces with your hands.

//// : Apply body primer to any exposed paint as shown.



14. Cut a "V" in the end of the nozzle (A) on the adhesive cartridge as shown.

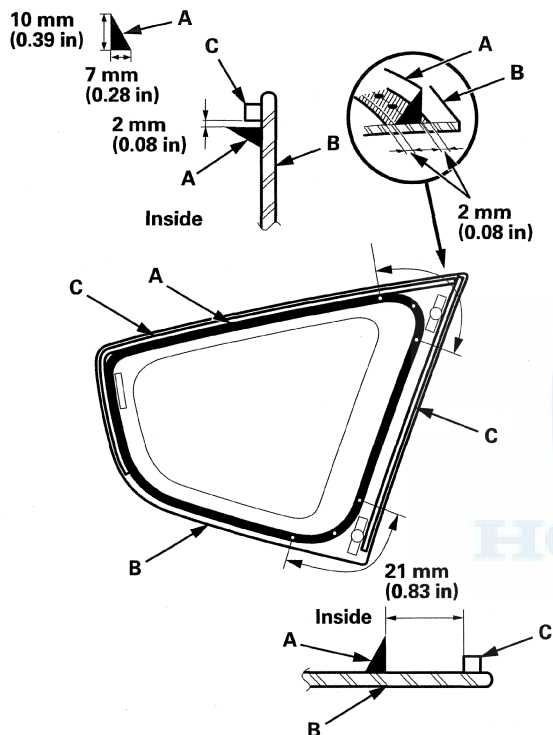


(cont'd)

Glass

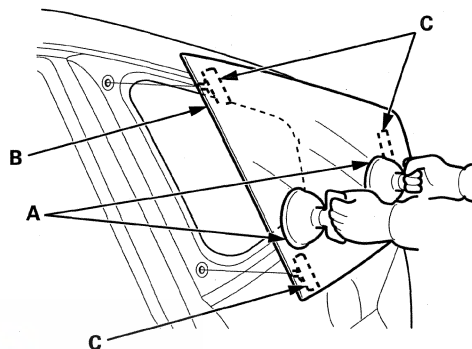
Quarter Glass Replacement (cont'd)

15. Put the cartridge in a caulking gun, and run a continuous bead of adhesive (A) around the edge of the quarter glass (B) and along the rubber dams (C) as shown. Apply the adhesive to the corner portions of the quarter glass, using the printed dots on the glass as a guide. Apply the adhesive within 30 minutes after applying the glass primer. Make a slightly thicker bead at each corner.



16. Use suction cups (A) to hold the quarter glass (B) over the opening, align it with the clips (C) and set it down on the adhesive. Lightly push on the quarter glass until its edges are fully seated on the adhesive all the way around.

NOTE: Do not open or close any of the doors for about an hour until the adhesive is dry.



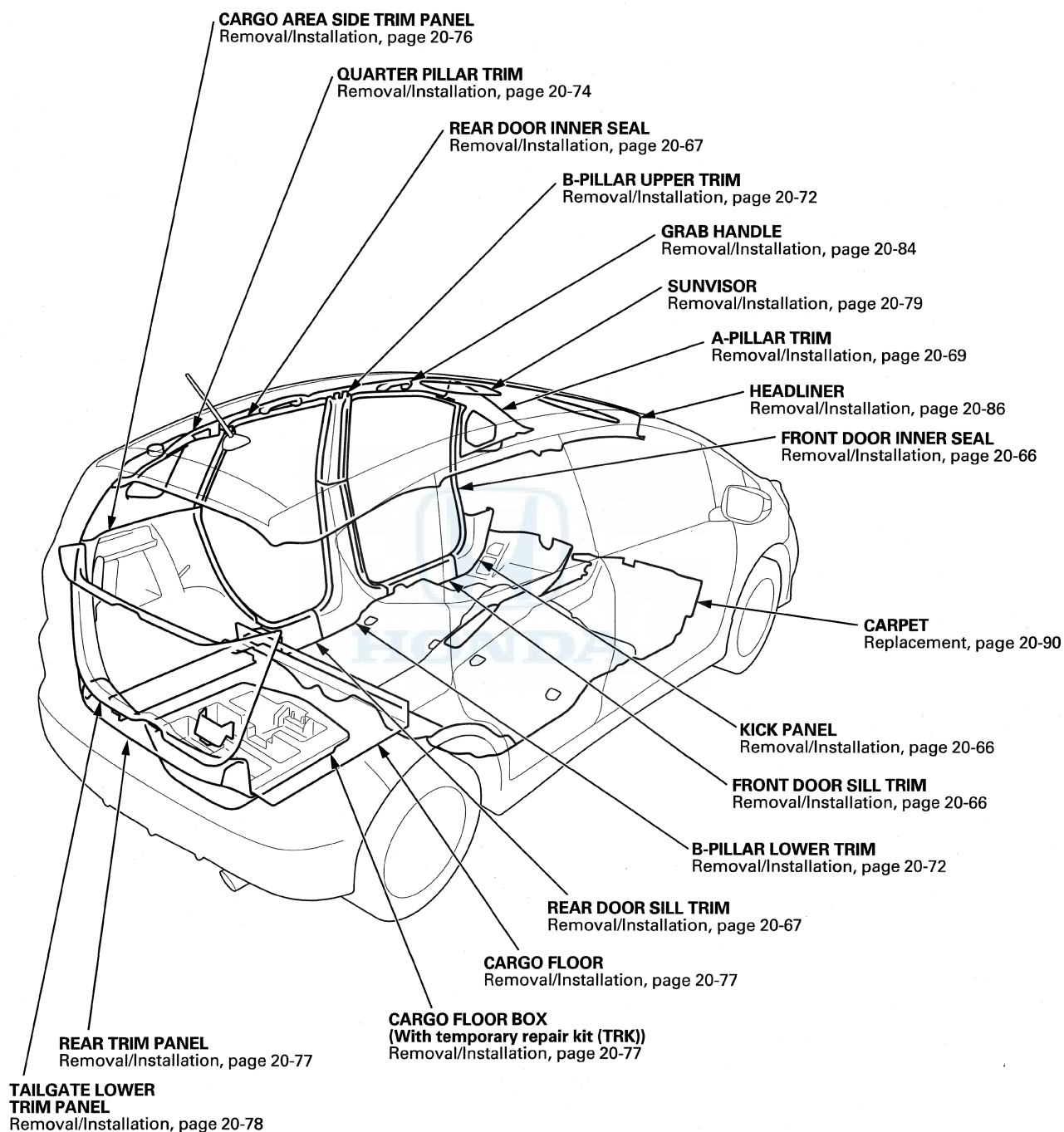
17. Remove the excess adhesive with a putty knife or a shop towel dampened with isopropyl alcohol.
18. Wait at least one hour for the adhesive to dry, then spray water over the quarter glass and check for leaks. Mark the leaking areas, let the quarter glass dry, then seal with sealant. Let the vehicle stand for at least 4 hours after quarter glass installation. If the vehicle has to be used within the first 4 hours, it must be driven slowly.
19. Reinstall all remaining removed parts.

NOTE: Advise the customer not to do the following things for 2 to 3 days:

- Slam the doors with all the windows rolled up.
- Twist the body excessively (such as when going in and out of driveways at an angle or driving over rough, uneven roads).



Component Location Index



Interior Trim

Trim Removal/Installation - Door Areas

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

Front Door Sill Area

NOTE:

- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the driver's dashboard undercover (see page 20-98).

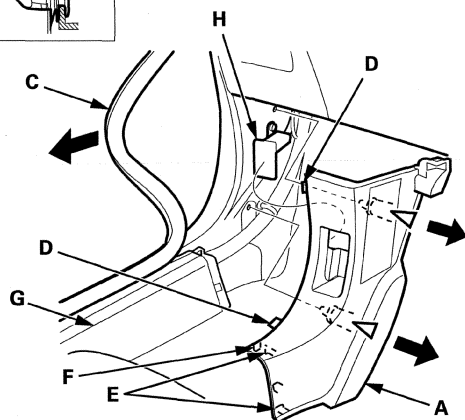
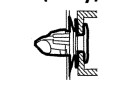
2. Remove the driver's kick panel (A) or the passenger's kick panel (B).

- 1. Pull out the front door inner seal (C) from the kick panel hooks (D) and the front door opening flange.
- 2. Pull the kick panel back by hand to detach the clips, and to release the hooks (E) and the tabs (F) from the front door sill trim (G), then remove the panel. On the driver's side, pull the hood opener knob (H) and hold it while removing the panel.

Driver's side

Fastener Locations

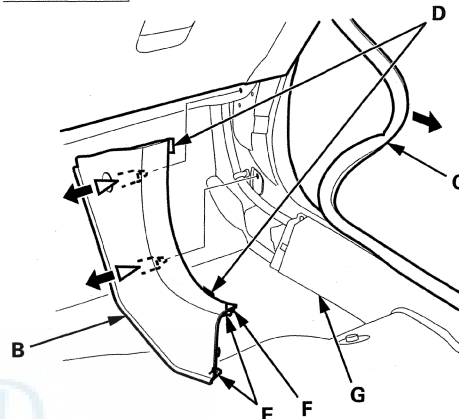
▷ : Clip, 2 (Gray)



Passenger's side

Fastener Locations

▷ : Clip, 2 (Gray)

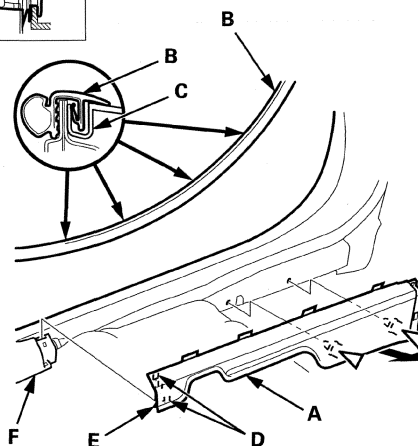
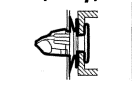


3. Remove the front door sill trim (A).

- 1. Pull out the front door inner seal (B) from the front door sill trim hooks (C) and the front door opening flange.
- 2. Detach the hooks (D) and the tab (E) from the B-pillar lower trim (F), and pull the front door sill trim up by hand to detach the clips.

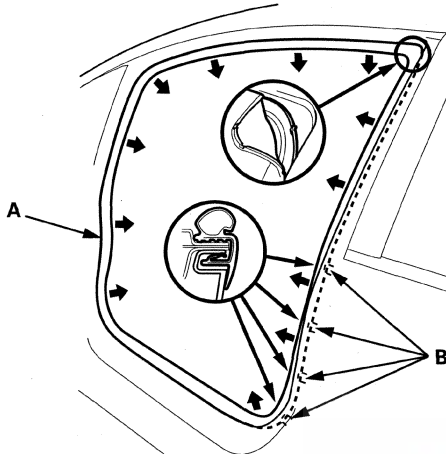
Fastener Locations

▷ : Clip, 2 (Gray)





4. Pull out the front door inner seal (A) from the trim hooks (B) and the front door opening flange, then remove the seal.



5. Install the trim in the reverse order of removal, and note these items:
- If the clips are damaged or stress-whitened, replace them with new ones.
 - Push the clips and hooks into place securely.

Rear Door Sill Area

NOTE:

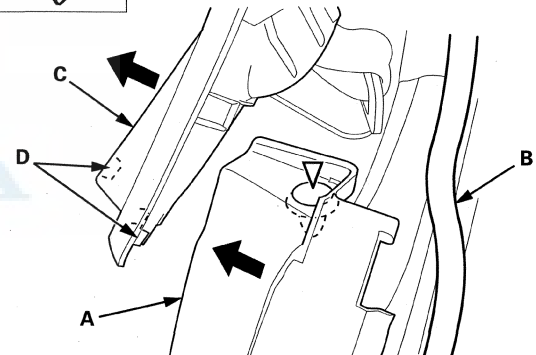
- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the rear door sill trim (A).

- 1. Tip-up the rear seat, and pull out the rear door inner seal (B) as needed, then carefully pull the cargo area side trim panel (C) away from the rear door sill trim by releasing the hooks (D). Pull the upper portion of the rear door sill trim inward to slide it off the clip.
- 2. Install the clip on the rear door sill trim.

Fastener Location

▷ : Clip, 1 (Gray)



(cont'd)

Interior Trim

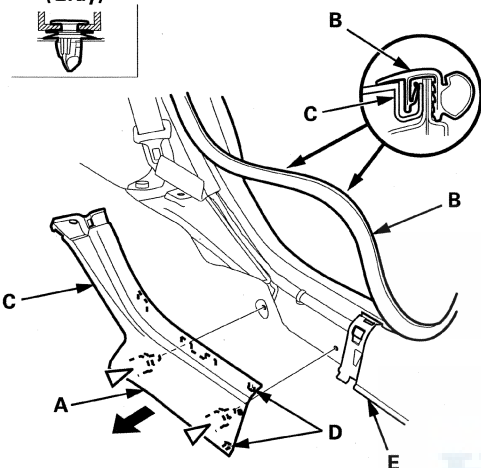
Trim Removal/Installation - Door Areas (cont'd)

2. Remove the rear door sill trim (A).

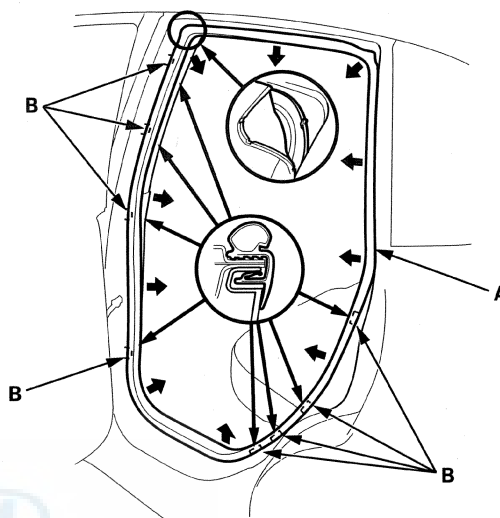
- 1. Pull out the rear door inner seal (B) as needed from the trim hooks (C) and the door opening flange.
- 2. Detach the hooks (D) from the B-pillar lower trim (E), then detach the lower clips by pulling the bottom of the rear door sill trim back by hand. Remove the trim.

Fastener Locations

▷ : Clip, 2 (Gray)



3. Pull out the rear door inner seal (A) from the trim hooks (B) and the rear door opening flange, then remove the seal.



4. Install the trim in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips and hooks into place securely.



Trim Removal/Installation - Pillar Areas

Special Tools Required

KTC Trim Tool Set SOJATP2014*

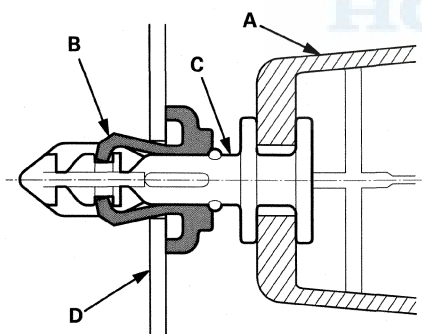
*Available through the Honda Tool and Equipment Program; call 888-424-6857

A-Pillar Trim

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

NOTE:

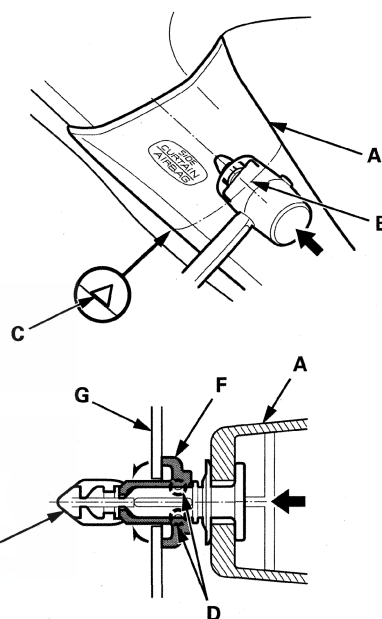
- Follow the A-pillar trim installation procedure carefully; improper installation could cause the side curtain airbags to deploy improperly and possibly cause injury.
- Put on gloves to protect your hands.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to scratch the trim and the panels.
- The upper clip for the A-pillar trim (A) consists of a plastic grommet (B) expanded by a metal pin (C), which secures the grommet to the body (D).
- The grommet breaks during removal, so a new upper clip must be used every time the trim is reinstalled.



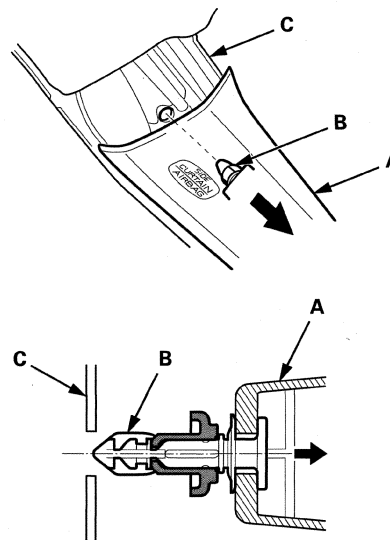
1. Pull the door inner seal away from the A-pillar as needed (see step 4 on page 20-67).

2. Hit the upper clip in the A-pillar trim (A) with a rubber mallet. The clip is located under the point (B) where the triangle mark (C) on the edge of the trim indicates. Hitting the clip slides the projections (D) on the pin (E) into the grommet (F). The projections break the grommet, which releases the clip from the body (G).

NOTE: The upper clip must be replaced with a new one when the A-pillar trim is reinstalled.



3. Pull the top of the A-pillar trim (A) back by hand to remove the upper clip (B) from the body (C).



(cont'd)

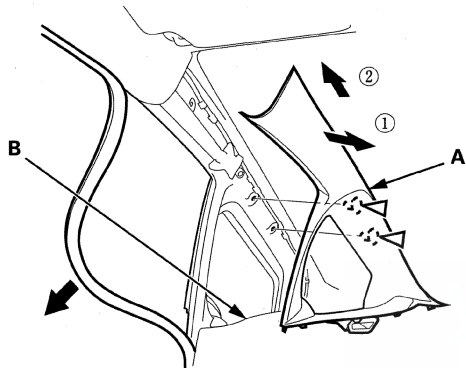
Interior Trim

Trim Removal/Installation - Pillar Areas (cont'd)

4. Pull out the A-pillar trim (A) by hand to detach the clips. Pull the trim up from the dashboard (B), then remove it.

Fastener Locations

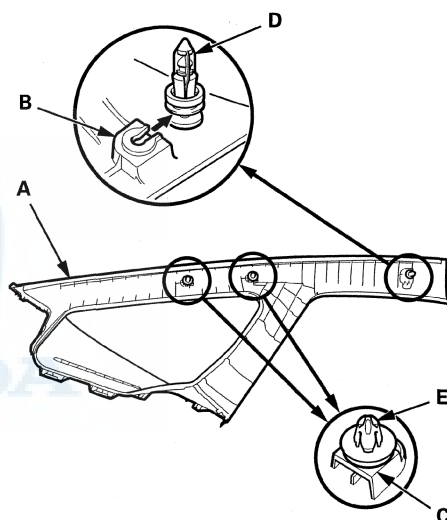
▷ : Clip, 2
(Purple)



5. If the side curtain airbag has deployed, replace the A-pillar trim, along with the other parts listed for side curtain airbag deployment (see page 24-168).

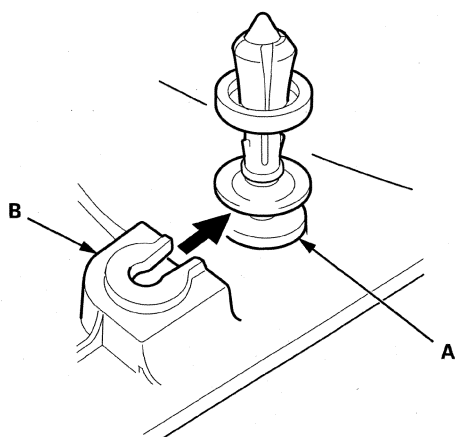
6. If the side curtain airbag has not deployed, check the A-pillar trim (A) and note the following items:

- To prevent the side curtain airbags from deploying improperly and possibly causing injury, inspect the A-pillar trim and replace it if it has any of the following damage:
 - Any cracks, deformations, or stress-whitened areas in the A-pillar trim
 - Any cracks or stress-whitened areas in the clip seating surfaces (B, C)
- Always replace the upper clip (D) with a new one.
- If the clips (E) are damaged or stress-whitened, replace them with new ones.



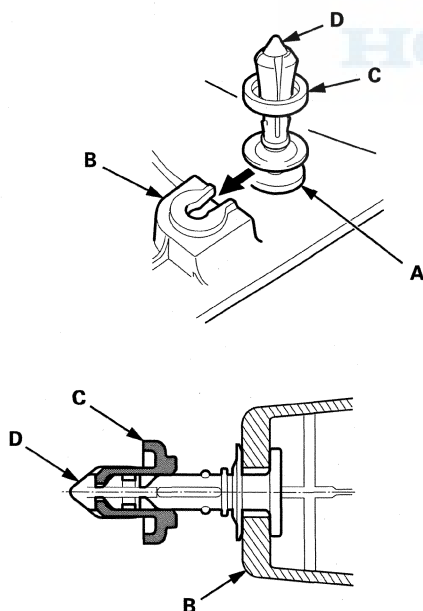


7. Temporarily remove the new upper clip (A) from the A-pillar trim (B).



8. Check the overlap between the headliner and the A-pillar trim, and if necessary, adjust it (see page 24-170).

9. Carefully install the new upper clip (A) on the A-pillar trim (B). Be sure that the grommet (C) is nearest to the top of the pin (D) as shown.



10. Reinstall the A-pillar trim (A).

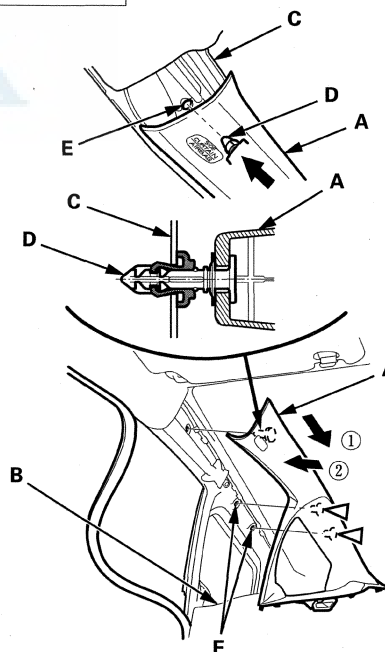
- 1. Insert the bottom of the trim into the dashboard (B).
- 2. Place the trim over the A-pillar (C), and fit its upper clip (D), and the lower clips into the holes (E) in the A-pillar, then lightly push the trim into place.

NOTE:

- Always use a new upper clip when installing the trim.
- If the clips are damaged or stress-whitened, replace them with new ones.
- Make sure the side curtain airbag is not pinched by the trim or the clips.
- Do not push too hard on the trim. Pushing too hard damages the upper clip, which will not hold the trim properly.
- Gently tug on the A-pillar trim to make sure that all clips are securely fastened.

Fastener Locations

▷ : Clip, 2 (Purple)



11. Reinstall the door opening seal.

(cont'd)

Interior Trim

Trim Removal/Installation - Pillar Areas (cont'd)

B-pillar Upper/Lower Trim

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

NOTE:

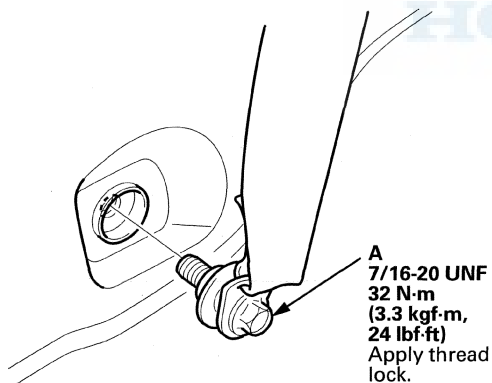
- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove these items:

- Kick panel (see page 20-66)
- Front door sill trim (see page 20-66)
- Rear door sill trim (see page 20-67)
- Front door inner seal, as needed (see step 4 on page 20-67)
- Rear door inner seal, as needed (see step 3 on page 20-68)

2. Slide the front seat forward fully, and put the rear seat in the normal upright position.

3. Driver's side: Remove the seat belt lower anchor bolt (A).

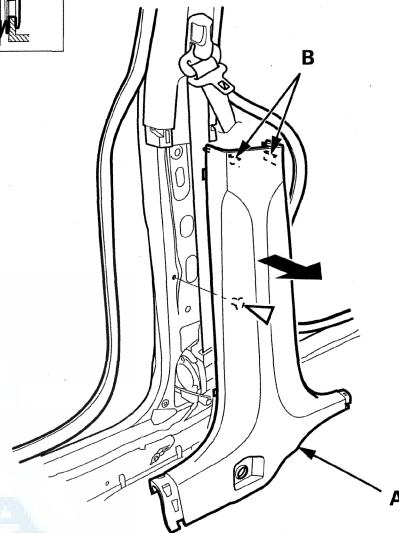
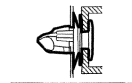


4. Remove the B-pillar lower trim (A).

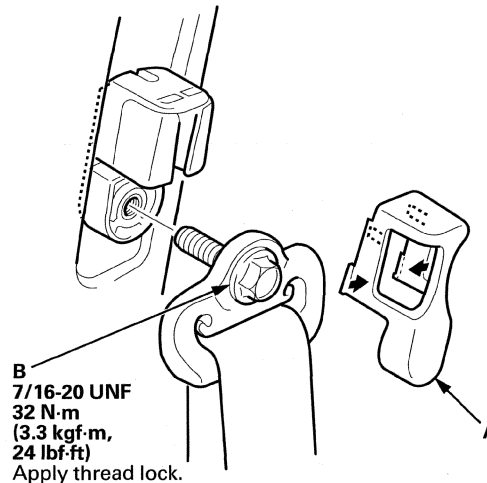
- 1. Pull the upper portion of the trim back to release the upper hooks (B).
- 2. Pull the trim back by hand to detach the clip.

Fastener Location

▷ : Clip, 1 (Gray)



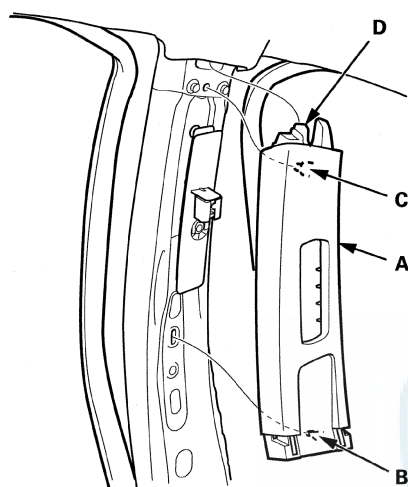
5. Remove the upper anchor cover (A), and remove the upper anchor bolt (B).





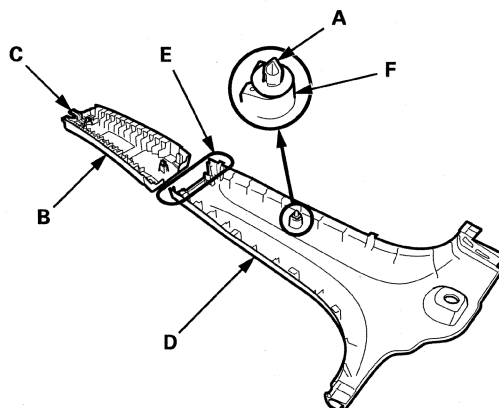
6. Remove the B-pillar upper trim (A).

- 1. Pull the bottom of the trim back by hand to detach the lower clip (B).
- 2. Pull the upper of the trim back by hand to detach the upper clip (C).
- 3. Pull the top of the trim down to release the hook (D) from the body hole, then remove the trim.



7. Install the trim in the reverse order of removal, and note these items:

- If the clip (A) is damaged or stress-whitened, replace it with a new one.
- If the side curtain airbag has deployed, replace the B-pillar upper trim, along with the other parts listed for side curtain airbag deployment (see page 24-168).
- If the side curtain airbag has not deployed, inspect the B-pillar trim for damage or abnormalities, which can cause the side curtain airbags to deploy improperly, possibly causing injury. Replace the trim if you find any of these problems:
 - Any cracks, deformations, or stress-whitened areas in the B-pillar upper trim (B), or the upper hook (C)
 - Any cracks, deformation, or stress-whitened areas in the B-pillar lower trim (D) or the trim overlap area (E)
 - Any cracks or stress-whitened areas in the clip seating surfaces (F)
- Make sure the top of the trim overlaps with the headliner correctly (see page 24-170).
- Make sure the trim hook is installed into the body hole securely.
- Push the clip and hooks into place securely.
- Apply medium strength liquid thread lock to the anchor bolts before reinstallation.
- Before installing the anchor bolt, make sure there are no twists or kinks in the seat belt.



(cont'd)

Interior Trim

Trim Removal/Installation - Pillar Areas (cont'd)

Quarter Pillar Trim

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

NOTE:

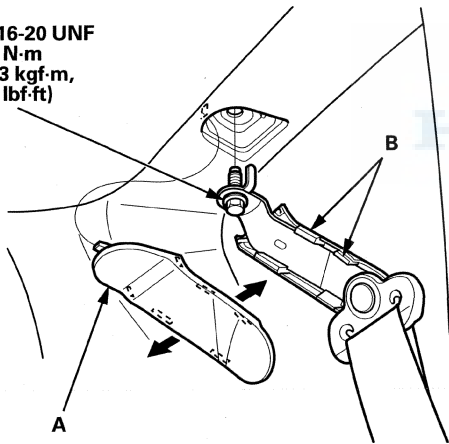
- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove these items:

- Rear door inner seal, as needed (see step 3 on page 20-68)
- Tailgate weatherstrip, as needed (see page 20-160)
- Cargo area side trim panel, as needed (see page 20-76)

2. Remove the upper anchor cover (A) by releasing the hooks (B), then remove the rear seat belt upper anchor bolt (C).

C
7/16-20 UNF
32 N·m
(3.3 kgf·m,
24 lbf·ft)

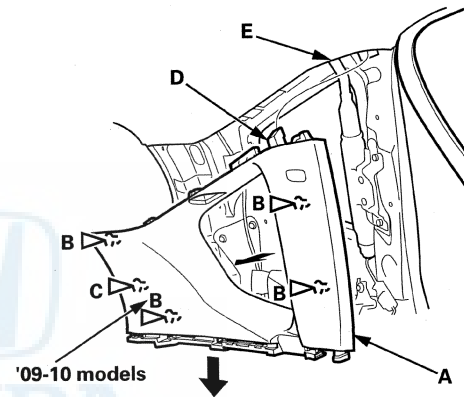


3. Remove the quarter pillar trim (A).

- 1. Pull the bottom of the trim back by hand to detach the clips (B, C).
- 2. Pull the trim down to release the upper hook (D) from the body hole (E).

Fastener Locations

B ▷ : Clip C ▷ : Clip, 1
'9-10 models, 4 (Yellow)
'11-12 models, 3 (Gray)

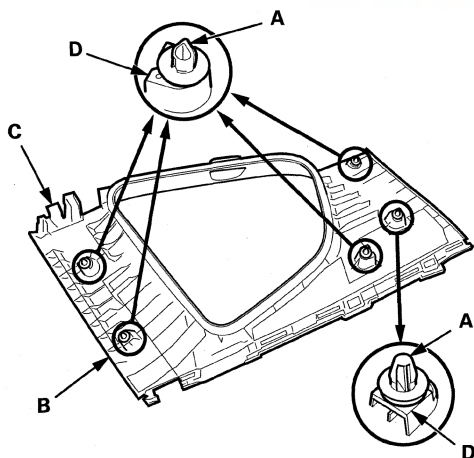




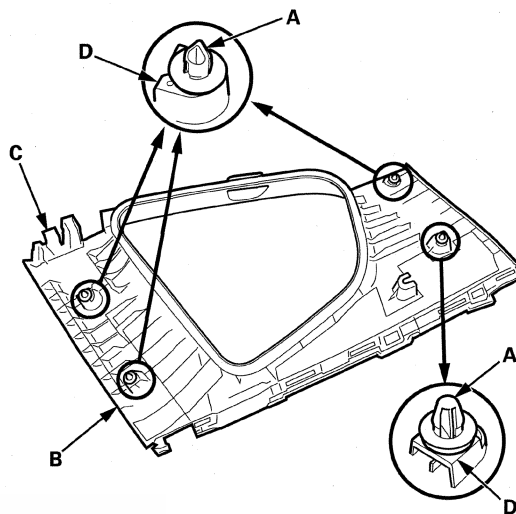
4. Install the trim in the reverse order of removal, and note these items:

- If the clips (A) are damaged or stress-whitened, replace them with new ones.
- If the side curtain airbag has deployed, replace the quarter pillar trim, along with the other parts listed for side curtain airbag deployment (see page 24-168).
- If the side curtain airbag has not deployed, inspect the quarter pillar trim for damage or abnormalities, which can cause the side curtain airbags to deploy improperly, possibly causing injury. Replace the trim if you find any of these problems:
 - Any cracks, deformation, or stress-whitened areas in the quarter pillar trim (B) or upper hook (C)
 - Any cracks or stress-whitened areas in the clips seating surfaces (D)
- Replace any damaged parts with new ones.
- Make sure the top of the trim overlaps with the headliner correctly (see page 24-170).
- Make sure the trim hook is installed into the body holes.
- Push the clip and hooks into place securely.
- Before installing the seat belt anchor bolt, make sure there are no twists or kinks in the seat belt.

'9-10 models



'11-12 models



Interior Trim

Trim Removal/Installation - Rear Side Area

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

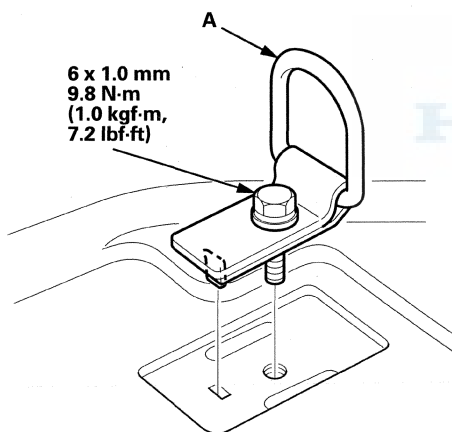
NOTE:

- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove these items:

- Rear door inner seal, as needed (see step 3 on page 20-68)
- Tailgate weatherstrip, as needed (see page 20-160)
- Cargo floor (see step 1 on page 20-77)
- Cargo floor box, with temporary repair kit (TRK) (see step 4 on page 20-77)
- Rear trim panel (see step 5 on page 20-78)
- Cargo area light (see page 22-221)

2. If necessary, remove the tie down hook (A).

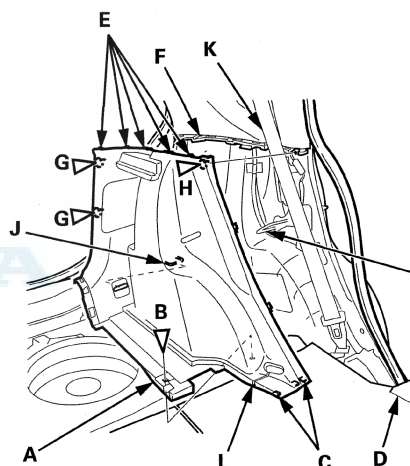
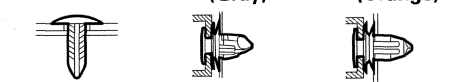


3. Remove the cargo area side trim panel (A).

- 1. Remove the clip (B) from the trim panel.
- 2. Pull the front edge of the trim panel back to release the tabs (C) from the rear door sill trim (D).
- 3. Pull the upper edge of the trim panel back to release the hooks (E) from the quarter pillar trim (F).
- 4. Detach the clips (G, H), then pull the trim panel back to remove it from the rear seat back striker (I) and the tie down hook (J).
- 5. Release the rear seat belt (K) from the slit (L) in the trim panel.

Fastener Locations

B ▷ : Clip, 1 G ▷ : Clip, 2 (Gray) H ▷ : Clip, 1 (Orange)



4. Install the panel in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips, the hooks, and the tabs into place securely.
- Make sure the cargo area light connector is plugged in properly.
- Make sure the trim panel does not pinch the seat belt.



Trim Removal/Installation - Cargo Area

Special Tools Required

KTC Trim Tool Set SOJATP2014*

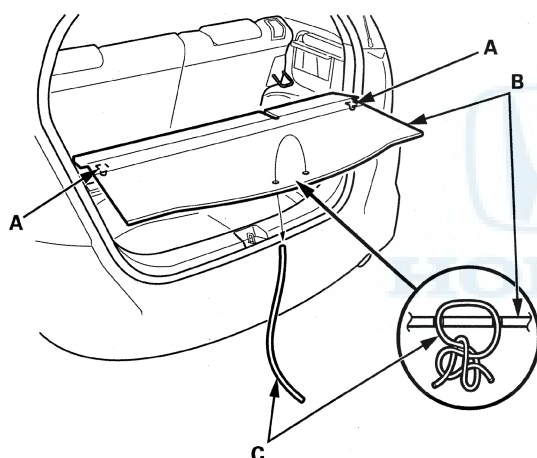
*Available through the Honda Tool and Equipment Program; call 888-424-6857

NOTE:

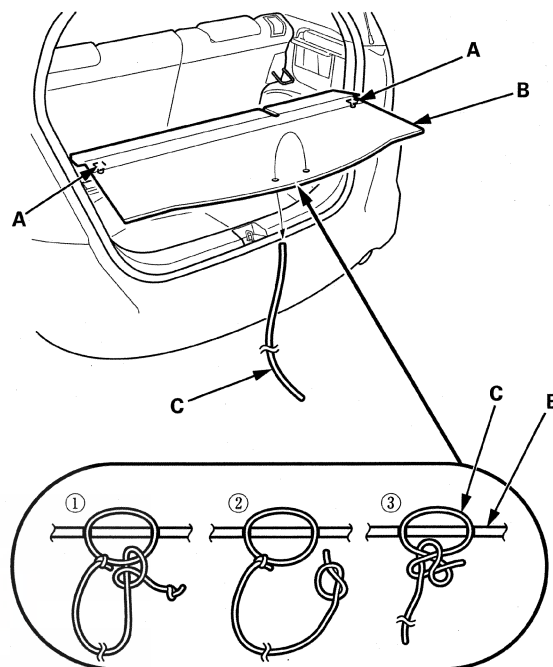
- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Release the hooks (A), then pull up the cargo floor (B) and remove it.

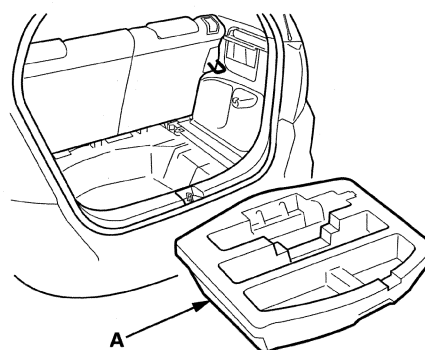
Without spare tire



With spare tire



2. Release the bungee (C).
3. Remove the tailgate weatherstrip, as needed (see page 20-160).
4. With temporary repair kit (TRK): Remove the cargo floor box (A)



(cont'd)

Interior Trim

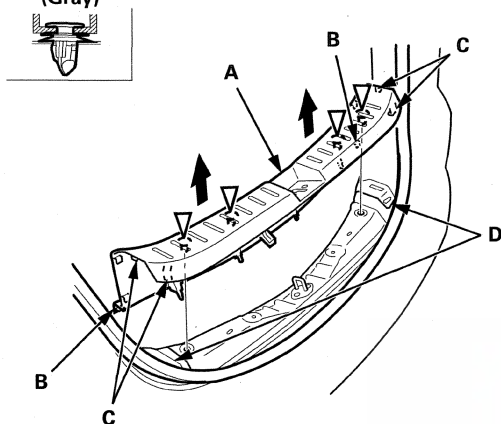
Trim Removal/Installation - Cargo Area (cont'd)

5. Remove the rear trim panel (A).

- 1. Disengage the tabs (B) and hooks (C) on both sides from both cargo area side trim panel (D).
- 2. Detach the clips by pulling the panel up.

Fastener Locations

▷ : Clip, 4 (Gray)



6. Install the trim in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips, the hooks, and the tabs into place securely.

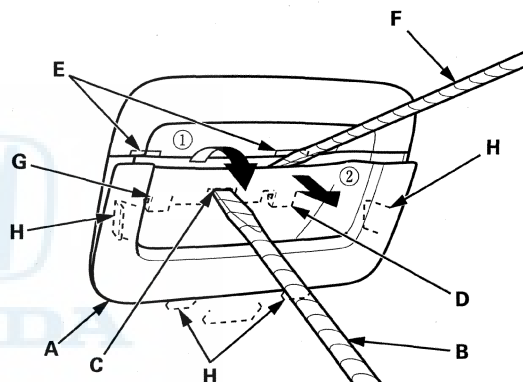
Trim Removal/Installation - Tailgate Area

NOTE:

- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.

1. Remove the pull pocket (A).

- 1. Insert a flat-tip screwdriver (B) into the slot (C).
- 2. While levering the pocket down with the screwdriver, carefully push down on the hook (D) just below the mark (E) with another flat-tip screwdriver (F). Push down on the other hook (G) in the same way.
- 3. Pull the pocket back to detach the remaining hooks (H), then remove it.



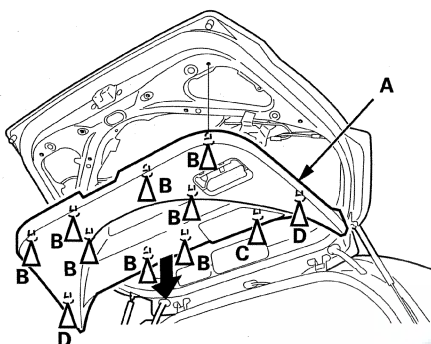


Sunvisor Removal/Installation

2. Pull out the tailgate lower trim panel (A) by hand to detach the clips (B, C, D), then remove it.

Fastener Locations

B ▷ : Clip, 8 (Gray) C ▷ : Clip, 1 (Green) D ▷ : Clip, 2 (Orange)



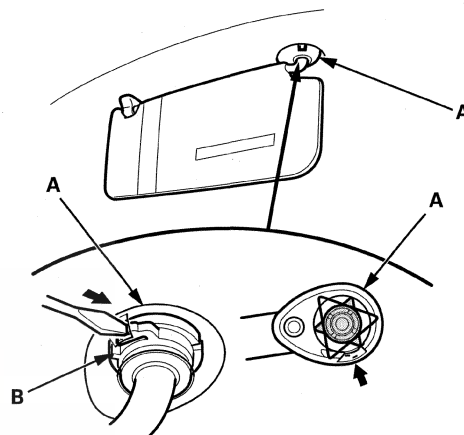
3. Install the trim in the reverse order of removal, and note these items:
 - If the clips are damaged or stress-whitened, replace them with new ones.
 - Push the clips into place securely.

'9-10 models

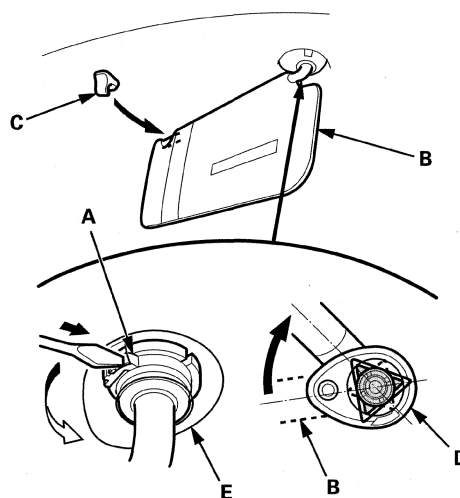
NOTE:

- Put on gloves to protect your hands.
- Take care not to damage the sunvisor or the headliner.

1. Insert a flat-tip screwdriver wrapped with protective tape through the hole in the front side of the bracket cover (A), and push in on the hook (B).



2. While pushing in on the hook (A), release the sunvisor (B) from the holder (C), and rotate the sunvisor backward about 45°. Make sure the hook slides into the bracket cover (D) as you rotate the sunvisor.



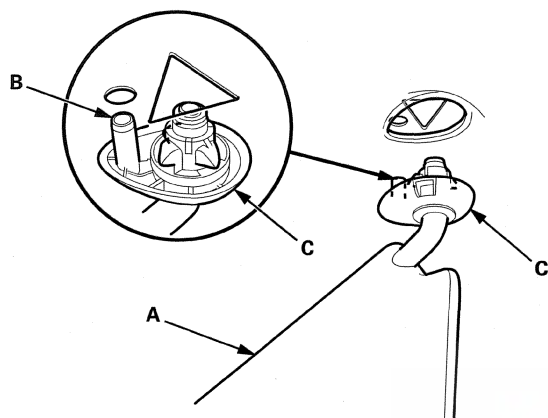
(cont'd)

Interior Trim

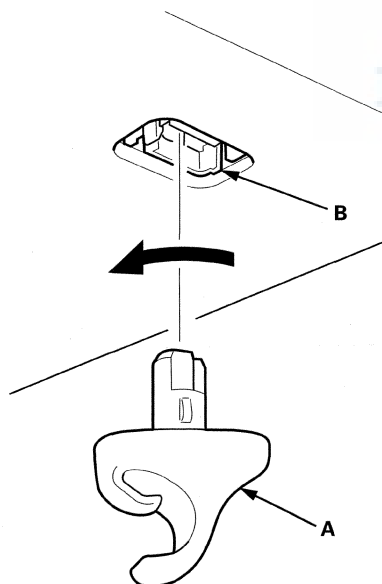
Sunvisor Removal/Installation (cont'd)

3. Pull down the sunvisor (A) to release the pin (B) and the bracket (C) from the holes in the body.

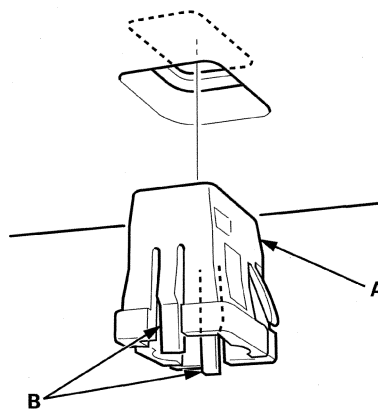
NOTE: If the sunvisor cannot be pulled down, the hook has not rotated into the bracket cover. Repeat step 2 to rotate the hook.



4. Turn the holder (A) 45 ° counterclockwise, and pull it down to remove it from the holder grommet (B).



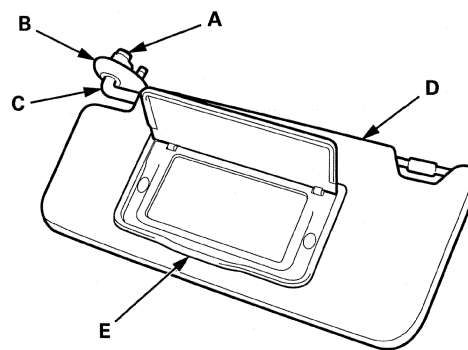
5. Pry out the holder grommet (A) from the body by pinching its hooks (B).



6. If the side curtain airbag has deployed, replace the sunvisor, along with the other parts listed for side curtain airbag deployment (see page 24-168).

7. If the side curtain airbag has not deployed, inspect the sunvisor for damage. A damaged sunvisor may cause the side curtain airbags to deploy improperly, possibly causing injury. Replace the sunvisor if it has any of these problems:

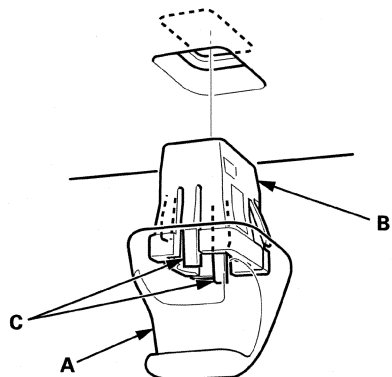
- Any cracks in the sunvisor bracket (A)
- Any cracks in the sunvisor bracket cover (B)
- Any bends or cracks in the sunvisor stay shaft (C)
- Any cracks in the sunvisor base (D)
- Any cracks in the vanity mirror base (E)



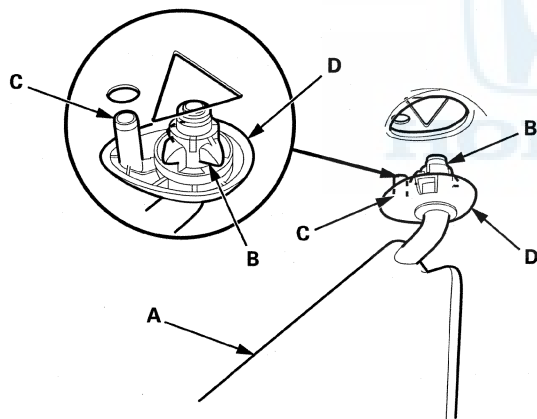
8. If the holder grommet is damaged or stress-whitened, replace it with a new one.



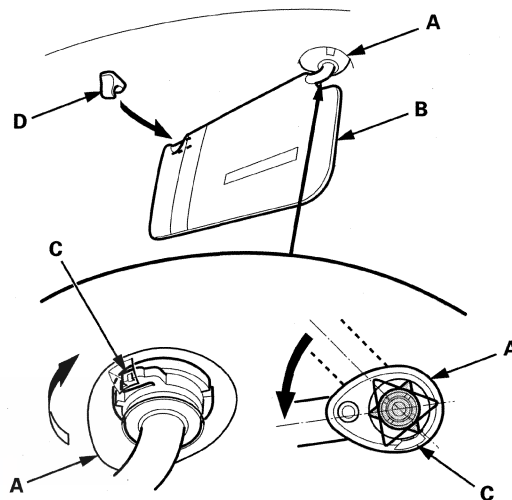
9. Install the holder (A) into the holder grommet (B) by turning it 45 ° clockwise, and install them into the body as an assembly by pushing it until the hooks (C) snap securely into place.



10. Install the sunvisor (A) by inserting the bracket (B) and the pin (C) on the bracket cover (D) through the holes in the body.



11. While holding the bracket cover (A), rotate the sunvisor (B) forward until the hook (C) snaps into place. Gently pull down on the sunvisor to make sure that it is properly secured in the body. Rotate the sunvisor into the holder (D).



(cont'd)

Interior Trim

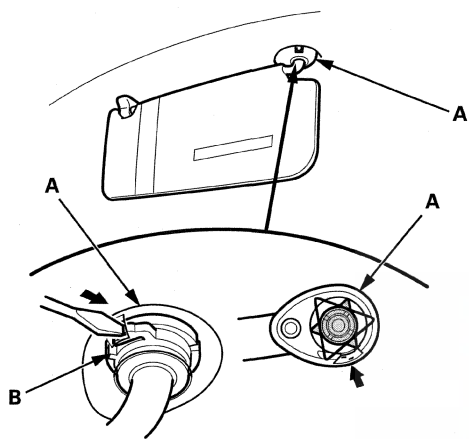
Sunvisor Removal/Installation (cont'd)

'11-12 models

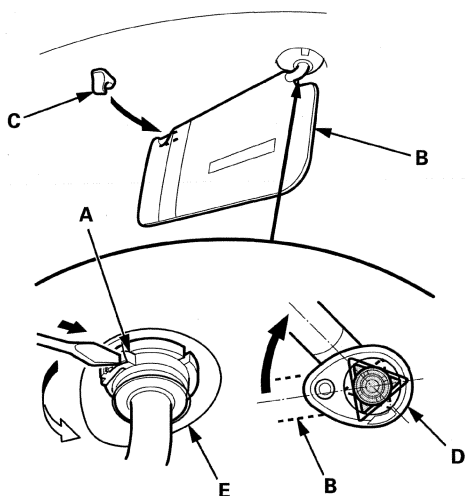
NOTE:

- Put on gloves to protect your hands.
- Take care not to damage the sunvisor or the headliner.

1. Insert a flat-tip screwdriver wrapped with protective tape through the hole in the front side of the bracket cover (A), and push in on the hook (B).

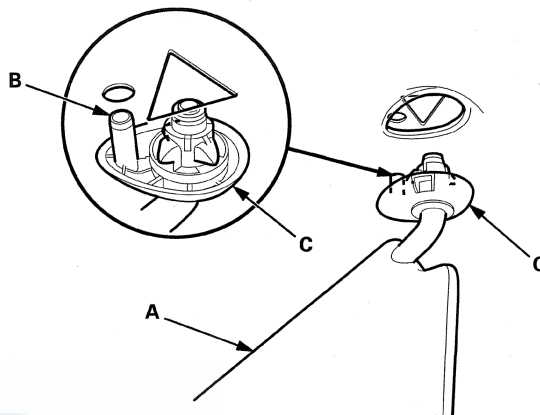


2. While pushing in on the hook (A), release the sunvisor (B) from the holder (C), and rotate the sunvisor backward about 45°. Make sure the hook slides into the bracket cover (D) as you rotate the sunvisor.



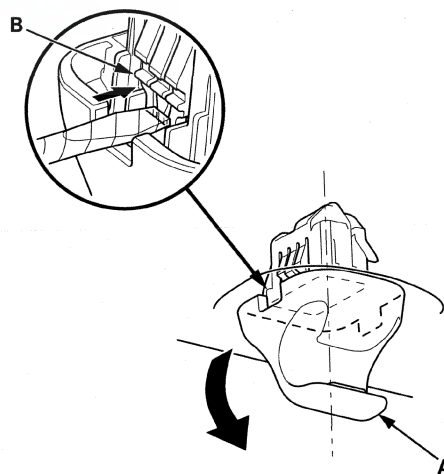
3. Pull down the sunvisor (A) to release the pin (B) and the bracket (C) from the holes in the body.

NOTE: If the sunvisor cannot be pulled down, the hook has not rotated into the bracket cover. Repeat step 2 to rotate the hook.



4. Insert the flat-tip screwdriver into the one of the slits of the holder (A), and push the hooks (B) of the holder, then pull down the one side of the holder.

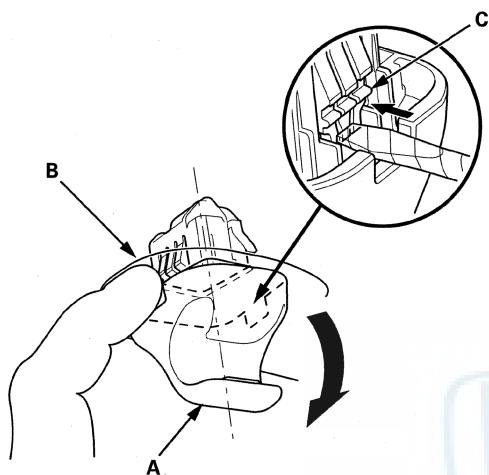
NOTE: Push all of the hooks with the flat-tip screwdriver.





5. While inserting a finger in the gap of the holder (A) and the headliner (B), insert the flat-tip screwdriver into another slit to detach the hooks (C). Then remove the holder from the body.

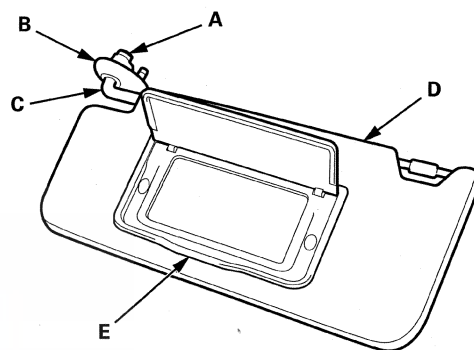
NOTE: If the holder is damaged or stress-whitened, replace it with new one.



6. If the side curtain airbag has deployed, replace the sunvisor, along with the other parts listed for side curtain airbag deployment (see page 24-168).

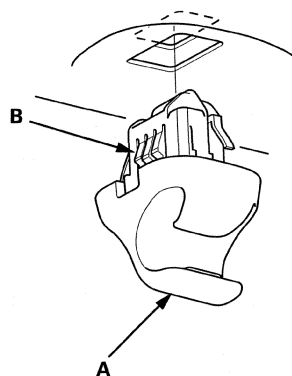
7. If the side curtain airbag has not deployed, inspect the sunvisor for damage. A damaged sunvisor may cause the side curtain airbags to deploy improperly, possibly causing injury. Replace the sunvisor if it has any of these problems:

- Any cracks in the sunvisor bracket (A)
- Any cracks in the sunvisor bracket cover (B)
- Any bends or cracks in the sunvisor stay shaft (C)
- Any cracks in the sunvisor base (D)
- Any cracks in the vanity mirror base (E)



8. If the holder grommet is damaged or stress-whitened, replace it with a new one.

9. Install the holder (A) to the body by pushing it until the hooks (B) snap into place securely.

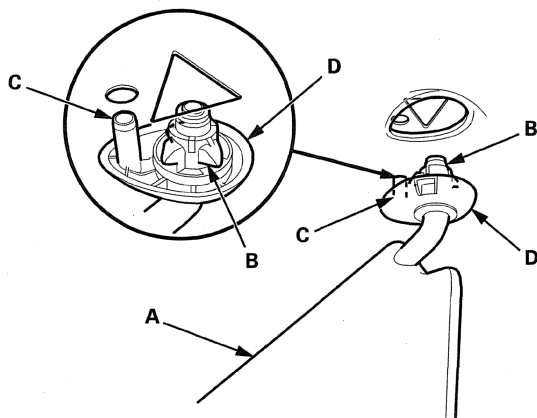


(cont'd)

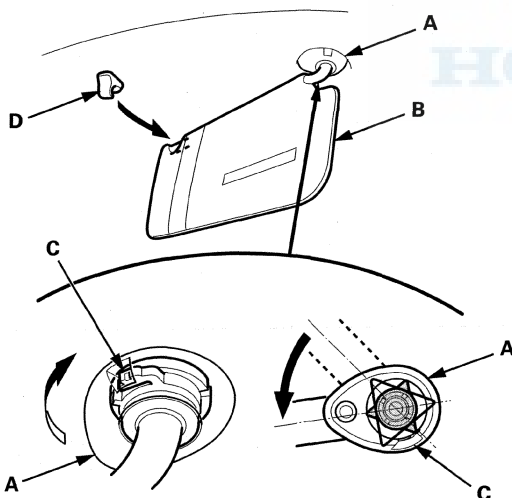
Interior Trim

Sunvisor Removal/Installation (cont'd)

10. Install the sunvisor (A) by inserting the bracket (B) and the pin (C) on the bracket cover (D) through the holes in the body.



11. While holding the bracket cover (A), rotate the sunvisor (B) forward until the hook (C) snaps into place. Gently pull down on the sunvisor to make sure that it is properly secured in the holder (D). Rotate the sunvisor into the holder (D).



Grab Handle Removal/Installation

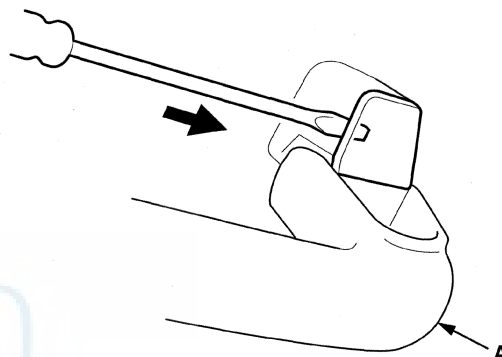
Special Tools Required

KTC Trim Tool Set SOJATP2014*

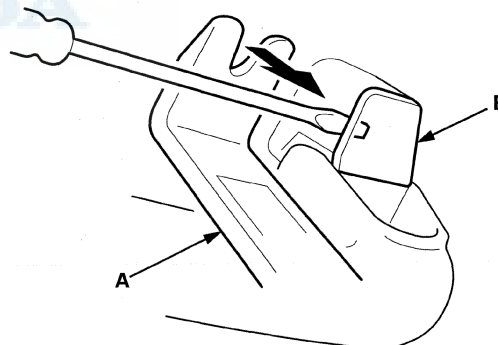
*Available through the Acura Tool and Equipment Program; call 888-424-6857

NOTE: Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Lower the grab handle (A), then insert a small flat-tip screwdriver wrapped in protective tape into the notch.

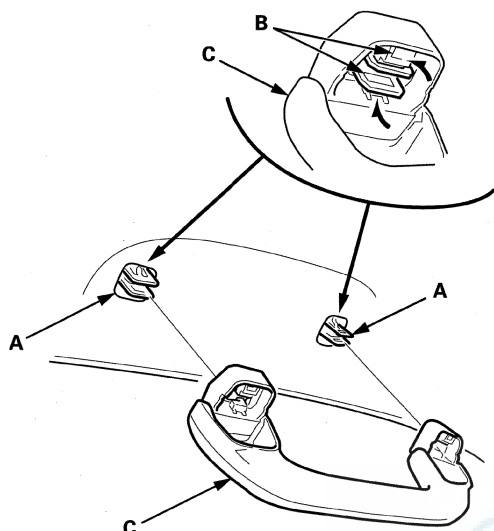


2. Use a KTC trim tool (A) to pull on the small flat-tip screwdriver, and remove the cap (B).

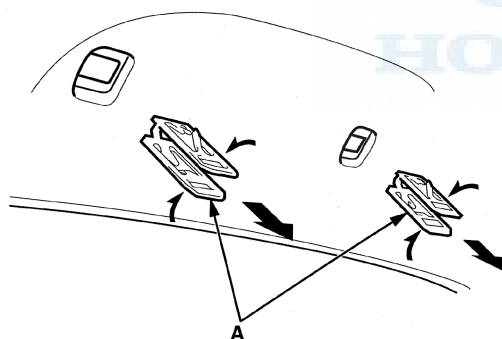




3. Pinch the clips (A) to release the hooks (B), then remove the grab handle (C).



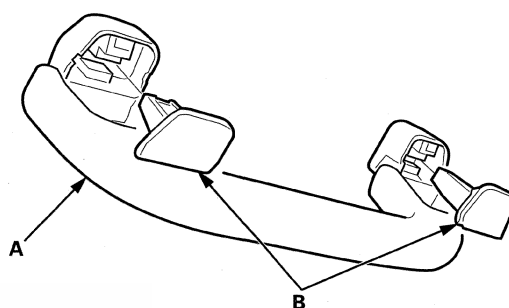
4. Remove the clips (A) by pinching the hooks with a pair of pliers.



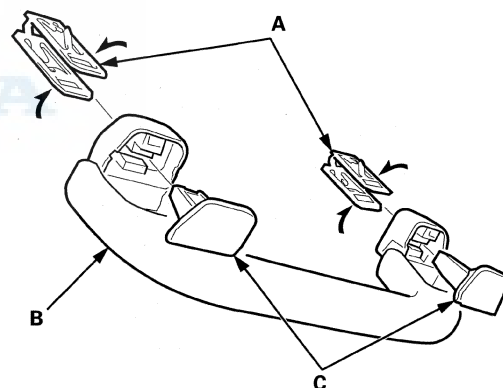
5. If the side curtain airbag has deployed, replace the grab handle, along with the other parts listed for side curtain airbag deployment (see page 24-168).

6. If the side curtain airbag has not deployed, inspect the grab handle for damage. A damaged grab handle may cause the side curtain airbag to deploy improperly, possibly causing injury. Replace the grab handle if it has any of the following damage:

- Any cracks or damage in the grab handle (A).
- Any cracks or stress-whitening in the caps (B).



7. Install the clips (A) on the grab handle (B), then insert the caps (C) fully into the clips.

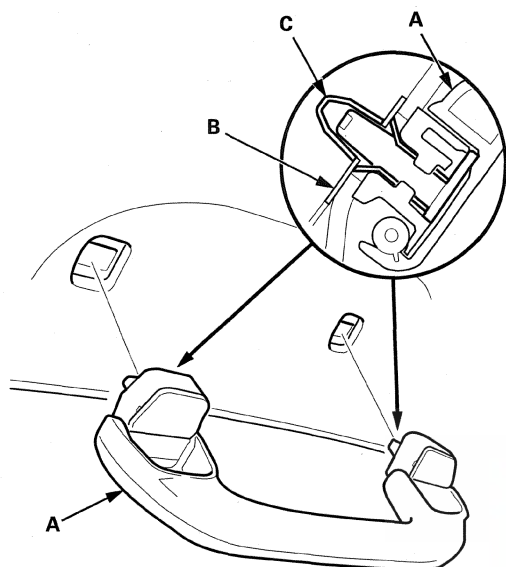


(cont'd)

Interior Trim

Grab Handle Removal/Installation (cont'd)

8. Position the grab handle (A) on the mounting bracket (B), and push on the grab handle until the clips (C) snap into place securely.



Headliner Removal/Installation

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

NOTE:

- Put on gloves to protect your hands.
- Take care not to bend or scratch the trim and panels.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Be careful not to damage the dashboard or other interior trim.

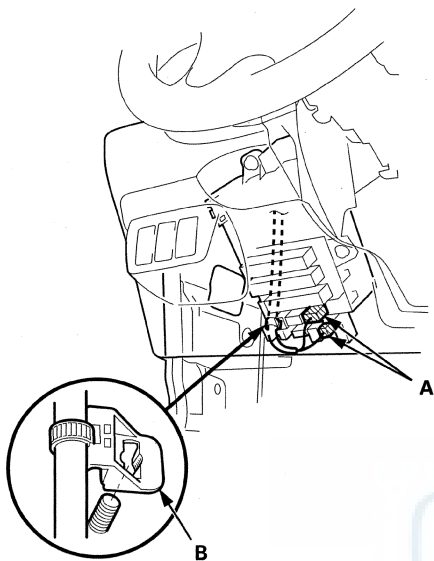
1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before beginning work.

2. Remove these items:

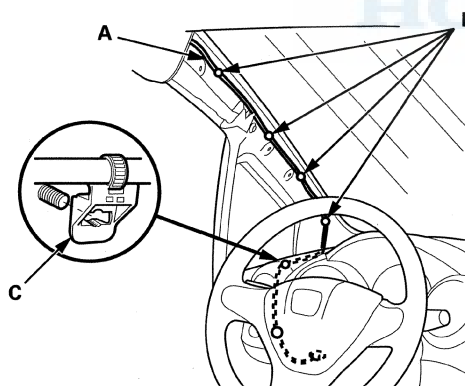
- Driver's dashboard undercover (see page 20-98)
- A-pillar trim, both sides (see page 20-69)
- Kick panels, both sides (see page 20-66)
- Front door sill trim, both sides (see page 20-66)
- Rear door sill trim, both sides (see page 20-67)
- Front door inner seal, as needed (see step 4 on page 20-67)
- Rear door inner seal, as needed (see step 3 on page 20-68)
- B-pillar upper/lower trim, both sides (see page 20-72)
- Tailgate weatherstrip, as needed (see page 20-160)
- Cargo area side trim panel, as needed (see page 20-76)
- Quarter pillar trim, both sides (see page 20-74)
- Individual map light, for some models:
 - With navigation (see page 22-220)
 - Without navigation (see page 22-220)
- Ceiling light (see page 22-221)
- Sunvisors, both sides (see page 20-79)
- Grab handles, four places (see page 20-84)



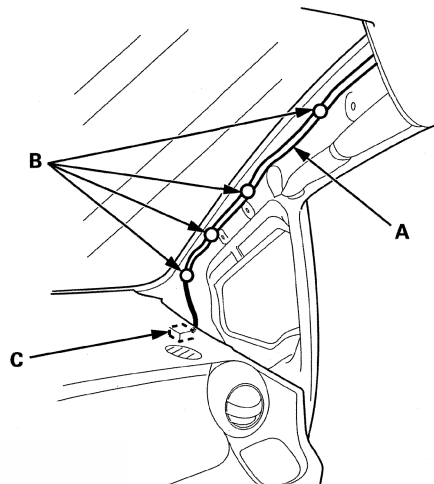
3. From under the driver's dash, disconnect the roof wire harness connectors (A), and detach the harness clip (B).



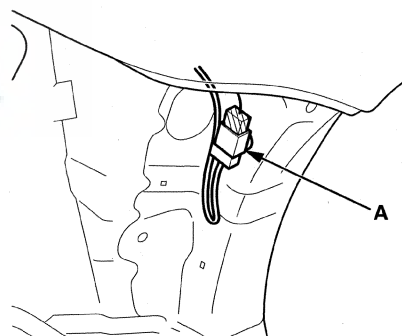
4. Remove the roof wire harness (A) by detaching the harness clips (B, C) from the driver's side A-pillar.



5. Remove the antenna lead (A) by detaching the harness clips (B) from the passenger's side A-pillar, and disconnecting the antenna lead connector (C).



6. Disconnect and detach the antenna lead connector (A) from the right C-pillar area.



(cont'd)

Interior Trim

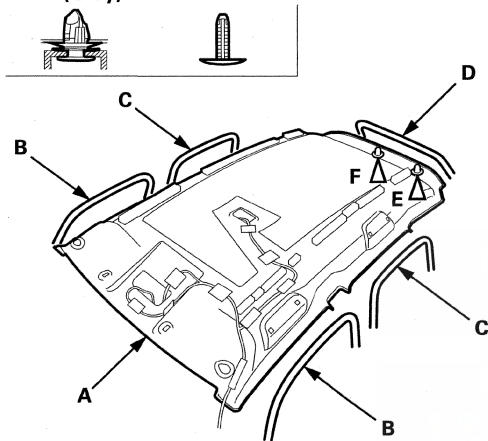
Headliner Removal/Installation (cont'd)

7. Lower the headliner (A).

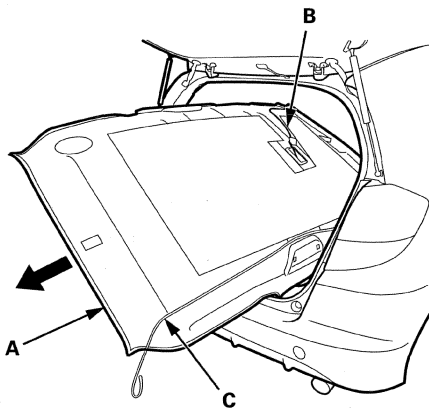
- 1. Remove the front door inner seals (B), the rear door inner seals (C), and the tailgate weatherstrip (D) from each roof portion.
- 2. With the help of an assistant, detach the clips (E, F) by pulling the rear portion of the headliner down.
- 3. Lower the headliner.

Fastener Locations

E ▷ : Clip, 1 (Gray) F ▷ : Clip, 1



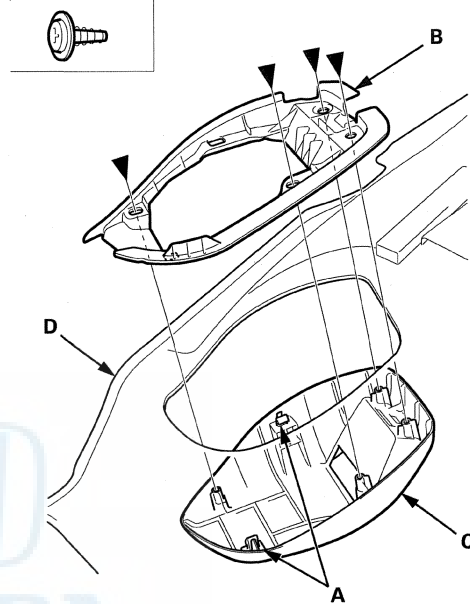
8. With the help of an assistant, pull the headliner (A) with the roof wire harness (B) and the antenna lead (C) out through the tailgate opening. Do not bend the headliner. Bending the headliner will crease and damage it.



9. Remove the screws, and release the hooks (A), then remove the retractor cover bracket (B) and the retractor cover (C) from the headliner (D).

Fastener Locations

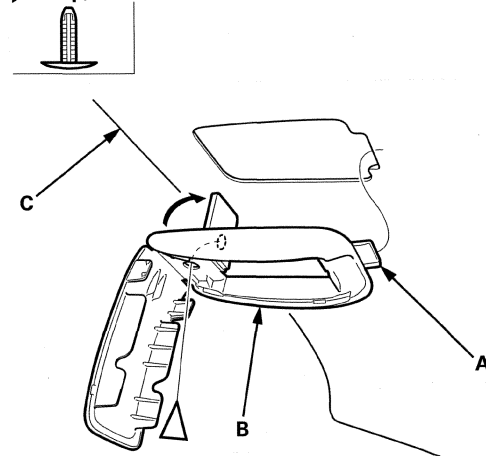
▷ : Screw, 4



10. Remove the clip and release the hook (A), then remove the tether anchor cover (B) from the headliner (C).

Fastener Location

▷ : Clip, 1

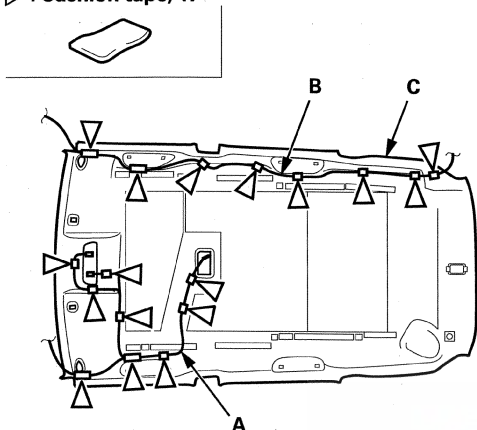




11. Remove the cushion tapes, then remove the roof wire harness (A) and the antenna lead (B) from the headliner (C).

Fastener Locations

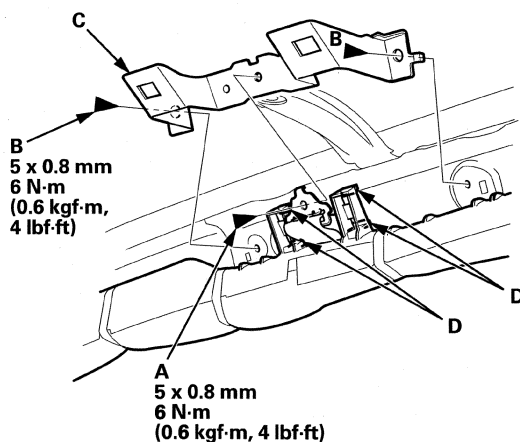
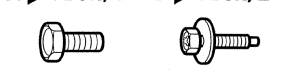
▷ : Cushion tape, 17



12. Remove the grab handle bracket mounting bolt (A) and the side curtain airbag mounting bolt (B), then remove the rear grab handle bracket (C) from each side by releasing the hooks (D).

Fastener Locations

A ▶ : Bolt, 1 B ▶ : Bolt, 2



13. Install the headliner in the reverse order of removal, and note these items:

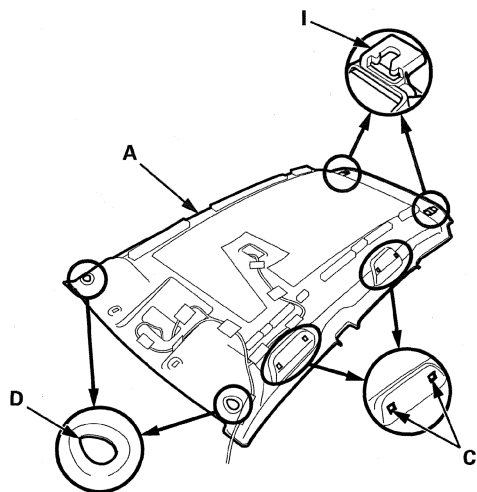
- If the side curtain airbag has deployed, replace the headliner and the designated trim pieces, along with the other parts listed for side curtain airbag deployment (see page 24-168).
- If the side curtain airbag has not deployed, inspect the removed parts for damage. Damaged interior trim may cause the side curtain airbags to deploy improperly, possibly causing injury. Replace the damaged items if you find any of these problems:
 - Any crease or tears in the headliner (A)
 - Any cracks or breakage in the grab handles (B)
 - Any damage around the grab handle holes (C) or sunvisor holes (D) in the headliner
 - Any cracks in the sunvisor stay base (E)
 - Any bends or cracks in the sunvisor stay shaft (F)
 - Any cracks in the sunvisor base (G)
 - Any cracks or breakage in the vanity mirror base (H)
 - Any clip bases (I) that have come off the headliner
- Install the grab handle by pushing on the handle against the bracket (J) until the clips (K) snap into place securely.
- If the clips are damaged or stress-whitened, replace them with new ones.
- Replace the removed cushion tape with new pieces.
- Check that both sides of the headliner are securely attached to the body.
- Make sure the headliner overlaps the trim pieces correctly (see page 24-170).
- Be careful not to crease the headliner, or scratch the body, as you remove and install the headliner through the tailgate opening.
- Do the battery terminal reconnection procedure (see page 22-70).

(cont'd)

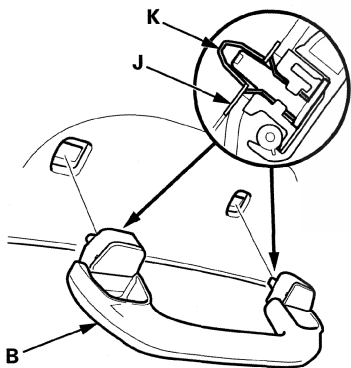
Interior Trim

Headliner Removal/Installation (cont'd)

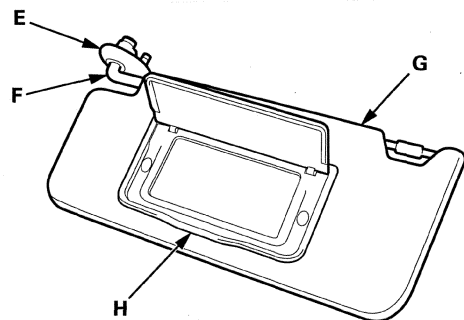
Headliner



Grab handle



Sunvisor



Carpet Replacement

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

NOTE:

- Put on gloves to protect your hands.
- Take care not to damage, wrinkle, or twist the carpet.
- Be careful not to damage the dashboard or other interior trim pieces.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

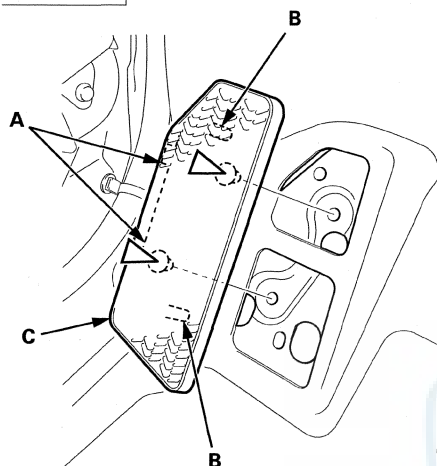
1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before beginning work.
2. Remove these items:
 - Center console (see page 20-93)
 - Front seats, both sides (see page 20-117)
 - Kick panels, both sides (see page 20-66)
 - Front door sill trim, both sides (see page 20-66)
 - Front door inner seal, as needed (see step 4 on page 20-67)
 - B-pillar lower trim, both sides (see page 20-72)
 - Rear door sill trim, both sides (see page 20-67)
 - Rear door inner seal, as needed (see step 3 on page 20-68)
 - Rear seat leg guide cover, both sides (see page 20-132)
 - Tie down hooks, both sides (see step 2 on page 20-76)



3. Pry up at the gap (A) to detach the clips and the pins (B), then remove the footrest (C).

Fastener Locations

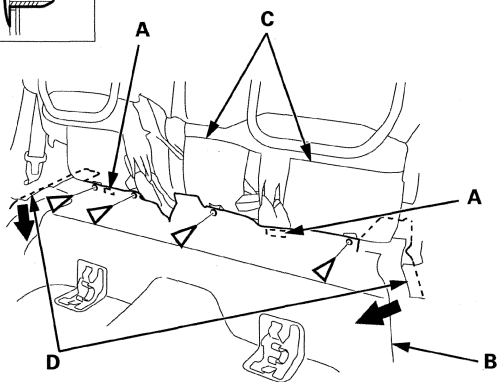
▷ : Clip, 2



4. Detach the clips and release the Velcro fasteners (A) that fasten the carpet (B) to the bottom of the rear seat-backs (C), then pull the carpet out from under both cargo area side trim panels (D).

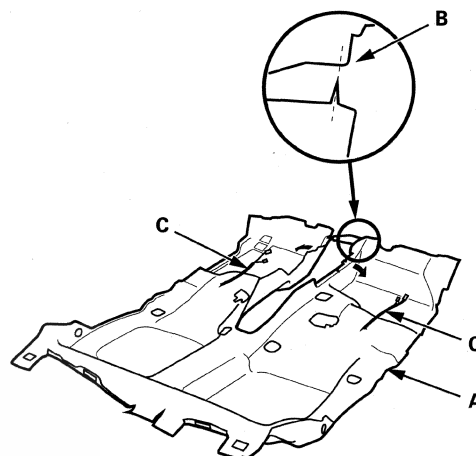
Fastener Locations

▷ : Clip, 4



5. Remove the carpet (A).

- 1. Cut the carpet in the area (B) shown, then pull the carpet out from under the dashboard.
- 2. Pull the seat wire harnesses (C) out through the holes in the carpet.



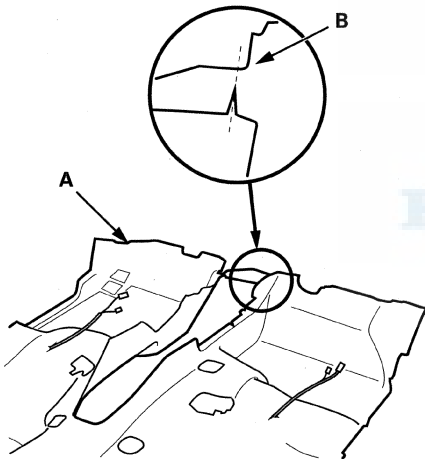
(cont'd)

Interior Trim

Carpet Replacement (cont'd)

6. Install the carpet in the reverse order of removal, and note these items:

- Take care not to damage, wrinkle, or twist the carpet.
- Make sure the seat wire harnesses are routed correctly.
- If the clips are damaged or stress-whitened, replace them with new ones.
- When installing new carpet, cut the carpet (A) in the area (B) as shown.
- Slip the carpet under both cargo area side trim panels properly.
- Push the Velcro fasteners and the clips into place securely.
- Do the battery terminal reconnection procedure (see page 22-70).
- Slip the slit in the carpet over the hooks on the rear heater upper duct.





Center Console Removal/Installation

Special Tools Required

KTC Trim Tool Set SOJATP2014*

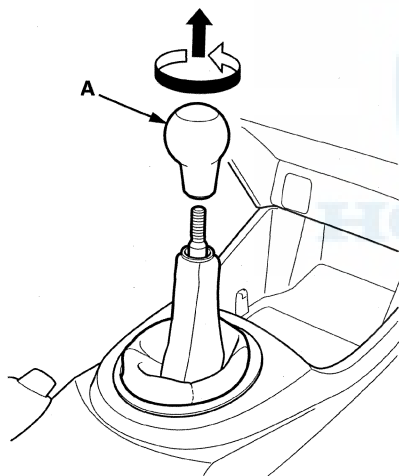
*Available through the Honda Tool and Equipment Program; call 888-424-6857

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

NOTE:

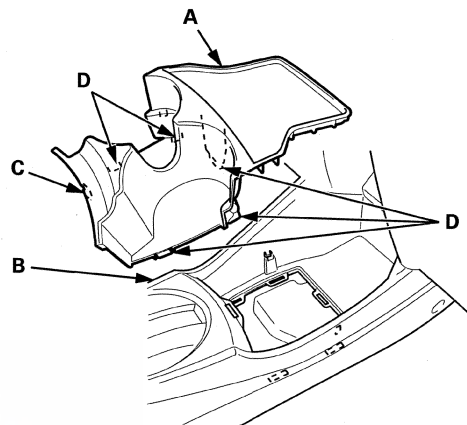
- Take care not to scratch the front seat, the dashboard, or related parts.
- When prying with a flat-tipped screwdriver, wrap it with protective tape to prevent damage.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. M/T model: Remove the shift knob (A).



2. Remove the console lid (A) from the center console (B).

- 1. Pry up on the rear hook (C) with a flat-tipped screwdriver wrapped with protective tape.
- 2. Carefully pull up the console lid to release the hooks (D).



(cont'd)

Consoles

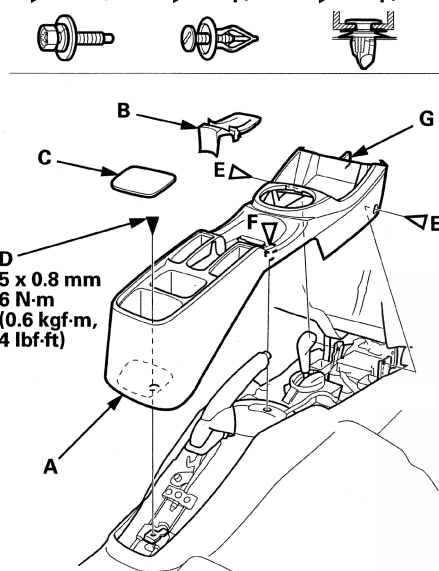
Center Console Removal/Installation (cont'd)

3. Remove the center console (A).

- 1. Remove the parking brake cover lid (B).
- 2. Remove the console box mat (C), then remove the bolt (D), and the clips (E).
- 3. Lift the rear of the console up to detach the clip (F), and pull off the front pin (G) from the heater unit.

Fastener Locations

D ► : Bolt, 1 E ► : Clip, 2 F ► : Clip, 1



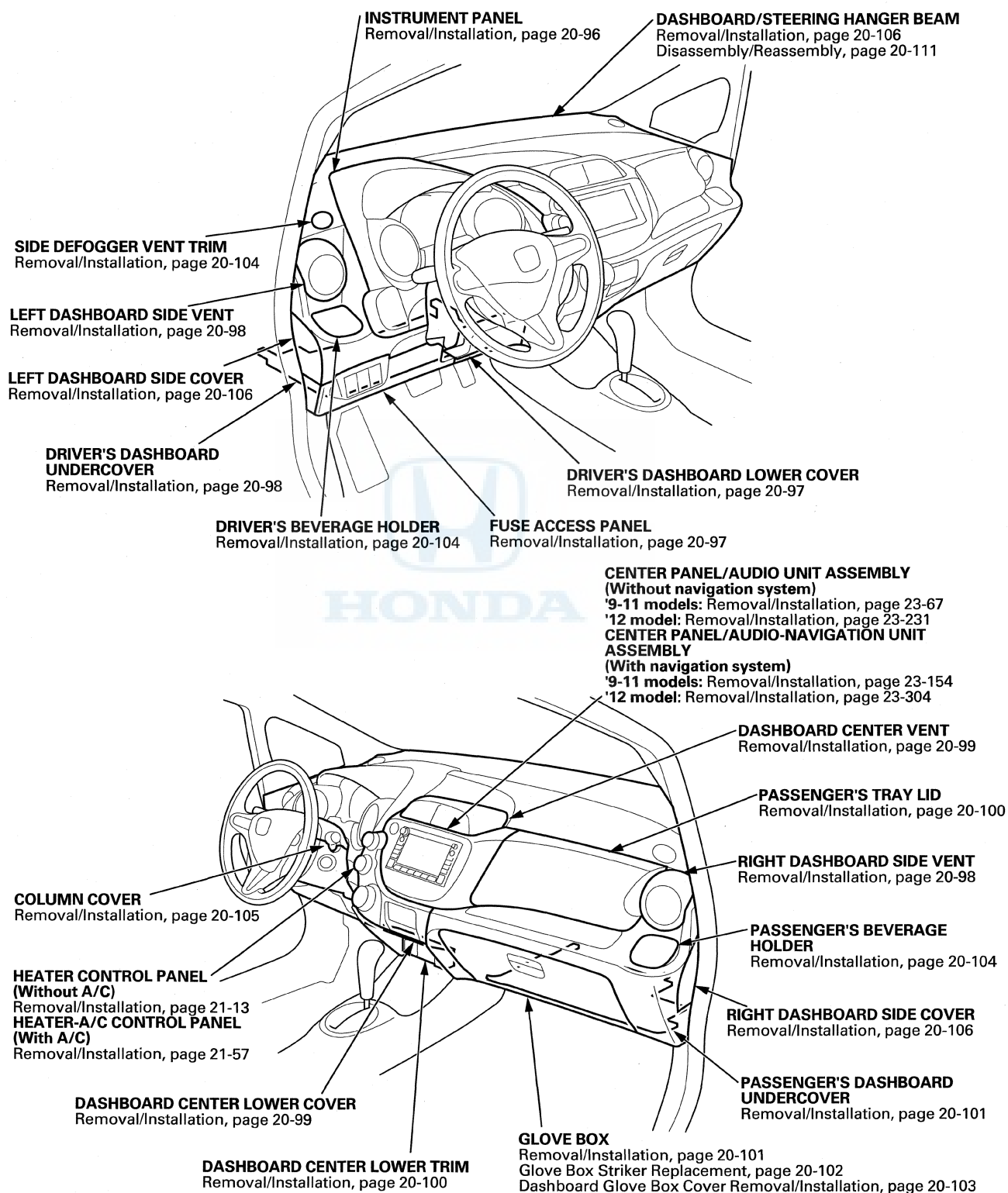
4. Install the trim in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.
- Make sure the wire harnesses are not pinched.

Dashboard



Component Location Index



Dashboard

Instrument Panel Removal/Installation

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

NOTE:

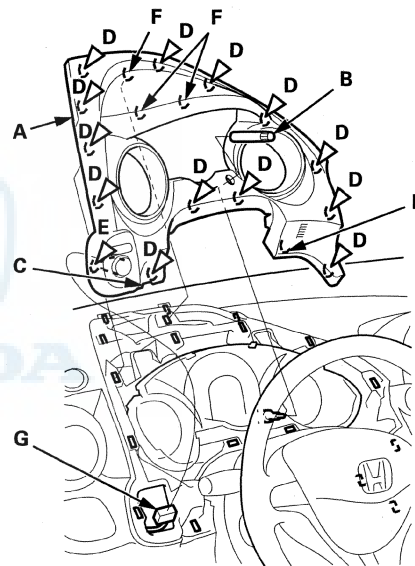
- Take care not to scratch the dashboard or its related parts.
 - When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
 - Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
1. Tilt the steering column down, and pull the steering wheel all the way out.

2. Remove the instrument panel (A).

- 1. Pull out the select/reset knob (B).
- 2. Insert a flat-tip screwdriver wrapped with protective tape into the gap (C) between the instrument panel and the dashboard. Pry up on the panel to release the clips (D, E) and the hooks (F), then lift the panel away to remove it.
- 3. Disconnect the power mirror switch connector (G).

Fastener Locations

D ▷ : Clip, 13 E ▷ : Clip, 1



3. Install the panel in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips and the hooks into place securely.
- Make sure the power mirror switch connector is plugged in properly.
- Make sure that the select/reset knob snaps into place securely, and that it operates properly. If the select/reset knob is loose after installing it, replace it with a new one.



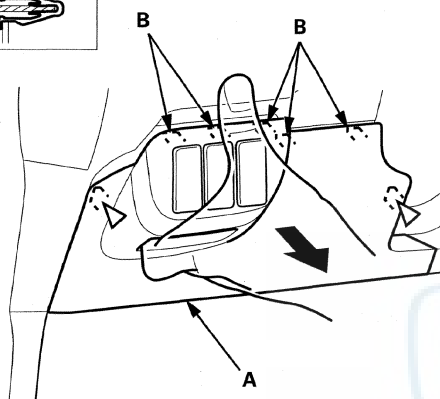
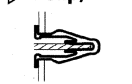
Fuse Access Panel Removal/Installation

NOTE:

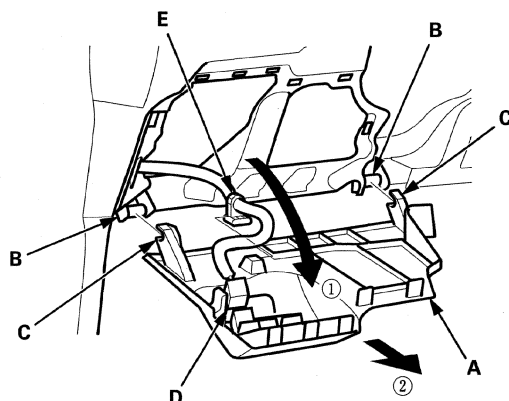
- Take care not to scratch the dashboard or its related parts.
 - Do not pry on the panel surface with any tools.
1. Pull the fuse access panel (A) back by hand to release the hooks (B) and the clips.

Fastener Locations

▷ : Clip, 2



2. Pivot the fuse access panel (A) down on the shafts (B) until it is even with the floor, then pull it rearward to remove its hinges (C) from the shafts. If equipped, disconnect the VSA off switch connector (D), and detach the harness clip (E).



3. Install the panel in the reverse order of removal, and note these items:
 - If the clips are damaged or stress-whitened, replace them with new ones.
 - For some models: Make sure the VSA off switch connector is plugged in properly.
 - Push the clips and the hooks into place securely.

Driver's Dashboard Lower Cover Removal/Installation

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

NOTE:

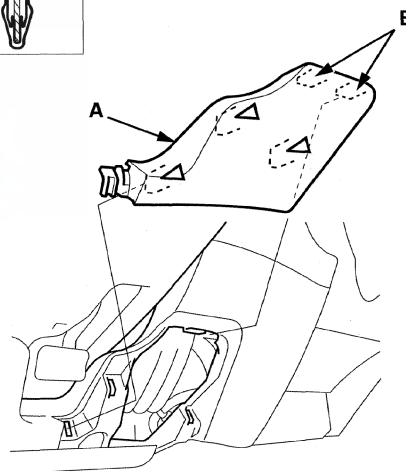
- Take care not to scratch the dashboard or its related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the fuse access panel (see page 20-97).
2. Remove the driver's dashboard lower cover (A).

- 1. Pry the front edge of the cover away from the dashboard to release the clips.
- 2. Pull the cover down to release the hooks (B), then remove the cover.

Fastener Locations

▷ : Clip, 3



3. Install the lower cover in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips and the hooks into place securely.

Dashboard

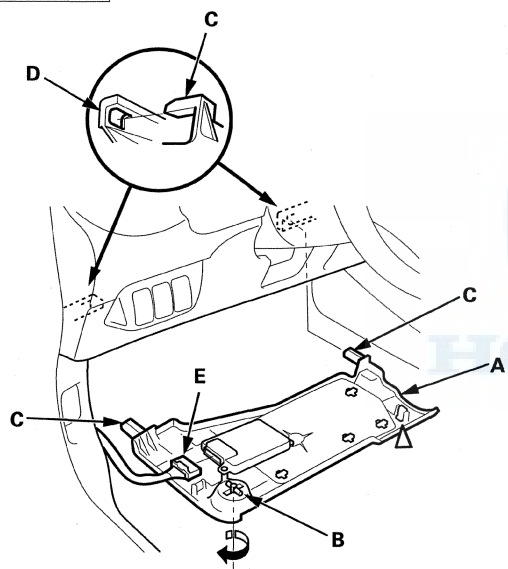
Driver's Dashboard Undercover Removal/Installation

NOTE: Take care not to scratch the dashboard or its related parts.

1. Remove the driver's dashboard undercover (A).
 - 1. Turn the lock knob (B) 90 °.
 - 2. Gently pull down the rear edge to detach the clip.
 - 3. Pull the undercover away to release the pins (C) from the holders (D).
 - 4. With HFL: Disconnect the HFL control unit connector (E).

Fastener Location

▷ : Clip, 1



2. Install the undercover in the reverse order of removal, and note these items:
 - If the clip is damaged or stress-whitened, replace it with a new one.
 - Push the clip and pins into place securely.

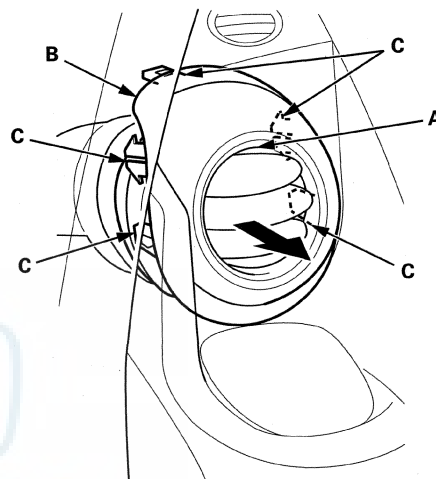
Dashboard Vent Removal/Installation

Side Vent

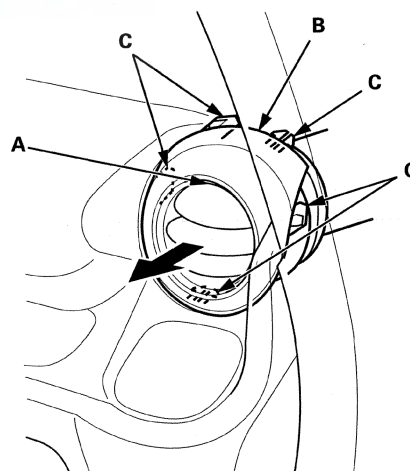
NOTE: Take care not to scratch the dashboard or its related parts.

1. Pull the upper portion (A) of the side vent (B) toward you to release the hooks (C), then remove the side vent.

Driver's side



Passenger's side



2. Install the side vent in the reverse order of removal, and push the hooks into place securely.



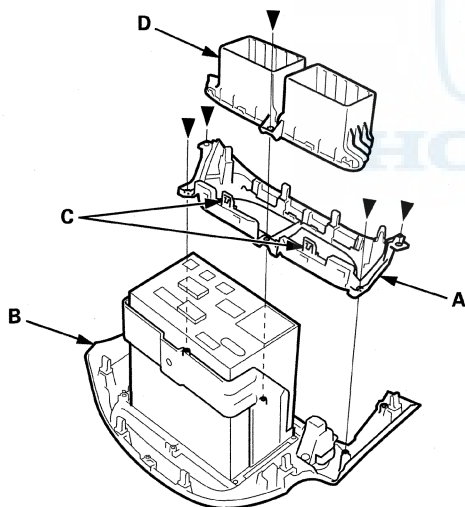
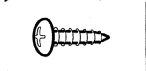
Center Vent

NOTE: Take care not to scratch the dashboard or its related parts.

1. Remove these items:
 - Audio unit, without navigation system ('9-11 models) (see page 23-67)
 - Audio unit, without navigation system ('12 model) (see page 23-231)
 - Audio-navigation unit, with navigation system ('9-11 models) (see page 23-154)
 - Audio-navigation unit, with navigation system ('12 model) (see page 23-304)
2. Remove the screws, then remove the center vent panel (A) from the center panel (B).

Fastener Locations

► : Screw, 5



3. Release the hooks (C), then remove the center vent (D) from the center vent panel.
4. Install the center vent in the reverse order of removal, and push the hooks into place securely.

Dashboard Center Lower Cover Removal/Installation

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

NOTE:

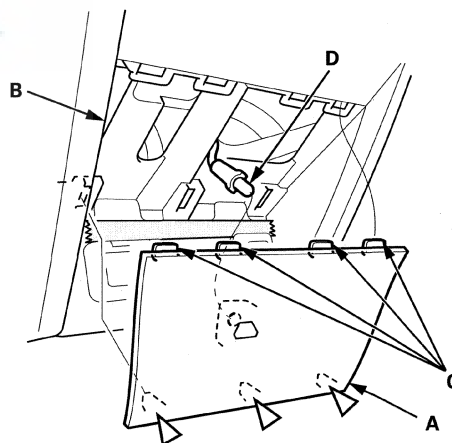
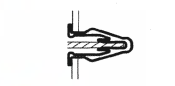
- Take care not to scratch the dashboard or its related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the dashboard center lower cover (A).

- 1. Apply protective tape to the dashboard center lower trim (B) beside the bottom edge of the dashboard center lower cover.
- 2. Pry the bottom side of the cover partially out with the appropriate trim tool, then detach the clips.
- 3. Pull the cover down to release the hooks (C), then remove it.
- 4. '12 model: Remove the console box light (D).

Fastener Locations

► : Clip, 3



2. Install the cover in the reverse order of removal, and note these items:
 - If the clips are damaged or stress-whitened, replace them with new ones.
 - Push the clips and the hooks into place securely.

Dashboard

Dashboard Center Lower Trim Removal/Installation

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

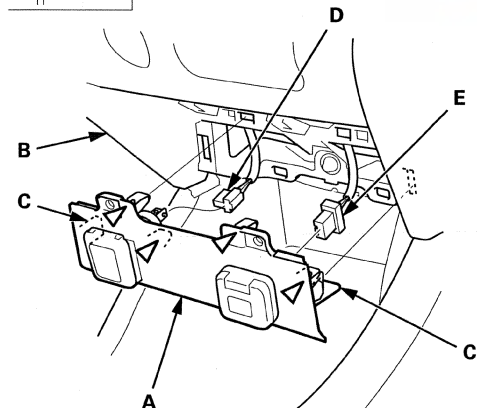
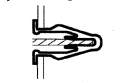
NOTE:

- Take care not to scratch the dashboard or its related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the dashboard center lower cover (see page 20-99).
2. Remove the dashboard center lower trim (A).
 - 1. Pry between the dashboard (B) and the upper side of the dashboard center lower trim with the appropriate trim tool. Pry out the trim to release the clips and the hooks (C).
 - 2. Pull out the dashboard center lower trim slightly toward you, and disconnect the accessory power socket connector (D) and the auxiliary jack connector (E) (if equipped).

Fastener Locations

▷ : Clip, 4



3. Install the trim in the reverse order of removal, and note these items:
 - If the clips are damaged or stress-whitened, replace them with new ones.
 - Push the clips and the hooks into place securely.
 - Make sure the connectors are plugged in properly.

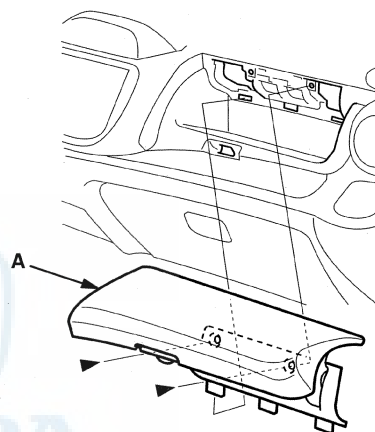
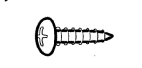
Passenger's Tray Lid Removal/Installation

NOTE: Take care not to scratch the dashboard or its related parts.

1. Open the lid.
2. Remove the screws, then remove the passenger's upper tray lid (A).

Fastener Locations

▷ : Screw, 2



3. Install the lid in the reverse order of removal.



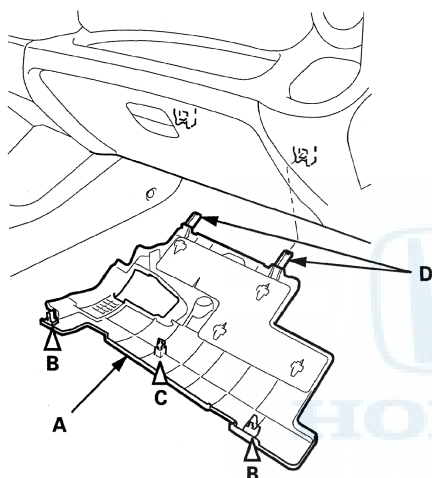
Passenger's Dashboard Undercover Removal/Installation

NOTE: Take care not to scratch the dashboard or its related parts.

1. Remove the passenger's dashboard undercover (A).
 - 1. Gently pull down the front edge to detach the clips (B, C).
 - 2. Pull the cover away to release the pins (D).

Fastener Locations

B ▷ : Clip, 2 C ▷ : Clip, 1



2. Install the cover in the reverse order of removal, and note these items:
 - If the clips are damaged or stress-whitened, replace them with new ones.
 - Push the clips and the pins into place securely.

Glove Box Removal/Installation

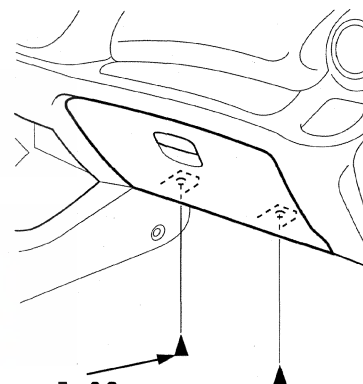
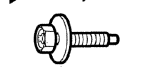
SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

NOTE: Take care not to scratch the dashboard or its related parts.

1. Remove the passenger's dashboard undercover (see page 20-101).
2. Remove the bolts.

Fastener Locations

▶ : Bolt, 2



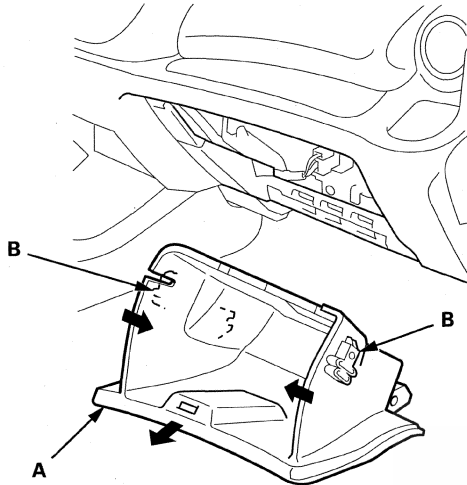
5 x 0.8 mm
6 N·m
(0.6 kgf·m, 4 lbf·ft)

(cont'd)

Dashboard

Glove Box Removal/Installation (cont'd)

3. While holding the glove box (A), release the glove box stops (B) on each sides from the dashboard by pushing them inward, then lower the glove box.



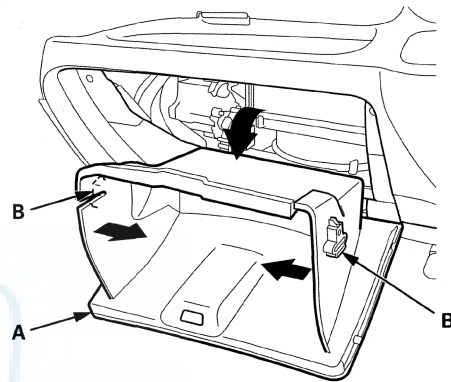
4. Install the glove box in the reverse order of removal.

Glove Box Striker Replacement

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

NOTE: Take care not to scratch the dashboard or its related parts.

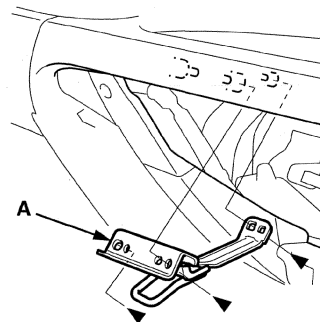
1. While holding the glove box (A), release the glove box stops (B) on each side from the dashboard by pushing them inward, then lower the glove box.



2. Remove the screws, then remove the glove box striker (A).

Fastener Locations

► : Screw, 3



3. Install the glove box striker in the reverse order of removal.



Dashboard Glove Box Cover Removal/Installation

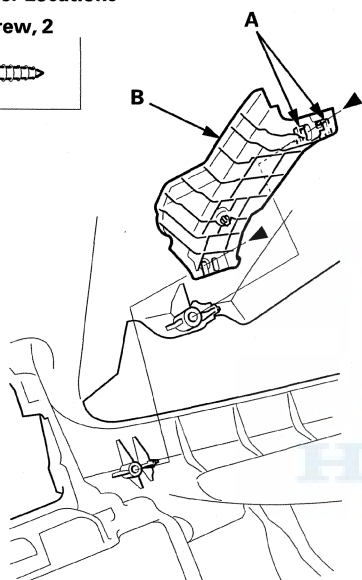
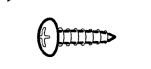
NOTE: Take care not to scratch the dashboard or its related parts.

1. Remove the dashboard/steering hanger beam (see page 20-106).
2. Remove the screws and release the hooks (A), then remove the dashboard glove box center cover (B) and the dashboard glove box outer cover (C).

Center

Fastener Locations

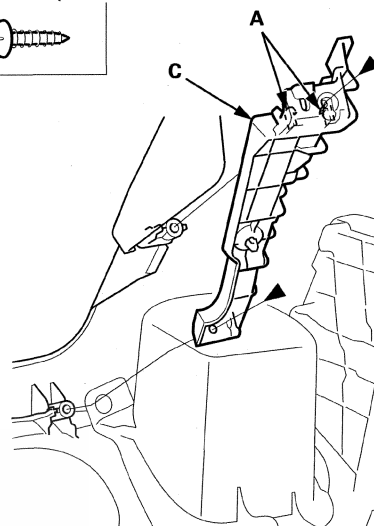
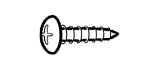
► : Screw, 2



Outer

Fastener Locations

► : Screw, 2



3. Install the covers in the reverse order of removal.

Dashboard

Beverage Holder Removal/Installation

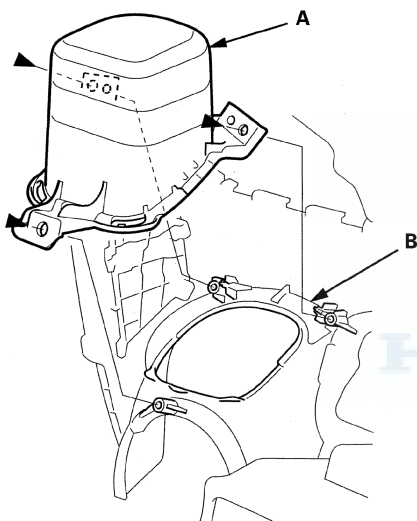
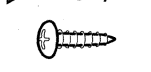
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the dashboard or its related parts.

1. Remove the dashboard/steering hanger beam (see page 20-106).
2. Remove the screws, then remove the beverage holders (A) from both ends of the dashboard (B).

Fastener Locations

► : Screw, 3



3. Install the beverage holders in the reverse order of removal.

Side Defogger Vent Trim Removal/Installation

Special Tools Required

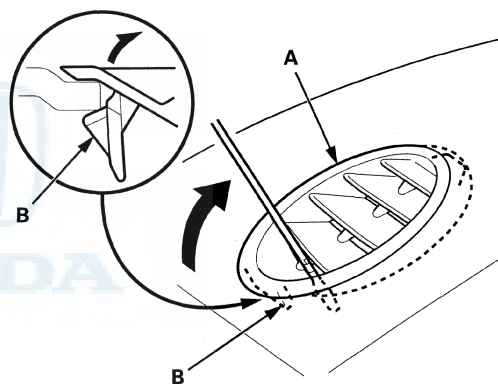
KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

NOTE:

- Take care not to scratch the dashboard or its related parts.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- The left side defogger vent trim is shown; the right side defogger vent trim is not removable.

1. Insert the appropriate trim tool into the gap underneath the lowest fin on the side defogger vent trim (A), and pull the vent trim up to release the hook (B).



2. Install the portion of the vent trim opposite the hook first, then push down on the trim until the hook securely engages the dashboard.

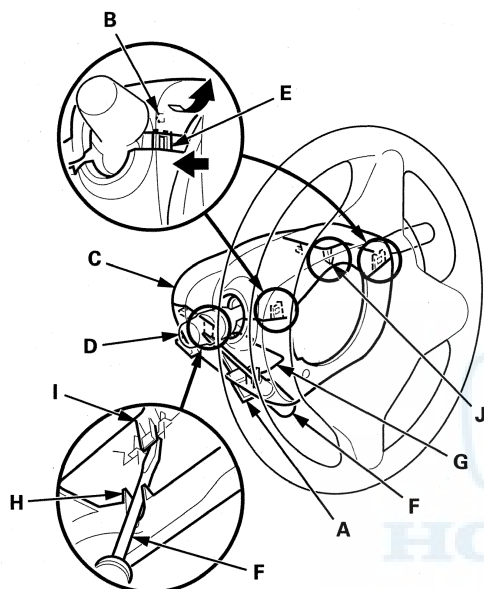


Column Cover Removal/Installation

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the column cover.
- Do not pry on the cover surface with any tools.

1. Release the tilt/telescope lever (A), tilt the steering column fully down, and pull the steering wheel all the way out.



2. Release the tabs (B) of the upper column cover (C) while pushing on the lower column cover (D) from the front side.

NOTICE

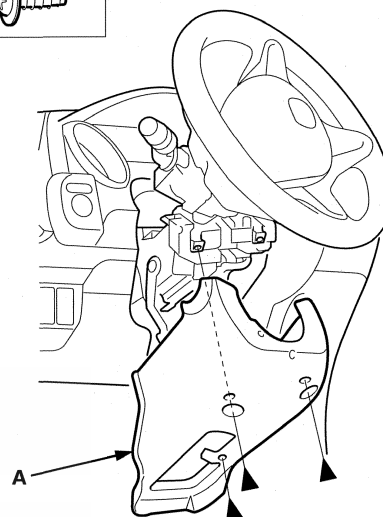
Carefully release the tabs, and do not pull up too hard on the upper column cover, or the hooks (E) may break.

3. Insert a suitable sized screwdriver or equivalent tool (F) into the lever hole (G) in the lower column cover along the guide rib (H).
4. Release the hook (I) on the left side of the upper column cover. The right side hook (J) of the upper column cover can't be released from the inside.
5. Remove the upper column cover by lightly pulling it up to release the right side hook.

6. Remove the screws, then remove the lower column cover (A).

Fastener Locations

► : Screw, 3



7. Install the upper and lower column covers in the reverse order of removal, and push the hooks into place securely.

Dashboard

Dashboard/Steering Hanger Beam Removal/Installation

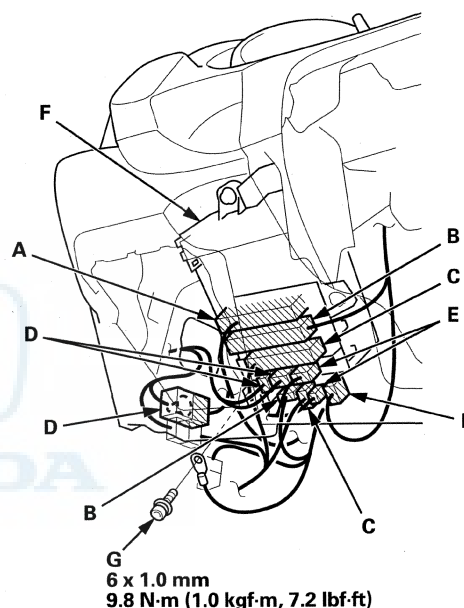
SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

NOTE:

- Put on gloves to protect your hands.
 - Have an assistant help you when removing and installing the dashboard/steering hanger beam.
 - Take care not to scratch the dashboard, the body or other related parts.
1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before beginning work.
 2. Remove these items:
 - Front seats, both sides (see page 20-117)
 - Driver's dashboard undercover (see page 20-98)
 - Kick panels, both sides (see page 20-66)
 - Center console (see page 20-93)
 - Glove box (see page 20-101)
 - Fuse access panel (see page 20-97)
 - Passenger's dashboard undercover (see page 20-101)
 - A-pillar trim, both sides (see page 20-69)
 - Steering column (see page 17-9)
 - Shift lever housing mounting bolt, M/T model (see page 13-53)
 - Shift lever bracket mounting bolt, A/T model (see page 14-213)
 3. Disconnect the mode control cable (see page 21-12) and the recirculation control cable (see page 21-12).

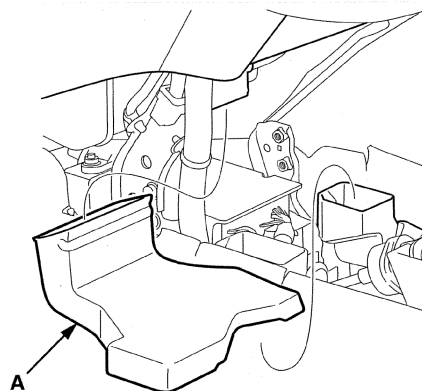
Driver's side

4. From under the dash, disconnect the right engine compartment wire harness connector (A), the left engine compartment wire harness connectors (B), the floor wire harness connectors (C), the driver's door wire harness connectors (D), and the roof wire harness connectors (E) from the dashboard wire harness connectors or the driver's under-dash fuse/relay box (F). Remove the terminal mounting bolt (G) with a TORX T30 bit.



Middle portion

5. Remove the heater joint duct (A).

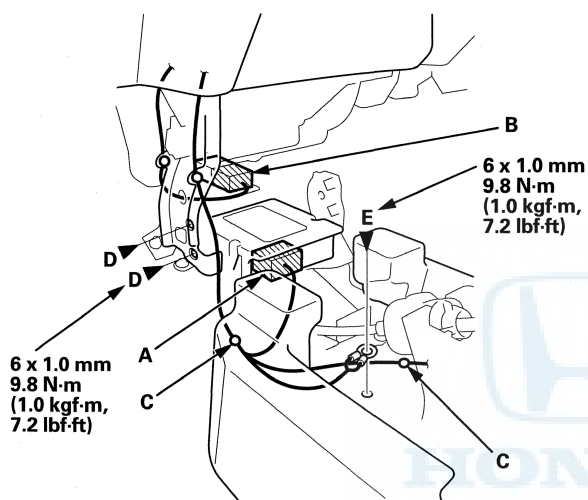




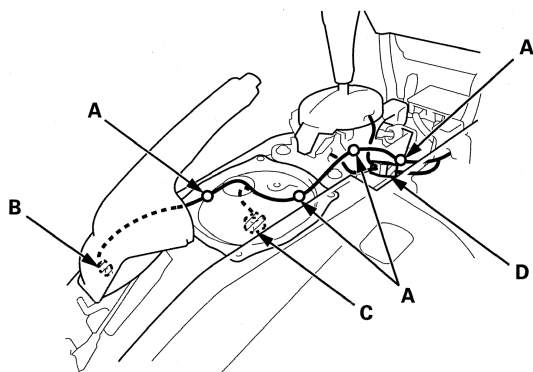
6. From under dash, disconnect SRS control unit connector (A), and if equipped, the yaw rate-lateral acceleration sensor connector (B), and detach the harness clips (C). Remove the bolts (D). Remove the ground bolt (E) with a TORX T30 bit.

Fastener Locations

D ► : Bolt, 2 E ► : TORX Bolt, 1

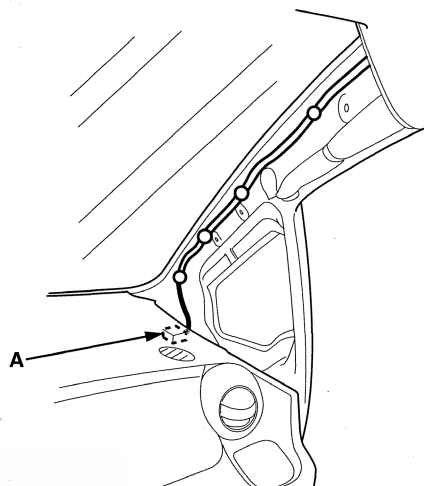


7. Detach the harness clips (A), then disconnect the parking brake switch connector (B), the fuel pump connector (C), and the A/T position switch connector (D) (A/T model).

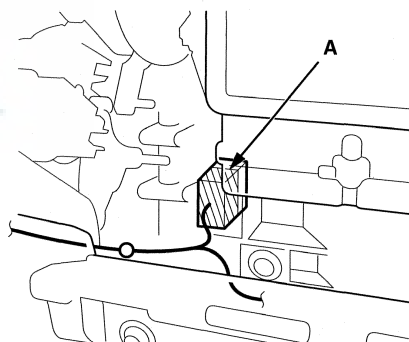


Passenger's side

8. Disconnect the antenna lead connector (A).



9. Disconnect the blower resistor subharness connector (A).

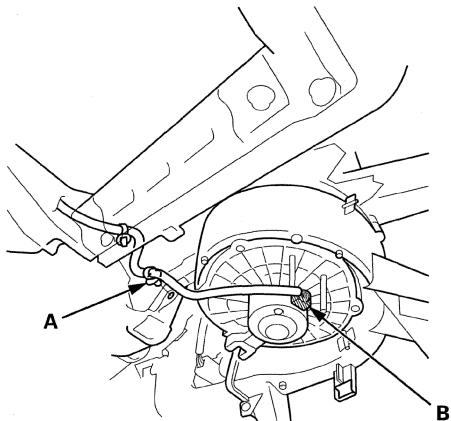


(cont'd)

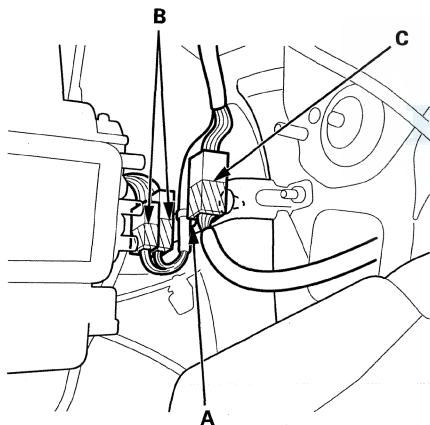
Dashboard

Dashboard/Steering Hanger Beam Removal/Installation (cont'd)

10. Release the harness clip (A), then disconnect the blower motor connector (B).

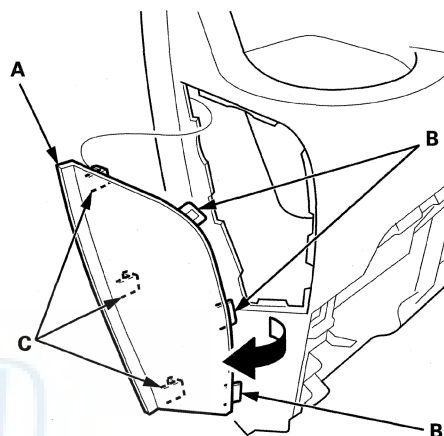


11. From under the dash, detach the harness clip (A), then disconnect and detach the right engine compartment wire harness connectors (B) and the passenger's door wire harness connector (C).



12. If necessary, remove the dashboard side cover (A). The driver's side is shown; the passenger's side is similar.

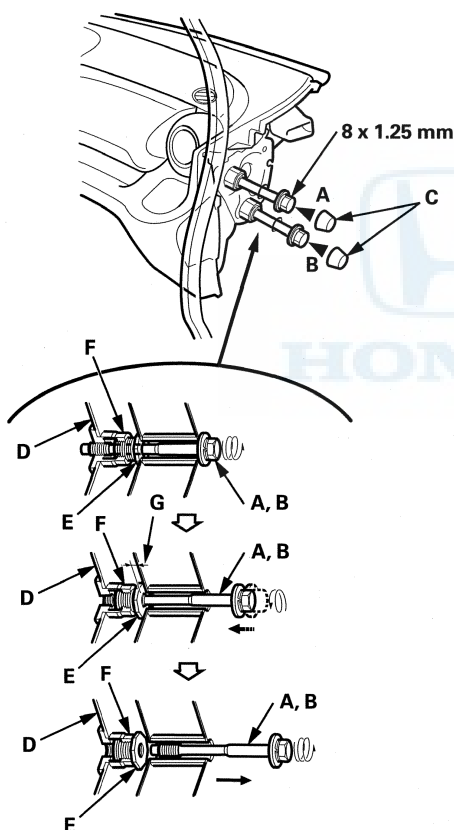
- 1. Gently pull out along the rear edge to release the hooks (B).
- 2. Gently pull out on the side cover to release the hooks (C), then remove the side cover.



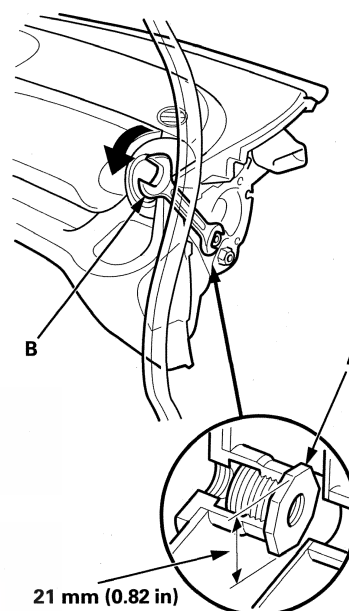


13. Remove the special bolts (A, B) from outside the passenger's door.

- 1. Remove the caps (C).
- 2. Loosen the special bolts until they disengage from the threads on the hanger beam side bracket (D), and engage the inside threads of the adjusting nuts (E). The thread lock on the special bolts makes the special bolts and the adjusting nuts turn together.
- 3. Continue to loosen the special bolts to turn the adjusting nuts into the sleeves (F) until the nuts bottom out. This creates a gap (G) between the adjusting nuts and the body.
- 4. Loosen the special bolts to disengage them from the adjusting nuts, then remove the bolts.



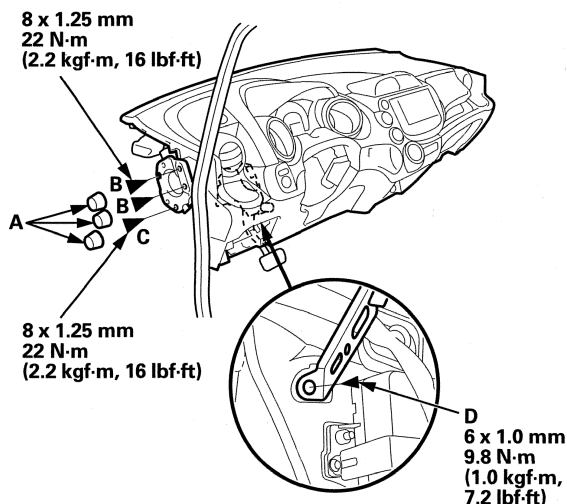
14. If the adjusting nuts (A) were not fully bottomed in the sleeves in step 13, finish screwing the adjusting nuts into the sleeves with a 21 mm open-end wrench (B). In this case, replace the special bolts with new ones because the thread lock is worn out.



15. From outside the driver's door, remove the caps (A), then remove the bolts (B, C, D).

Fastener Locations

B ► : Bolt, 2 C ► : Bolt, 1 D ► : Bolt, 1



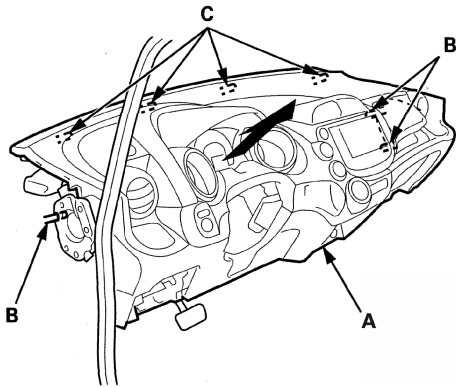
(cont'd)

Dashboard

Dashboard/Steering Hanger Beam Removal/Installation (cont'd)

16. Lift up on the dashboard (A) to release it from the guide pins (B, C). Carefully remove the dashboard through the front door opening. Take care not to scratch the body with the adjusting nuts on the passenger's side.

NOTE: Do not rest the dashboard on its lower center cover opening, or it may be damaged. Lay it on its front or back.



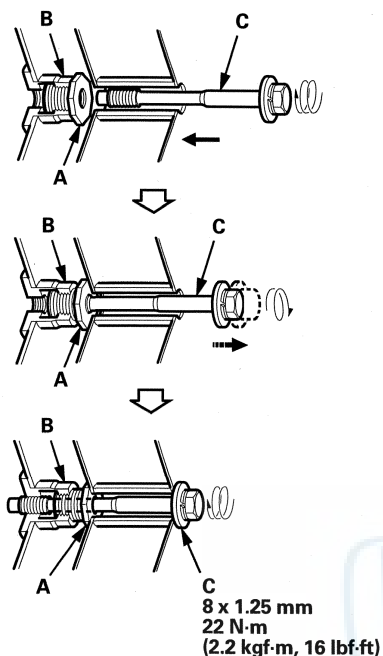
17. Install the dashboard in the reverse order of removal, and note these items:

- Make sure the dashboard fits onto the guide pins correctly.
- Before tightening the bolts, make sure the wire harnesses are not pinched.
- Make sure the connectors are plugged in properly.
- Before reinstalling the dashboard, be sure the adjusting nuts (A) on the passenger's side can be screwed/unscrewed lightly by hand, and then screw them into the sleeves (B) fully by hand. Do not tighten them fully with any tools.
- Before reinstalling the dashboard, screw the special bolts (C) into the adjusting nuts, and check that they turn together. If they do not turn together, replace the special bolts.
- After setting the dashboard in the body, reinstall all of the mounting bolts but do not tighten them. First tighten the driver's side bracket bolts to the specified torque. Next, tighten the special bolts. As you tighten the bolts, the adjusting nuts screw out of the sleeves until they contact the body. Continue tightening the special bolts to the specified torque.
- Tighten all remaining mounting bolts to the specified torque.
- Do the battery terminal reconnection procedure (see page 22-70).
- Check for any DTCs that may have been set during repairs, and clear them.



Dashboard/Steering Hanger Beam Disassembly/Reassembly

Special bolt tightening on passenger's side



Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the dashboard, the body or the other related parts.
- Take care not to bend the brackets.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the dashboard/steering hanger beam (see page 20-106).

2. Remove these items from the dashboard:

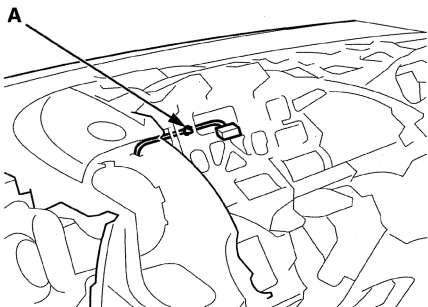
- Instrument panel (see page 20-96)
- Gauge control module (see page 22-294)
- Dashboard center lower cover (see page 20-99)
- Audio unit, without navigation system ('9-11 models) (see page 23-67)
- Audio unit, without navigation system ('12 model) (see page 23-231)
- Audio-navigation unit, with navigation system ('9-11 models) (see page 23-154)
- Audio-navigation unit, with navigation system ('12 model) (see page 23-304)
- Heater control panel, without A/C (see page 21-13)
- Heater-A/C control panel, with A/C (see page 21-57)
- GPS antenna, with navigation system (see page 23-158)
- Dashboard center lower trim (see page 20-100)
- Passenger's tray lid (see page 20-100)
- Side vent (see page 20-98)
- Passenger's airbag (see page 24-172)

(cont'd)

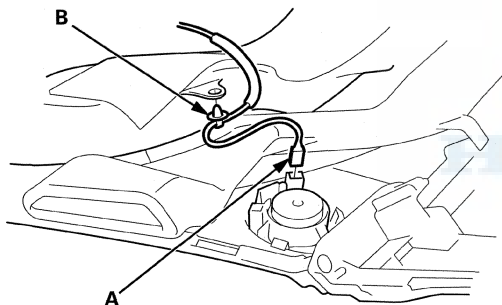
Dashboard

Dashboard/Steering Hanger Beam Disassembly/Reassembly (cont'd)

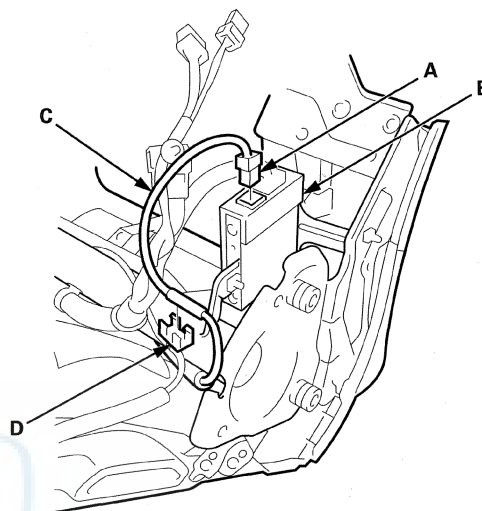
3. On the front of the driver's side of the dashboard, detach the harness clip (A).



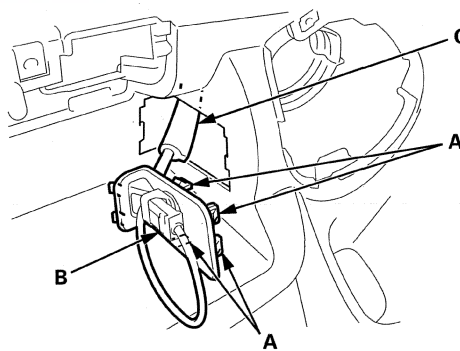
4. On the back of both sides of the dashboard, disconnect the tweeter connectors (A), then detach the harness clips (B) from both sides. The driver's side is shown; the passenger's side is similar.



5. With navigation system ('9-11 models): On the back of the passenger's side of the dashboard, disconnect the USB subharness connector (A) from the USB adapter unit (B), then release the USB subharness (C) from the harness clip (D).

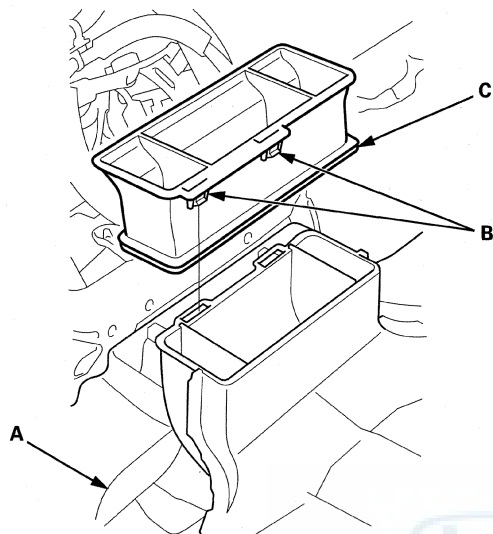


6. With navigation system: On the passenger's side of the dashboard, release the hooks (A), then remove the USB subharness holder (B) along with the USB subharness (C).





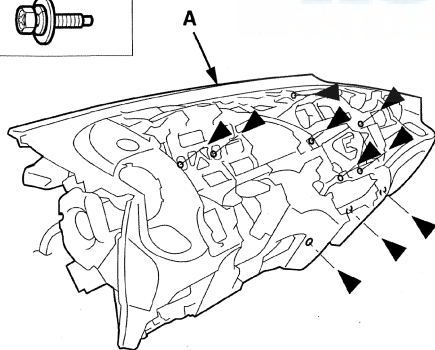
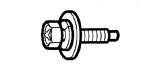
7. From the back of the dashboard (A), release the hooks (B), and remove the center joint duct (C).



8. From the front of the dashboard (A), remove the screws.

Fastener Locations

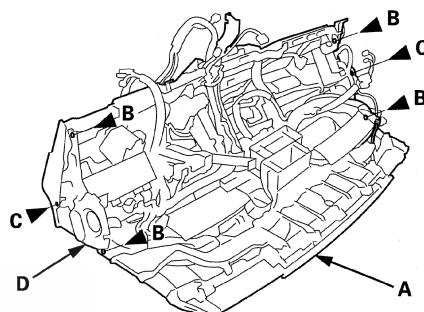
► : Screw, 10



9. From the back of the dashboard (A), remove the screws (B, C), then separate the dashboard from the steering hanger beam (D).

Fastener Locations

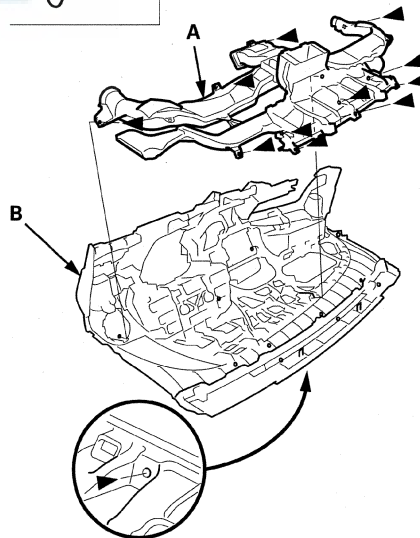
B ► : Screw, 4 (Silver) C ► : Screw, 2 (Black)



10. Remove the screws, then remove the dashboard duct (A) from the dashboard (B).

Fastener Locations

► : Screw, 12



(cont'd)

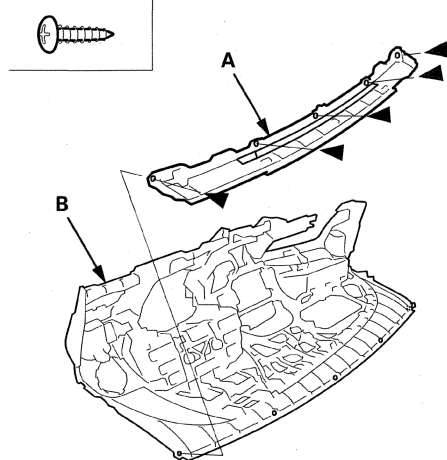
Dashboard

Dashboard/Steering Hanger Beam Disassembly/Reassembly (cont'd)

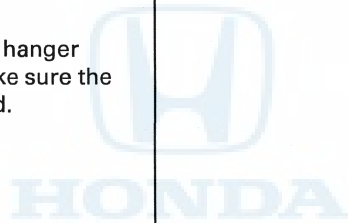
11. If necessary, remove the screws, then remove the front defogger trim (A) from the dashboard (B).

Fastener Locations

► : Screw, 5

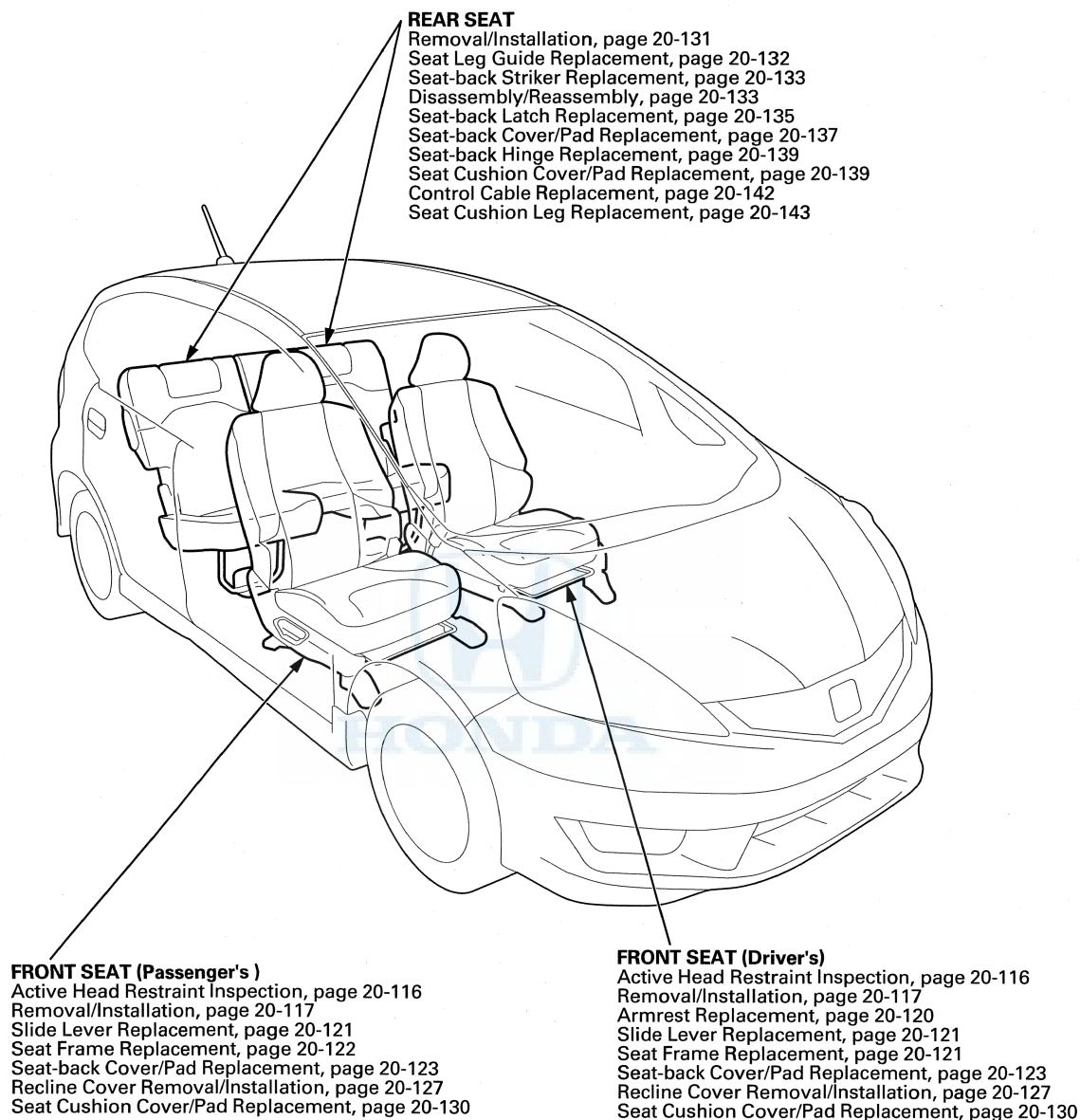


12. Assemble the dashboard and the steering hanger beam in the reverse order of removal. Make sure the dashboard wire harnesses are not pinched.





Component Location Index

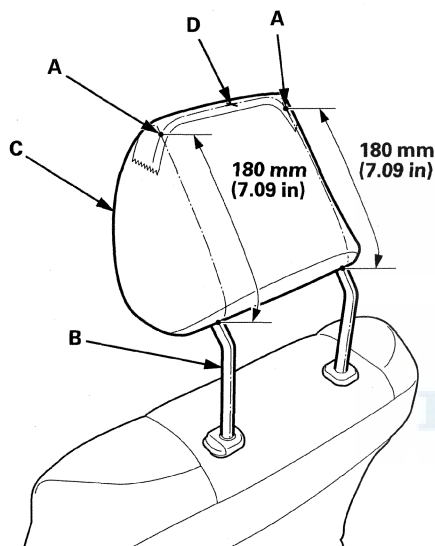


Seats

Front Seat Active Head Restraint Inspection

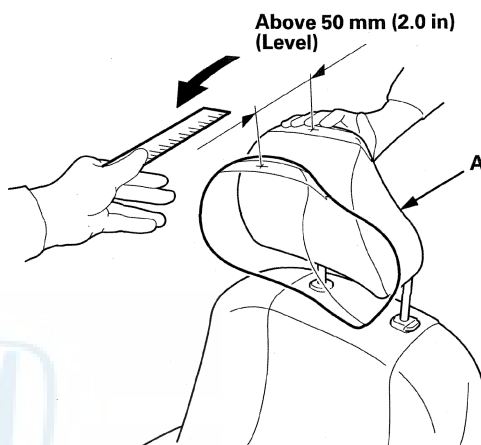
NOTE: If the vehicle has been in a collision, always inspect the active head restraint, even if they appear reusable, by doing the following procedure.

1. Fold the seat-backs forward, then recline the seat-back to the first lock position, and adjust the head restraint to the highest position.
2. Apply masking tape on the top of the head restraint.
3. Make marks (A) on both sides at 180 mm (7.09 in) upward from the roots of the head restraint frame (B) along the back of the head restraint (C) surface. Mark the center of these points as a datum point (D).



4. Push the head restraint (A) forward, and measure the level amount of the head restraint movement. The head restraint should move more than 50 mm (2.0 in) without resistance. If it is less than 50 mm (2.0 in), or the head restraint doesn't move smoothly, replace the seat-back frame:

- Driver's seat (see page 20-121)
- Passenger's seat (see page 20-122)





Front Seat Removal/Installation

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

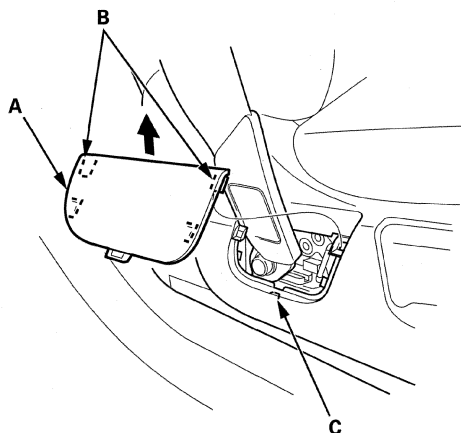
SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

Do the ODS unit initialization (see page 24-28) after front passenger's seat replacement.

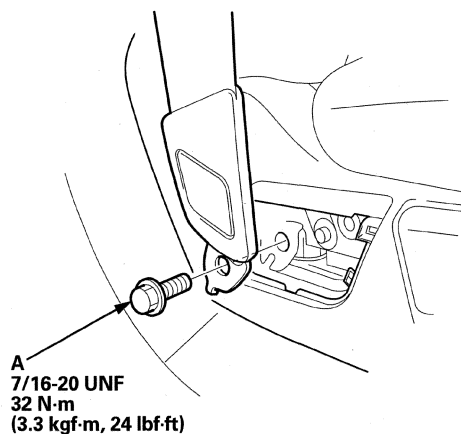
NOTE:

- Put on gloves to protect your hands.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to scratch the body or tear the seat covers.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before removing the seat.
2. Tilt the steering wheel all the way up, and push it all the way in.
3. Passenger's seat: Slide the front seat all the way forward. Carefully pry up on the bottom of the anchor cover (A) to release the hooks (B) and the tab (C), then remove the cover by pulling it upward.



4. Remove the lower anchor bolt (A).



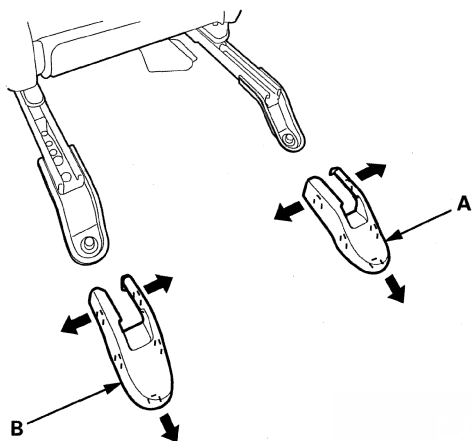
(cont'd)

Seats

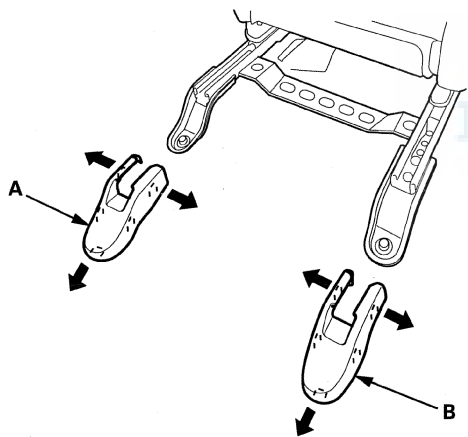
Front Seat Removal/Installation (cont'd)

5. Slide the front seat all the way forward, and remove the track end covers (A, B) from the rear of both seat tracks.

Driver's seat

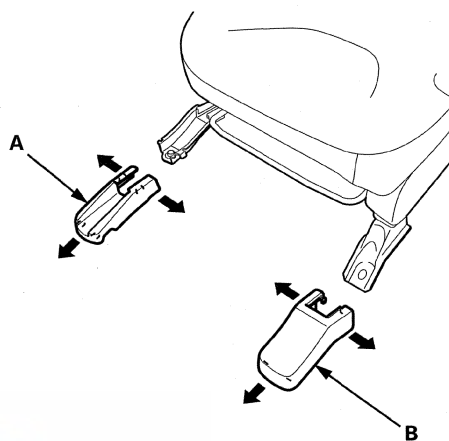


Passenger's seat

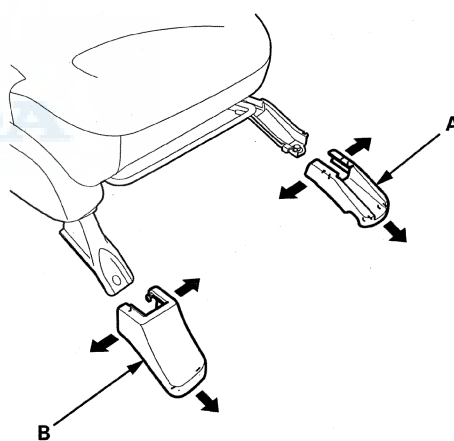


6. Slide the front seat all the way back, and remove the track end covers (A, B) from the front of both seat tracks.

Driver's seat



Passenger's seat





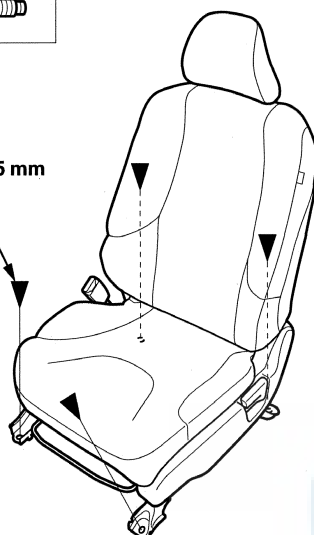
7. Remove the bolts.

Fastener Locations

► : Bolt, 4

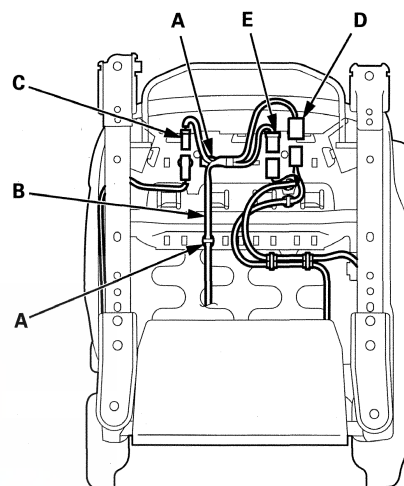


10 x 1.25 mm

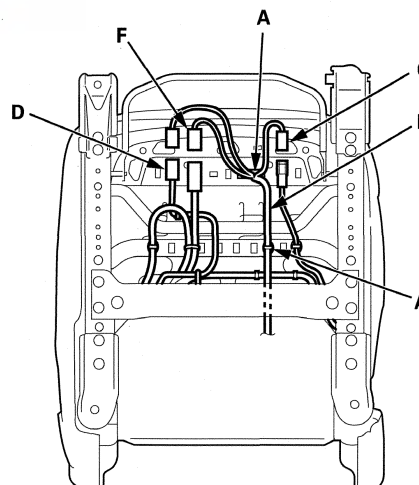


8. Lift up the front seat, then detach the harness clips (A) of the floor wire harness (B). Disconnect the seat belt buckle switch connectors (C) and the side airbag connector (D). On the driver's seat, disconnect the seat position sensor connector (E). On the passenger's seat, disconnect the ODS unit harness connector (F).

Driver's seat



Passenger's seat



9. Remove the head restraint.

10. With the help of an assistant, carefully remove the front seat through the front door opening.

(cont'd)

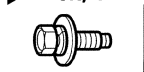
Seats

Front Seat Removal/Installation (cont'd)

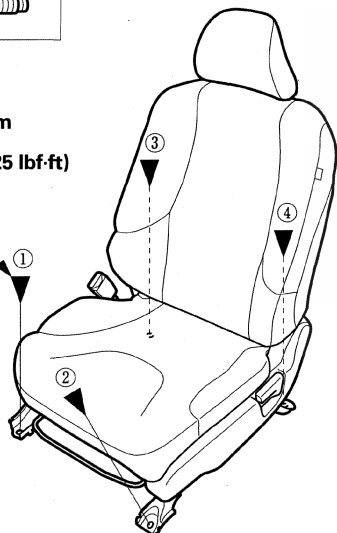
11. Install the seat in the reverse order of removal, and note these items:
- Tighten the seat mounting bolts to the specified torque in the sequence shown. Slide the seat all the way back and tighten ① and ②, then slide it forward and tighten ③ and ④. The driver's seat is shown; the passenger's seat is symmetrical.
 - Make sure each connector is plugged in properly.
 - Tighten the bolts by hand first, then tighten them to specification with a torque wrench.
 - Do the battery terminal reconnection procedure (see page 22-70).
 - Check for any DTCs that may have been set during repairs, and clear them.

Fastener Locations

► : Bolt, 4



10 x 1.25 mm
34 N·m
(3.5 kgf·m, 25 lbf·ft)



Front Seat Armrest Replacement

Special Tools Required

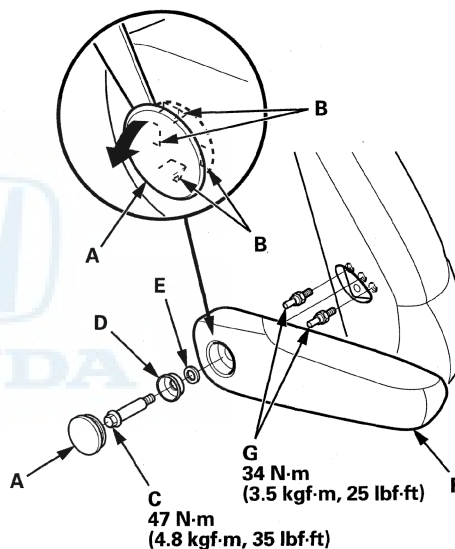
KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

For Some Driver's Seat

NOTE:

- Take care not to tear or damage the seat covers.
 - Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
1. Remove the cap (A) by detaching the hooks (B) with the appropriate trim tool.



2. Remove the center pin (C), the bushing (D), and the washer (E), then remove the armrest (F).
3. If necessary, remove the pins (G) from the seat-back.
4. Install the armrest in the reverse order of removal. Apply multipurpose grease to the moving portion of the armrest.

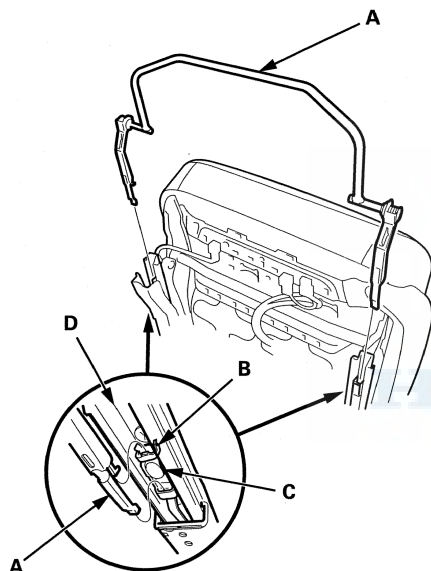


Front Seat Slide Lever Replacement

NOTE:

- Put on gloves to protect your hands.
- When prying with a flat-tip screwdriver, wrap it with protective tape to prevent damage.
- Take care not to scratch the body or tear the seat covers.

1. Remove the front seat (see page 20-117).
2. Slide the front seat all the way back on the seat tracks.
3. From under the seat cushion, lightly tap the slide lever (A) out to disconnect both ends of it from the springs (B) of the slide locks (C) in both seat tracks (D).



4. Install the lever in the reverse order of removal.

Front Seat Frame Replacement

Driver's Seat

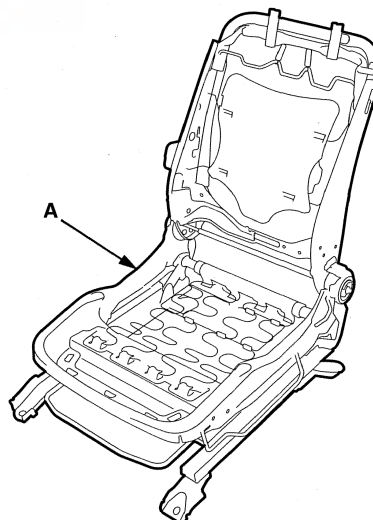
Check the operation of the driver's seat position sensor after any of these actions (see page 24-32) :

- Driver's seat position sensor replacement
- Cover plate (front side of driver's seat slide rail) replacement

NOTE:

- Put on gloves to protect your hands.
- If the side airbag has deployed, replace the seat frame and all related parts with new ones (see page 24-168).

1. Remove the front seat (see page 20-117).
2. Remove these items:
 - Front seat outer recline cover (see page 20-127)
 - Front seat inner recline cover (see page 20-128)
 - Front seat-back cover/pad (see page 20-123)
 - Front seat cushion cover/pad (see page 20-130)
 - Front seat outer recline inner cover (see page 20-129)
 - Front seat inner recline inner cover (see page 20-129)
 - Seat belt buckle (see page 24-6)
 - Side airbag (see page 24-175)
3. Replace the front seat frame (A) with a new one.



4. Reassemble the driver's seat in the reverse order of disassembly, and reinstall it in the vehicle.

(cont'd)

Seats

Front Seat Frame Replacement (cont'd)

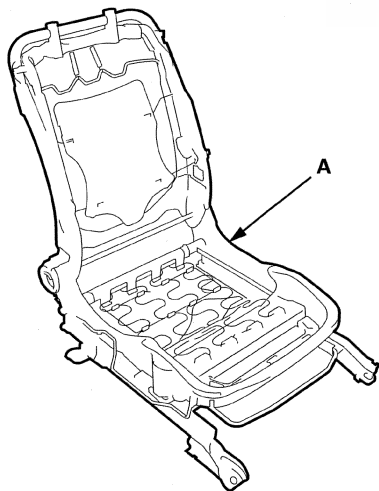
Passenger's Seat

Do the front passenger's weight sensor initialization (see page 24-29) after front passenger's seat frame replacement.

NOTE:

- Put on gloves to protect your hands.
- If the side airbag has deployed, replace the seat frame, along with the other parts listed for side airbag deployment (see page 24-168).

1. Remove the front seat (see page 20-117).
2. Remove these items:
 - Front seat outer recline cover (see page 20-127)
 - Front seat inner recline cover (see page 20-128)
 - Front seat-back cover/pad (see page 20-123)
 - Front seat cushion cover/pad (see page 20-130)
 - Front seat outer recline inner cover (see page 20-129)
 - Front seat inner recline inner cover (see page 20-129)
 - ODS unit (see page 24-193)
 - Seat belt buckle (see page 24-6)
 - Side airbag (see page 24-175)
3. Replace the front seat frame (A) with a new one.



Bushing replacement

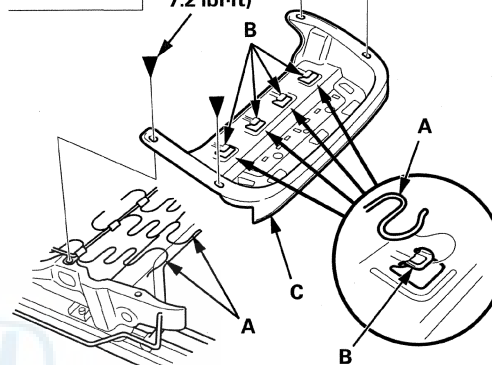
4. If necessary, remove the bolts, and release the seat cushion springs (A) from the hooks (B), then remove the seat cushion frame (C).

Fastener Locations

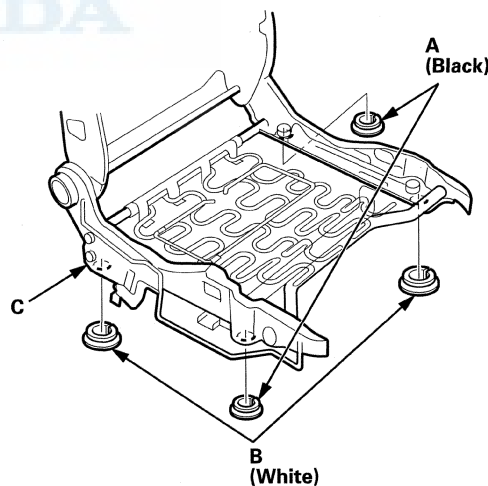
► : Bolt, 4



6 x 1.0 mm
9.8 N·m
(1.0 kgf·m,
7.2 lbf·ft)



5. Remove the seat weight sensors (see page 24-191).
6. If necessary, remove the bushings (A, B) from the seat cushion frame (C).



7. Reassemble the passenger's seat in the reverse order of disassembly, and reinstall it in the vehicle.



Front Seat-Back Cover/Pad Replacement

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

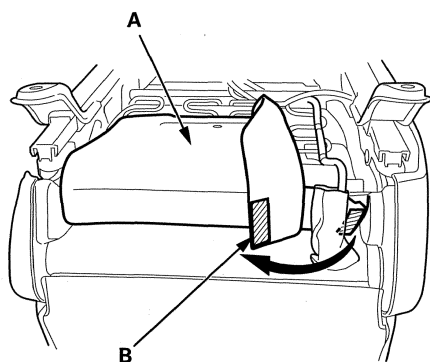
SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

Do the OPDS sensor initialization (see page 24-28) after front passenger's seat-back cover replacement.

NOTE:

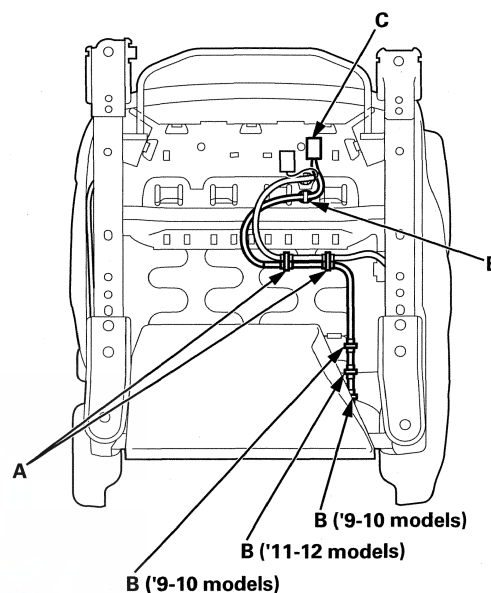
- Put on gloves to protect your hands.
- Take care not to tear or damage the seat covers.
- On the passenger's seat, do not touch the OPDS sensor in the seat-back pad, and keep it away from oil. Oil can corrode the sensor causing it to fail.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the front seat (see page 20-117).
2. For some driver's seats: Remove the front seat armrest (see page 20-120).
3. From under the seat cushion, pull the outside portion of the seat cushion cover (A) back, and release the Velcro fastener (B). The driver's seat is shown; the passenger's seat is similar.

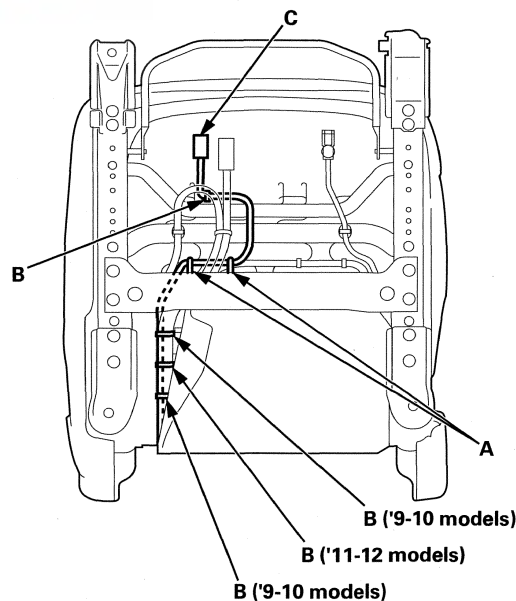


4. From under the seat cushion, remove the wire ties (A), and detach the wire harness clip (B) and the side airbag connector (C), then pull the wire harness out from under the seat cushion.

Driver's seat



Passenger's seat

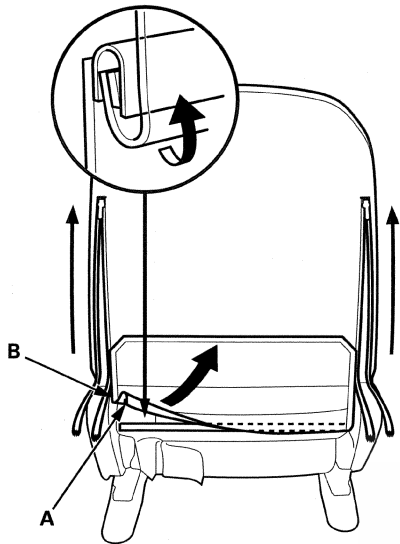


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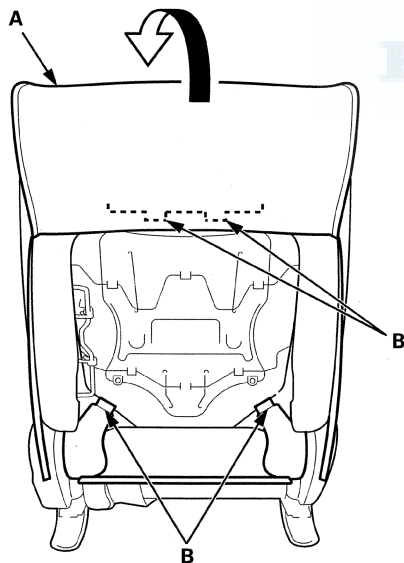
Seats

Front Seat-Back Cover/Pad Replacement (cont'd)

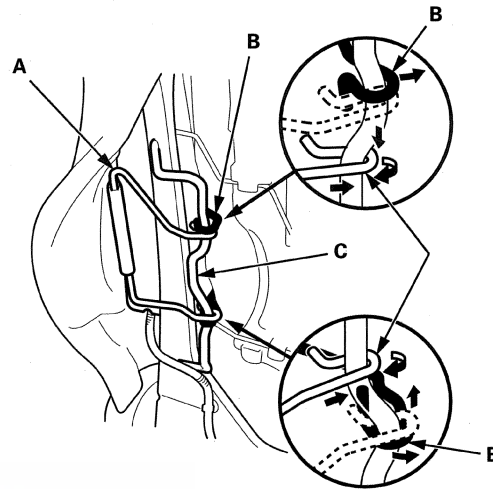
5. From behind the seat-back, release the hook strip (A), and unzip the seat-cover (B).



6. Pull back the seat-back cover (A), then release the hook strips (B) from the seat-back frame.

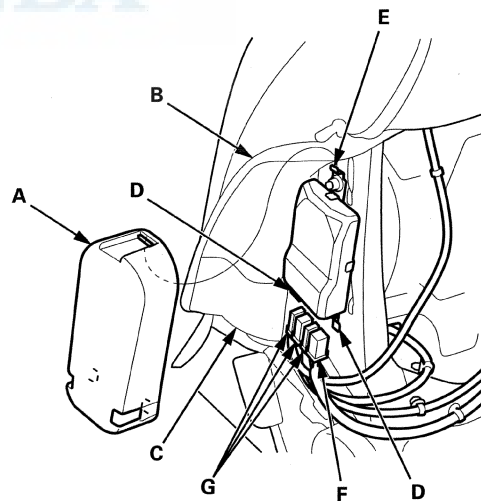


7. Release airbag attachment wire A and airbag attachment wire B from the seat-back frame (C).



8. Passenger's seat: Remove the ODS unit cover (A).

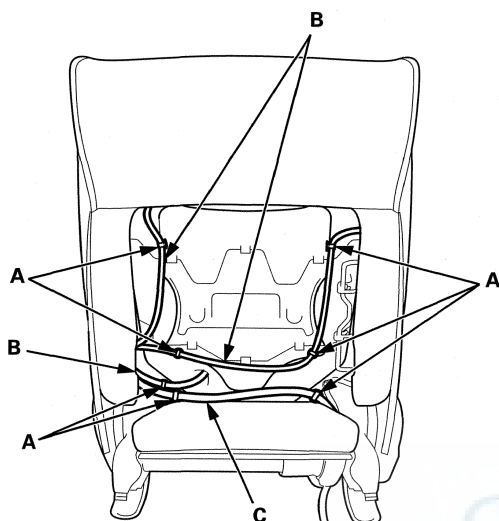
- 1. Turn over the seat-back cover (B) and the pad (C) as needed.
- 2. Release the cover from the lower hooks (D).
- 3. Pull the cover upward to release it from the upper hook (E).



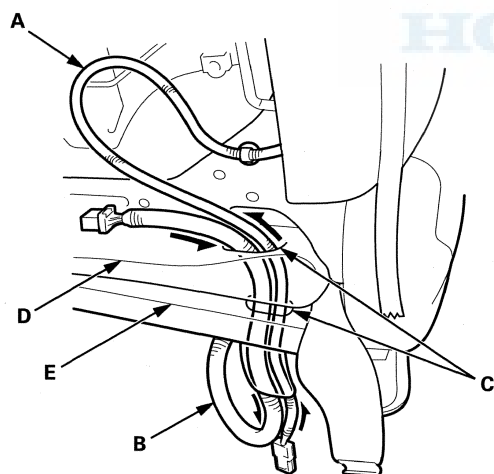
9. Passenger's seat: Disconnect the ODS unit harness connector (F) and the OPDS sensor connectors (G).



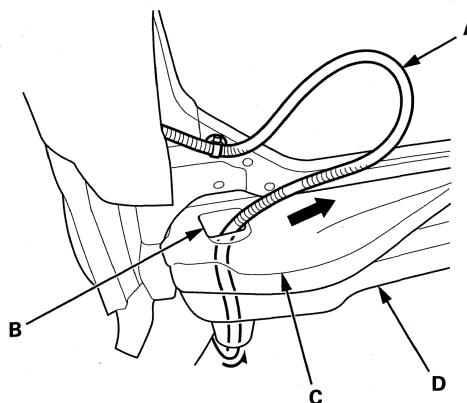
10. Passenger's seat: Detach the harness clips (A) fastening the OPDS sensor harnesses (B) and the ODS unit harness (C).



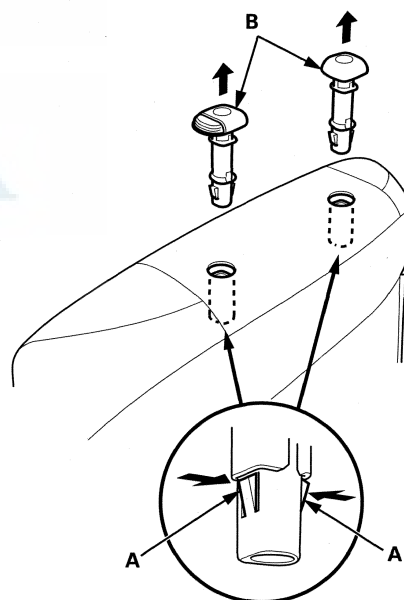
11. Passenger's seat: Pull out the side airbag harness (A) and the ODS unit harness (B) through the holes (C) in the seat-back pad (D) and the seat-back cover (E).



12. Driver's seat: Pull out the side airbag harness (A) through the harness holes (B) in the seat-back pad (C) and the seat-back cover (D).



13. Pinch the tabs (A) on the end of the head restraint guides (B), and remove the guides from the seat-back.

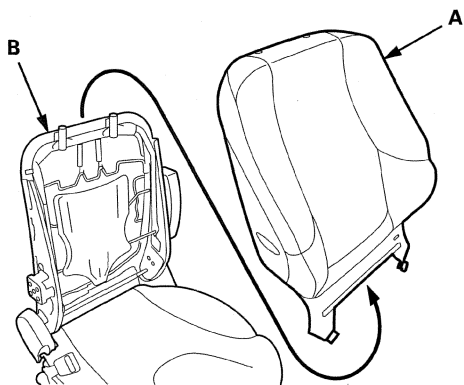


(cont'd)

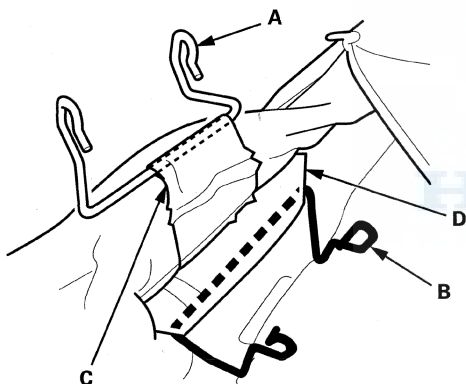
Seats

Front Seat-Back Cover/Pad Replacement (cont'd)

14. Remove the seat-back cover/pad (A) from the seat-back frame (B).

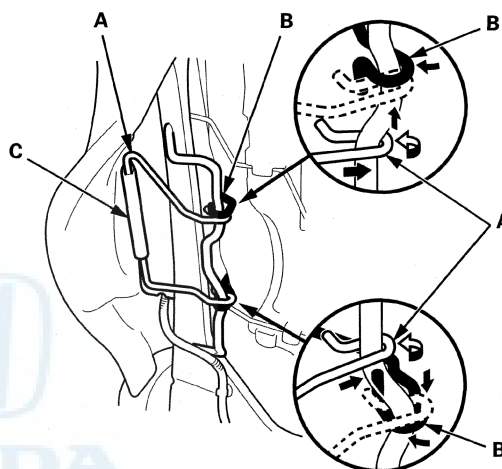


15. Remove airbag attachment wire A from the outside reinforcing cloth (C), and remove airbag attachment wire B from the inside reinforcing cloth (D).



16. Install the cover in the reverse order of removal, and note these items:

- Before installing the seat-back cover/pad, make sure airbag attachment wires A and B are installed correctly in the reinforcing cloths (C).
- Reinstall airbag attachment wires A and B securely.
- Use only original Honda replacement seat-back cover/pads.
- Make sure the side airbag harness and the ODS unit harness (passenger's seat) are routed properly.





Front Seat Recline Cover Removal/Installation

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

NOTE:

- Put on gloves to protect your hands.
- Take care not to tear or damage the seat covers.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

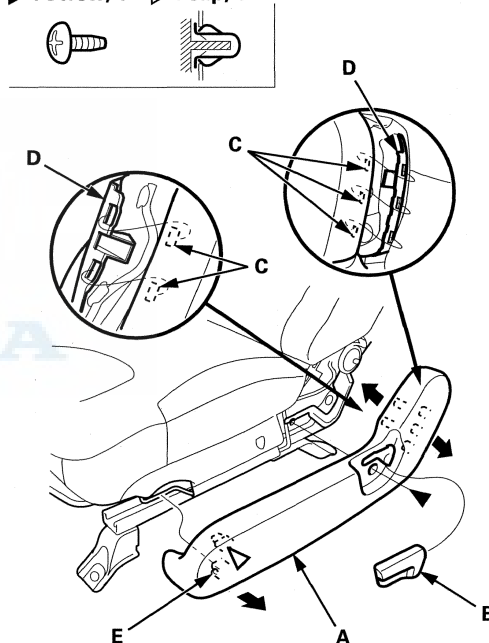
Outer Recline Cover

1. Remove the front seat (see page 20-117).
2. Remove the outer recline cover (A).
 - 1. Fully recline the seat-back.
 - 2. Remove the recline knob (B), and remove the screw.
 - 3. Release the tabs (C) of the outer recline cover from the inner cover (D) with the appropriate trim tool.
 - 4. Detach the clip and the hook (E) by pulling the outer cover out by hand.

Driver's seat

Fastener Locations

► : Screw, 1 ▷ : Clip, 1



(cont'd)

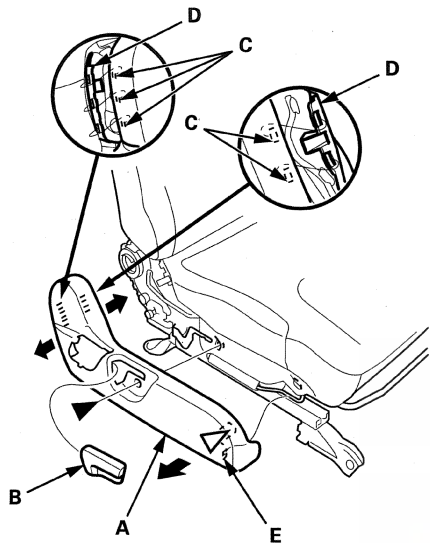
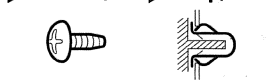
Seats

Front Seat Recline Cover Removal/Installation (cont'd)

Passenger's seat

Fastener Locations

► : Screw, 1 ▷ : Clip, 1



3. Install the cover in the reverse order of removal, and note these items:

- If the clip is damaged, replace it with a new one.
- Push the clip, the hook, and the tabs into place securely.

Inner Recline Cover

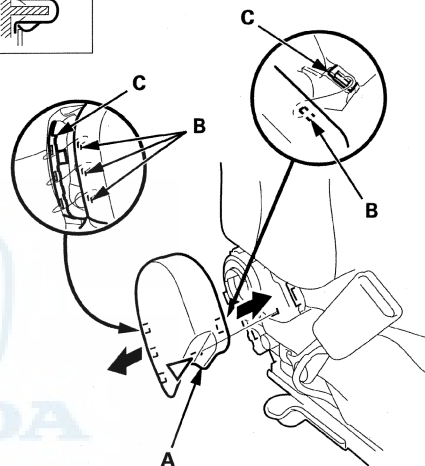
1. Remove the front seat (see page 20-117).

2. Remove the inner recline cover (A). The driver's seat is shown; the passenger's seat is symmetrical.

- 1. Release the tabs (B) of the inner recline cover from the inner cover (C) with the appropriate trim tool.
- 2. Detach the clip by pulling the cover out by hand.

Fastener Location

▷ : Clip, 1



3. Install the cover in the reverse order of removal, and note these items:

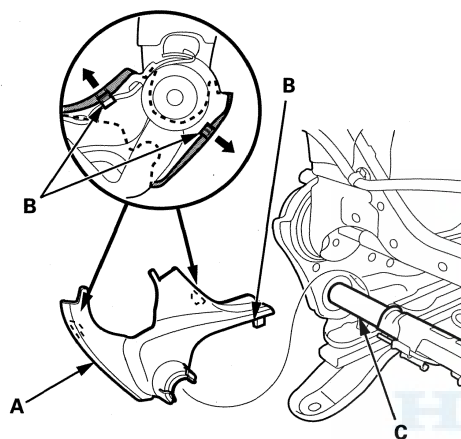
- If the clip is damaged, replace it with a new one.
- Push the clip and the tabs into place securely.



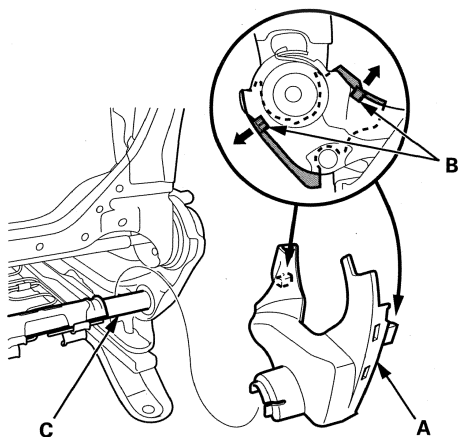
Recline Inner Cover

1. Remove the front seat (see page 20-117).
2. Remove the front seat cushion cover/pad (see page 20-130).
3. Remove the recline inner cover (A).
 - 1. Release the hooks (B) of the recline inner cover from the seat cushion frame.
 - 2. Detach the cover from the seat cushion frame tube (C), and remove the cover.

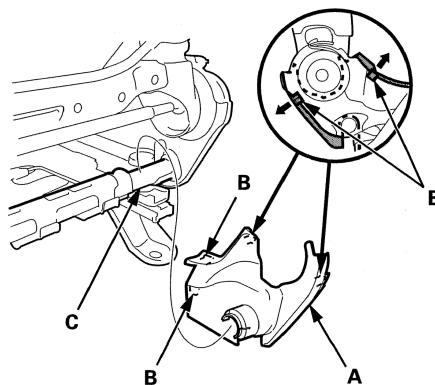
Driver's outer recline inner cover



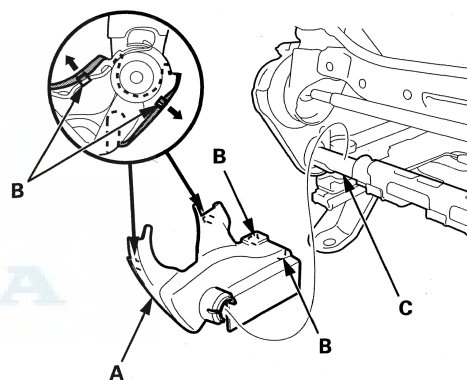
Driver's inner recline inner cover



Passenger's outer recline inner cover



Passenger's inner recline inner cover



4. Install the cover by first fitting the hooks on the seat frame, then attach the cover to the seat cushion frame tube.

Seats

Front Seat Cushion Cover/Pad Replacement

Special Tools Required

KTC Trim Tool Set SOJATP2014*

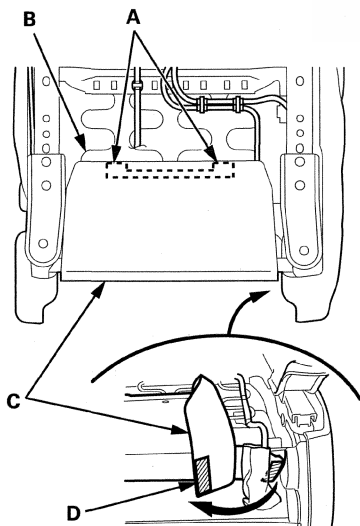
*Available through the Honda Tool and Equipment Program; call 888-424-6857

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

NOTE:

- Put on gloves to protect your hands.
- Take care not to tear or damage the seat covers.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- The driver's seat is shown; the passenger's seat is similar.

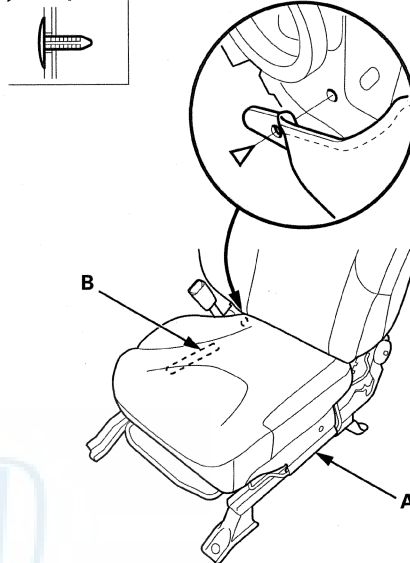
1. Remove the front seat (see page 20-117).
2. Remove these items:
 - Outer recline cover (see page 20-127)
 - Inner recline cover (see page 20-128)
3. From under the seat cushion, release the hooks (A) from the seat cushion frame spring (B). Pull the cushion cover (C) back, and release the Velcro fastener (D).



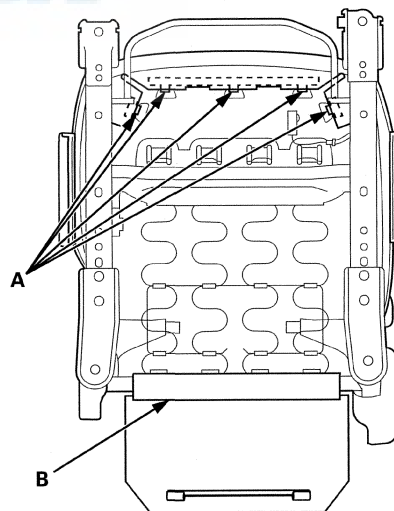
4. Remove the clip, then release the hook strips (A, B) from the seat cushion frame.

Fastener Location

▷ : Clip, 1



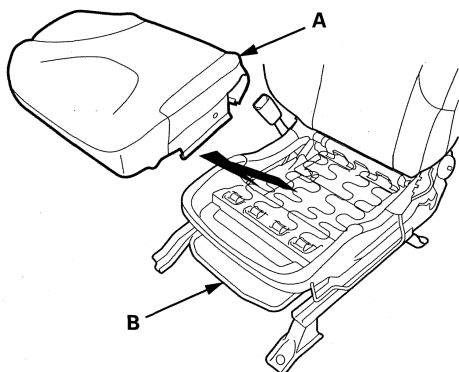
5. From under seat cushion, release the hook strips (A, B) from the seat cushion frame.





Rear Seat Removal/Installation

6. Remove the seat cushion cover/pad (A) from the seat frame (B).



7. Install the cover in the reverse order of removal, and note these items:

- To prevent wrinkles when installing a seat cushion cover, make sure the material is stretched evenly over the pad before securing the hook strips.
- If the clip is damaged or stress-whitened, replace it with a new one.

NOTE:

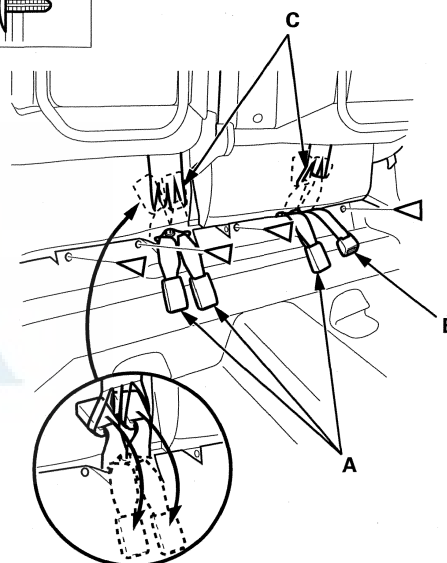
- Put on gloves to protect your hands.
- Take care not to scratch the trim and panels.
- Have an assistant help you when removing and installing the rear seat.

1. Lift both rear seat cushions up.

2. Pull the rear seat belt buckles (A) and rear center seat belt detachable anchor (B) out through the elastic straps (C) on the seat cushions.

Fastener Locations

▷ : Clip, 4



3. Remove the clips on the seat-back hinges. Place the seat belt buckles and the seat belt detachable anchor on the floor underneath the seat cushions.

4. Fold both rear seat-backs.

(cont'd)

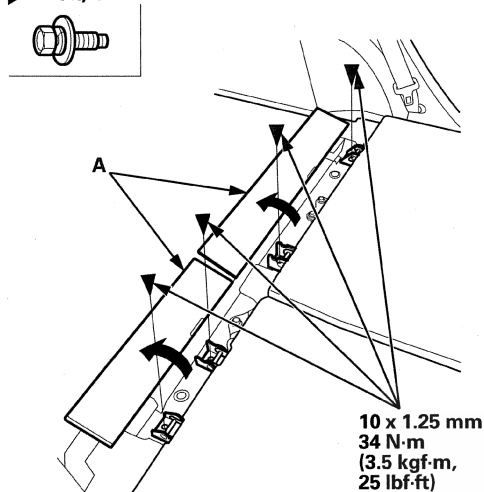
Seats

Rear Seat Removal/Installation (cont'd)

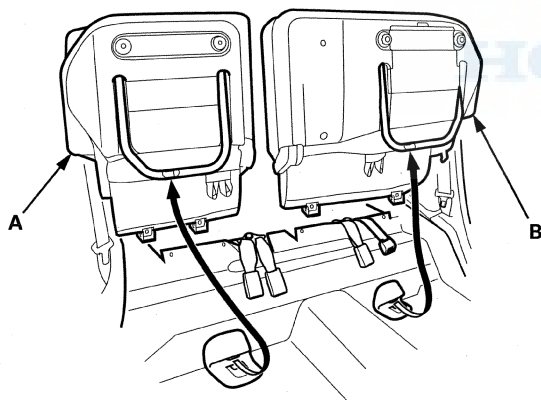
5. Lift up the cargo floor lids (A), and remove the bolts securing both rear seats.

Fastener Locations

► : Bolt, 4



6. Remove the right rear seat (A) and the left rear seat (B) through both rear door opening.

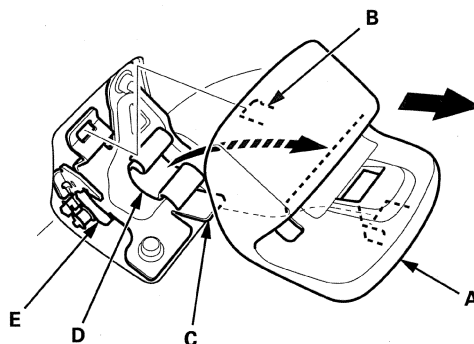


7. Install the seats in the reverse order of removal, and note these items:

- Push the clips into place securely.
- After installing, fix the seat belt buckles and the detachable anchor with elastic straps on both seat cushions.
- If the clips are damaged or stress-whitened, replace them with new ones.

Rear Seat Leg Guide Replacement

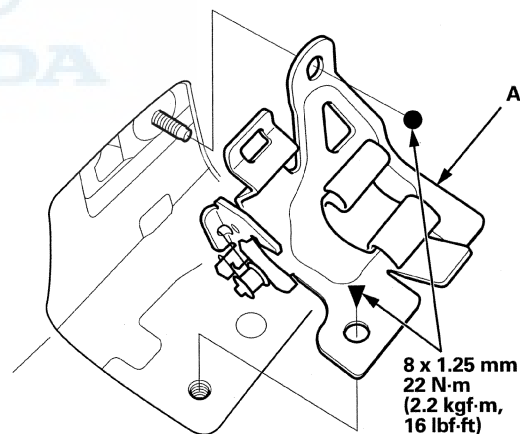
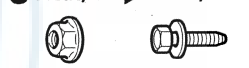
1. Push the leg guide cover (A) to release the hook (B), then pull out the cover from the attaching plate (C) and the holder (D) of the leg guide (E).



2. Remove the nut and bolt, then remove the leg guide (A).

Fastener Locations

● : Nut, 1 ► : Bolt, 1



3. Install the leg guide in the reverse order of removal.



Rear Seat-Back Striker Replacement

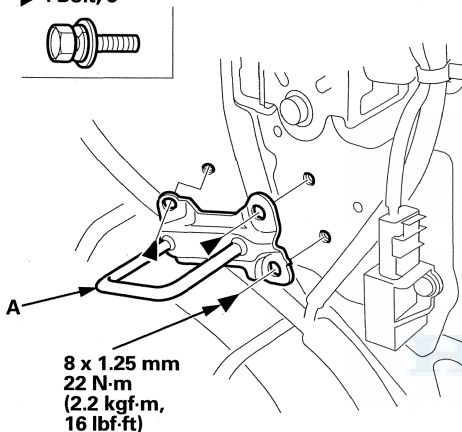
1. Remove these items:

- Rear door inner seal, as needed (see step 3 on page 20-68)
- Tailgate weatherstrip, as needed (see page 20-160)
- Cargo floor (see step 1 on page 20-77)
- Cargo floor box, with temporary repair kit (TRK) (see step 4 on page 20-77)
- Rear trim panel (see step 5 on page 20-78)
- Cargo area side trim panel (see page 20-76)

2. Remove the bolts, then remove the rear seat-back striker (A).

Fastener Locations

► : Bolt, 3



3. Install the striker in the reverse order of removal.

Rear Seat Disassembly/Reassembly

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

NOTE:

- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to tear or damage the seat covers.
- Put on gloves to protect your hands.
- The left rear seat is shown, the right rear seat is similar.

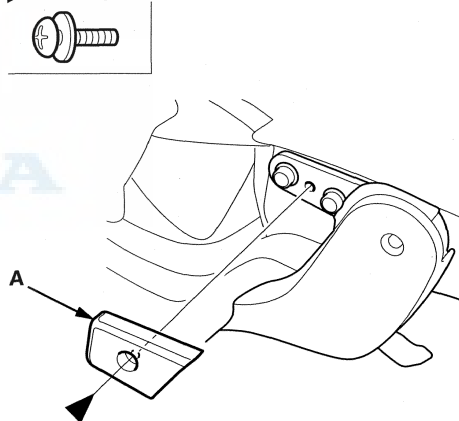
1. Remove the rear seat assembly (see page 20-131).

2. Remove the head restraints.

3. Remove the screw, then remove the recline upper cover (A).

Fastener Location

► : Screw, 1



(cont'd)

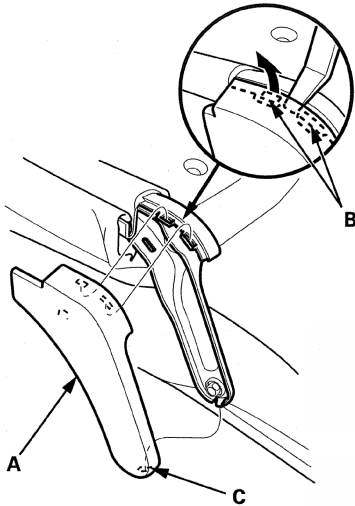
Seats

Rear Seat Disassembly/Reassembly (cont'd)

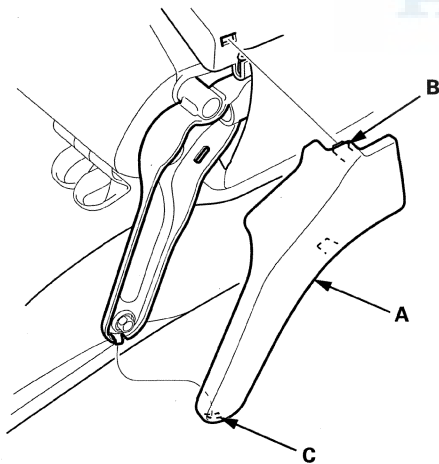
4. Remove the center cover (A).

- 1. Release the upper hooks (B) of the cover with the appropriate trim tool.
- 2. Release the lower hook (C) of the cover, then remove the center cover.

Left rear seat



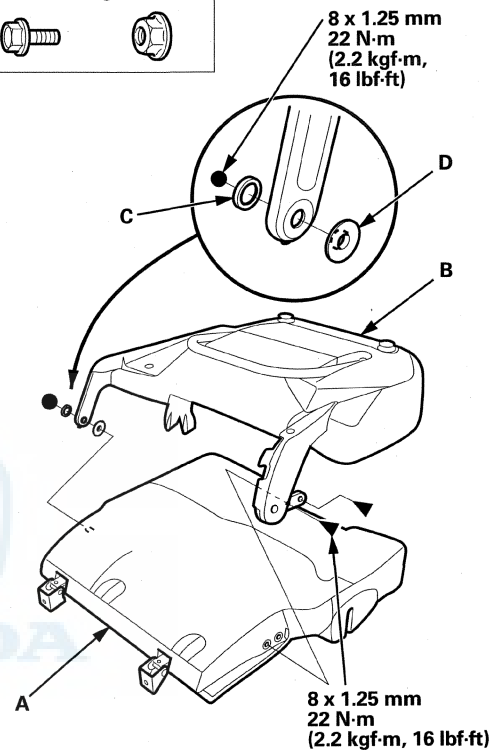
Right rear seat



5. Remove the bolts and nut, then separate the rear seat-back (A) and the rear seat cushion (B).

Fastener Locations

► : Bolt, 2 ● : Nut, 1



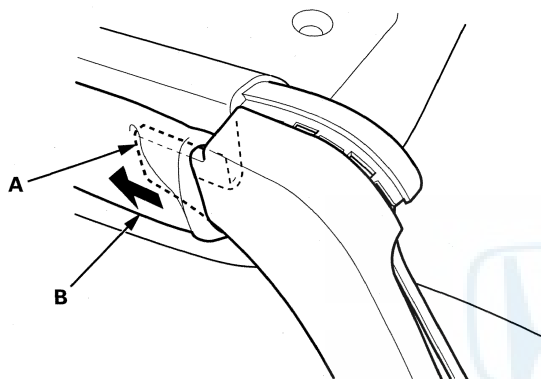
6. If necessary, remove the bushing (C) and the pivot washer (D).



Rear Seat-Back Latch Replacement

7. Reassemble the seat-back and seat cushion in the reverse order of disassembly, and note these items:

- Apply multipurpose grease to the moving portions of the recline adjusters.
- If the bushings or pivot washers are damaged or stress-whitened, replace them with new ones.
- Make sure the bushings and the pivot washers are installed correctly.
- When installing the center cover, insert the upper portion (A) of the cover into the seat cushion cover (B) securely.



Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

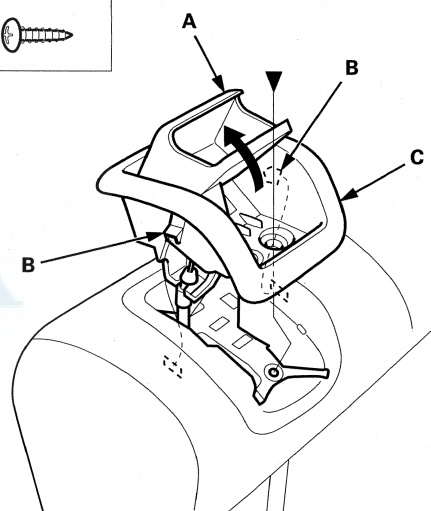
NOTE:

- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to tear or damage the seat covers.
- Put on gloves to protect your hands.
- The left rear seat is shown, the right rear seat is similar.

1. Pull up the latch lever (A), and remove the screw.

Fastener Location

► : Screw, 1



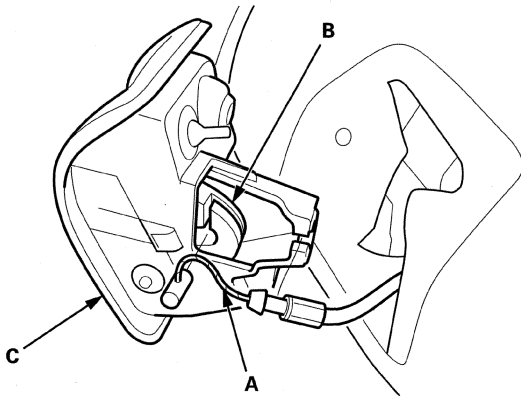
2. Release the hooks (B), and pull up the latch cover (C) from the rear seat-back.

(cont'd)

Seats

Rear Seat-Back Latch Replacement (cont'd)

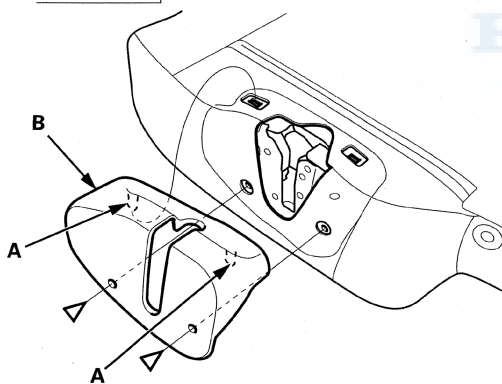
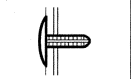
3. Disconnect the control cable (A) from the latch lever (B), and remove the latch cover (C). Take care not to bend the cable.



4. Detach the clips and the hooks (A), then remove the striker hole cover (B).

Fastener Locations

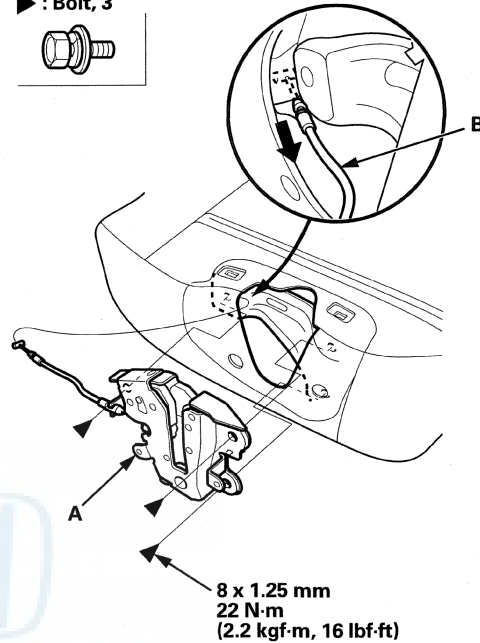
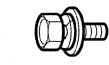
▷ : Clip, 2



5. Remove the bolts securing the seat-back latch (A).

Fastener Locations

▶ : Bolt, 3



8 x 1.25 mm
22 N·m
(2.2 kgf·m, 16 lbf·ft)

6. Carefully pull out the seat-back latch and cable (B) through the striker hole in the seat-back cover.

7. Reassemble the seat-back latch and cable in the reverse order of disassembly, and note these items:

- If the clips are damage or stress-whitened, replace them with new ones.
- Make sure the seat-back cable is routed properly.
- Make sure the seat-back cable is connected securely.
- Make sure the rear seat locks and unlocks properly.



Rear Seat-Back Cover/Pad Replacement

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

NOTE:

- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to tear or damage the seat covers.
- Put on gloves to protect your hands.
- The left rear seat is shown, the right rear seat is similar.

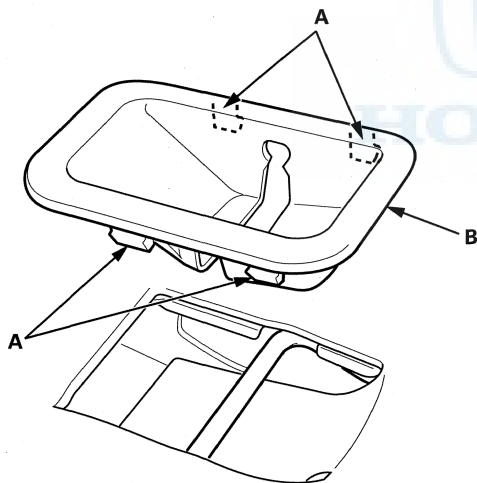
1. Remove the rear seat assembly (see page 20-131).

2. Remove the seat-back (see page 20-133).

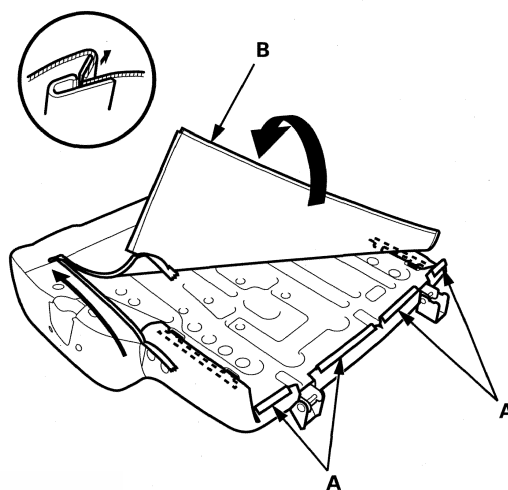
3. Remove the these items:

- Latch cover (see step 2 on page 20-135)
- Striker hole cover (see step 4 on page 20-136)

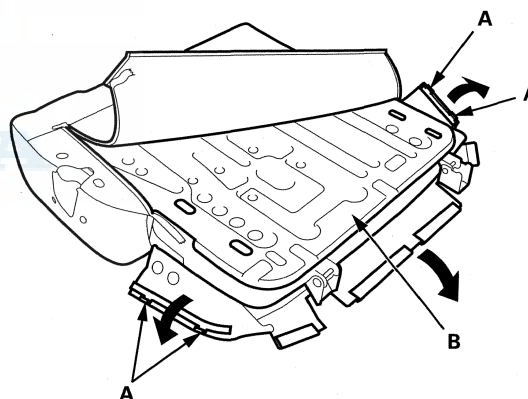
4. Release the hooks (A), then remove the tether anchor cover (B).



5. Release the hook strip (A), and unzip the seat-back cover and pull back the cover (B).



6. Release the hooks (A) from the seat-back frame (B).



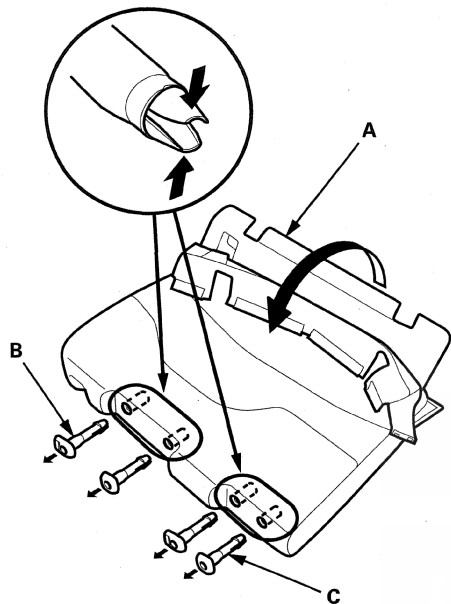
(cont'd)

Seats

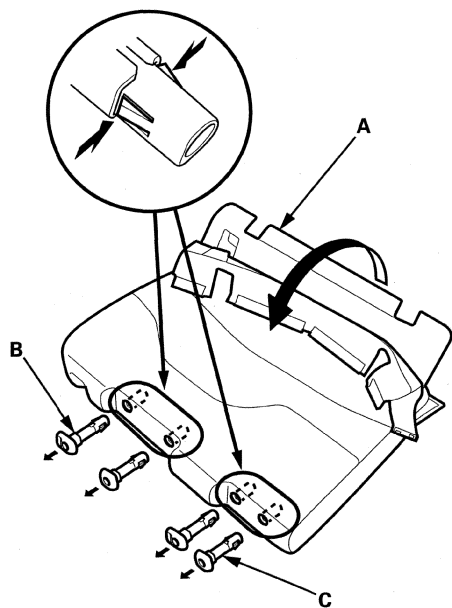
Rear Seat-Back Cover/Pad Replacement (cont'd)

7. Pull out the seat-back cover/pad (A) from the frame. Pinch the tabs on the end of the head restraint guides (B, C), and remove the guides from the seat-back.

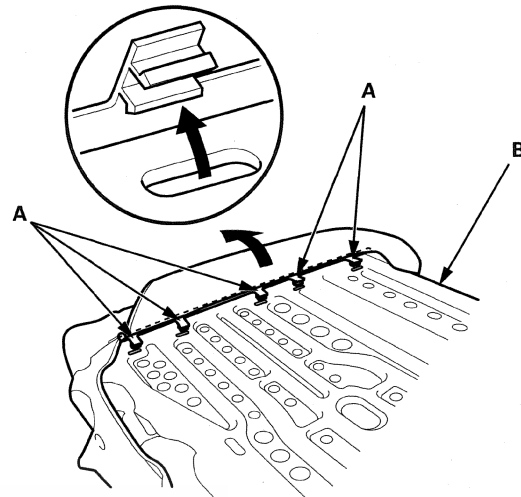
'9-10 models



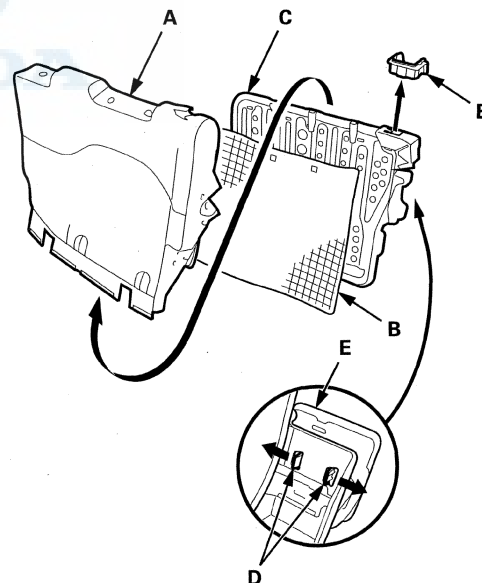
'11-12 models



8. Release the hooks (A) from the seat-back frame (B).



9. Remove the seat-back cover/pad (A) and the silencer (B) from the seat-back frame (C). If necessary, release the hooks (D) and remove the latch lever inner cover (E).



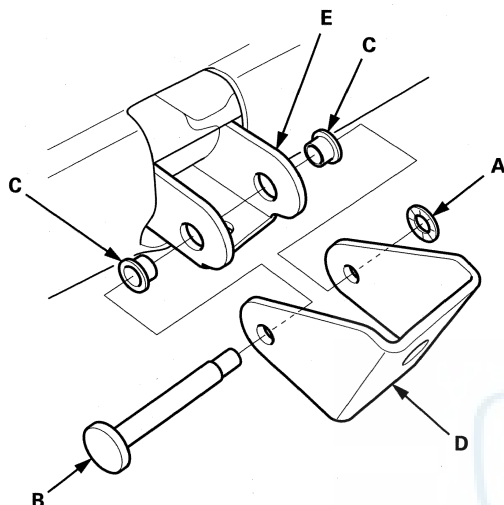
10. Install the seat-back cover/pad in the reverse order of removal. To prevent wrinkles when installing the seat-back cover, make sure the material is stretched evenly over the pad before securing the hooks.



Rear Seat-Back Hinge Replacement

NOTE:

- Take care not to tear or damage the seat covers.
 - Put on gloves to protect your hands.
1. Remove the rear seat assembly (see page 20-131).
 2. Release the push nut (A) from the pivot pin (B).



3. Remove the pivot pin, the pivot collars (C), and the hinge (D) from the seat-back frame (E). An inside hinge of a seat-back frame is shown. The outside hinges are symmetrical.
4. Reassemble the hinge in the reverse order of disassembly, and note these items:
 - Apply multipurpose grease to the moving portions of the hinge.
 - Replace any push nuts you removed with new ones.

Rear Seat Cushion Cover/Pad Replacement

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

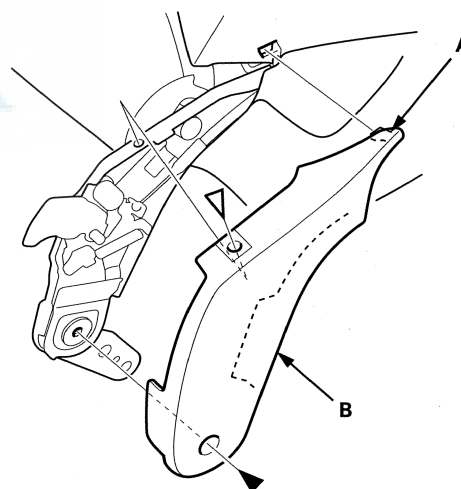
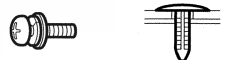
NOTE:

- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
- Take care not to tear or damage the seat covers.
- Put on gloves to protect your hands.
- The left rear seat cushion is shown, the right rear seat cushion is similar.

1. Remove the rear seat assembly (see page 20-131).
2. Remove the rear seat cushion (see page 20-133).
3. Remove the screw and the clip, then release the hook (A) and remove the recline cover (B).

Fastener Locations

► : Screw, 1 ▷ : Clip, 1



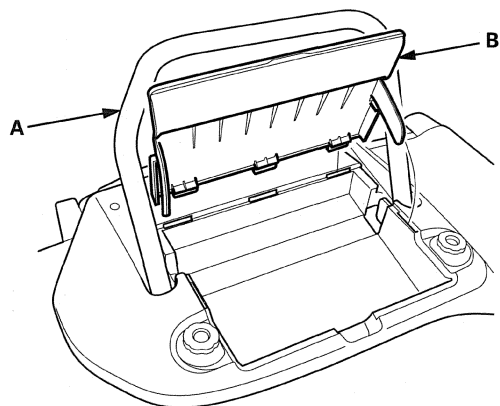
(cont'd)

Seats

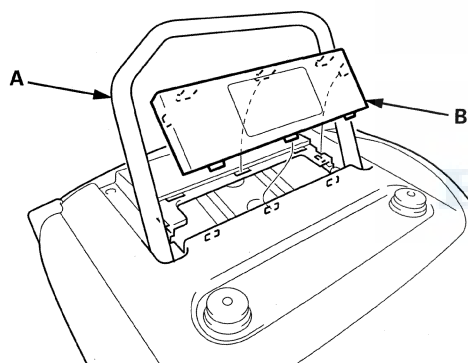
Rear Seat Cushion Cover/Pad Replacement (cont'd)

4. Lift the leg (A), and remove the rear seat undercover cap (B).

Left rear seat cushion



Right rear seat cushion

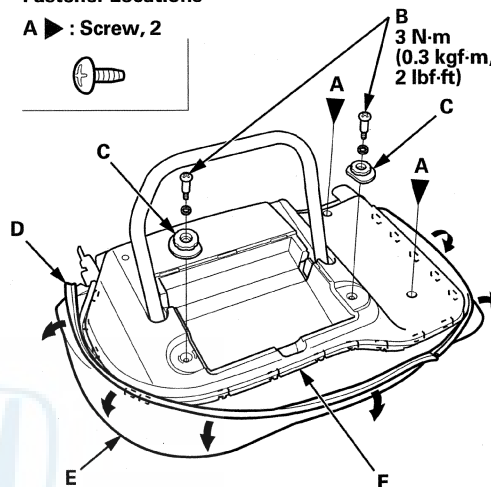


5. Remove the screws (A, B) and the knobs (C). Release the hook strip (D) of the seat cushion cover (E) from the edge of the rear seat undercover (F) all the way around.

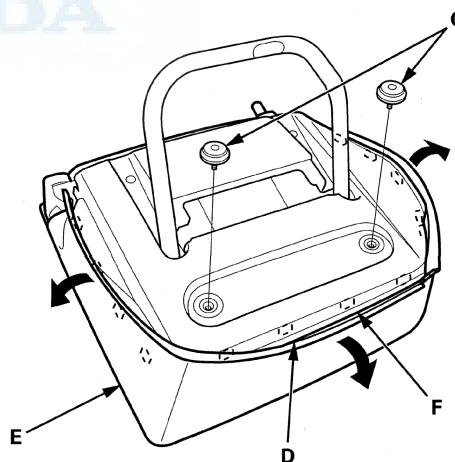
Left rear seat cushion

Fastener Locations

A ► : Screw, 2



Right rear seat cushion

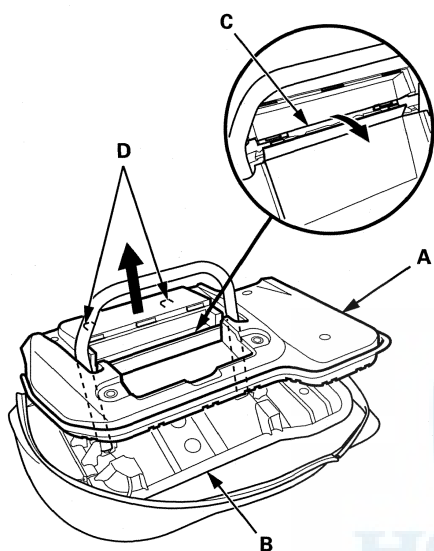




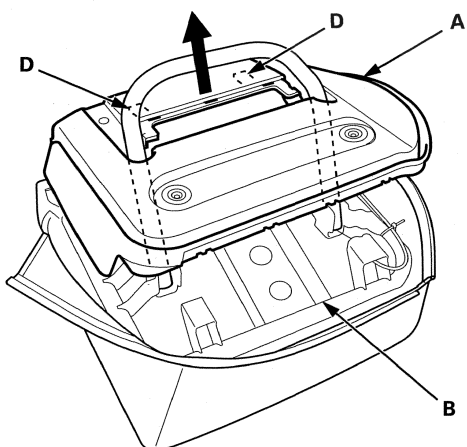
6. Remove the rear seat undercover (A) from the seat cushion frame (B).

- 1. Left seat cushion: Pry out the lid (C) with the appropriate trim tool.
- 2. Lift the front edge of the undercover up to release the hooks (D) from the frame wire.

Left rear seat cushion

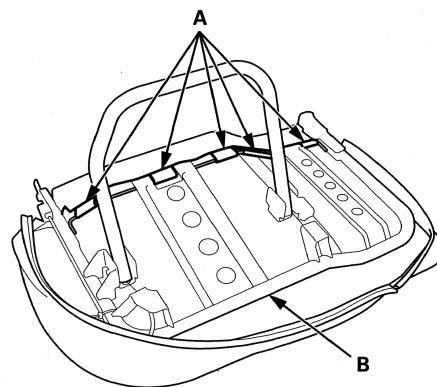


Right rear seat cushion

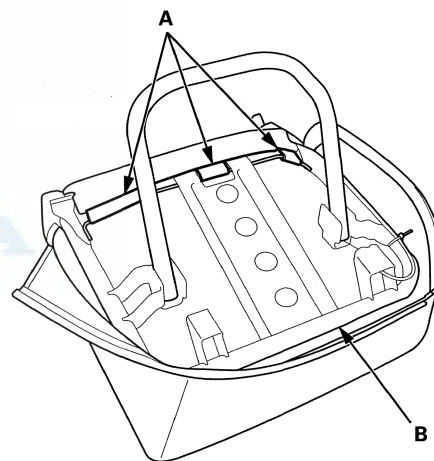


7. Release the hooks (A) from the seat-back frame (B).

Left rear seat cushion



Right rear seat cushion

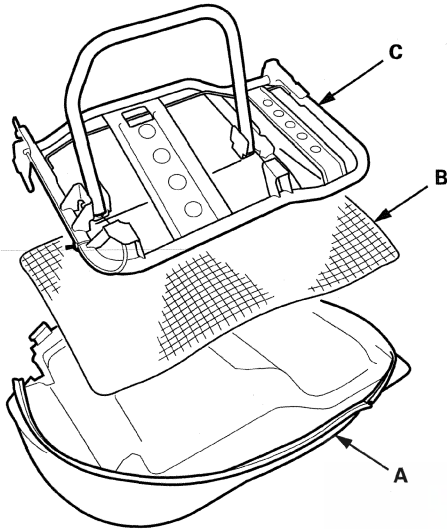


(cont'd)

Seats

Rear Seat Cushion Cover/Pad Replacement (cont'd)

8. Remove the rear seat cushion cover/pad (A) and the silencer (B) from the rear seat cushion frame (C).



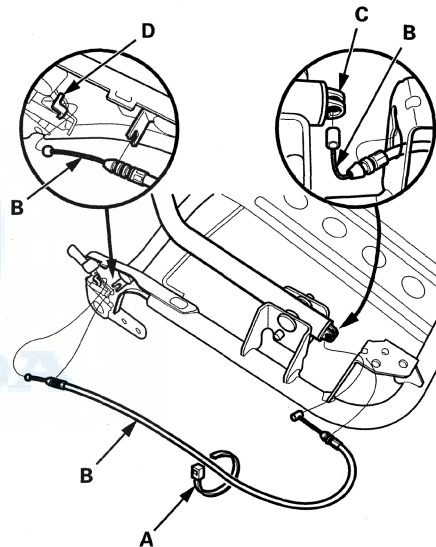
9. Install the rear seat cushion cover/pad in the reverse order of removal. To prevent wrinkles when installing the seat-back cover, make sure the material is stretched evenly over the pad before securing the hooks.

Rear Seat Control Cable Replacement

NOTE:

- Take care not to tear or damage the seat covers.
- Put on gloves to protect your hands.
- Take care not to kink the cable.
- The left rear seat is shown, the right rear seat is similar.

1. Remove the rear seat assembly (see page 20-131).
2. Remove the rear seat cushion (see page 20-133).
3. Remove the rear seat cushion cover/pad and the silencer (see page 20-139).
4. Fold the leg, and remove the wire tie (A).



5. Disconnect the control cable (B) from the leg end (C) and cable bracket (D) of the seat cushion frame.
6. Install the cable in the reverse order of removal, and note these items:
 - Replace the wire tie you removed with a new one.
 - Make sure the control cable is routed properly and connected securely.
 - Install the new cable end in the same position as the original cable end. Check the rear seat for proper tip-up operation. If necessary, adjust the position of the cable end and recheck.

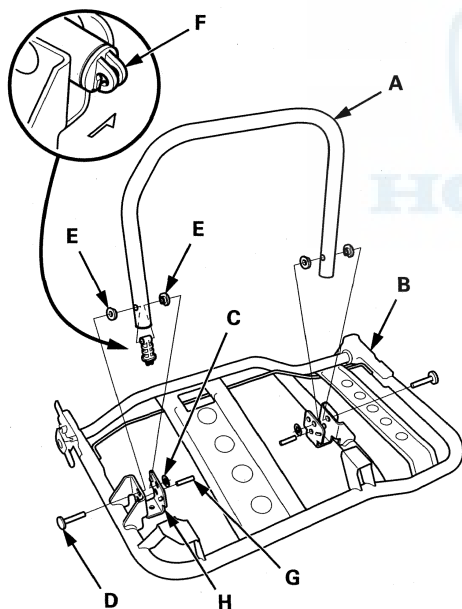


Rear Seat Cushion Leg Replacement

NOTE:

- Take care not to tear or damage the seat covers.
- Put on gloves to protect your hands.
- Take care not to kink the cable.
- The left rear seat cushion is shown, the right rear seat cushion is similar.

1. Remove the rear seat assembly (see page 20-131).
2. Remove the rear seat cushion (see page 20-133).
3. Remove the rear seat cushion cover/pad and the silencer (see page 20-139).
4. Remove the leg (A) from the seat cushion frame (B):
 - 1. Disconnect the control cable.
 - 2. Release the push nuts (C), then remove the set pins (D).
 - 3. Remove the leg.
 - 4. If necessary, remove the bushings (E), the cable hook (F), and the spring pins (G).



5. Install the leg in the reverse order of removal, and note these items:
 - Replace the push nuts and spring pins you removed with new ones.
 - Make sure the control cable is connected securely.
 - Apply multipurpose grease to the inside surfaces of the brackets (H).

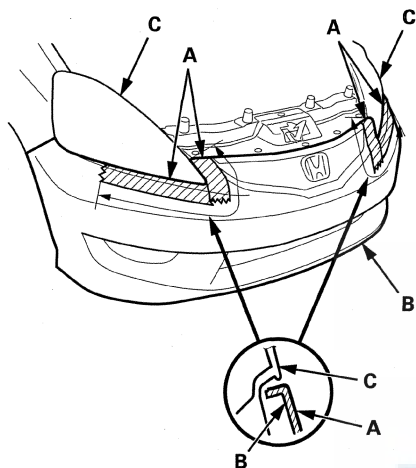
Bumpers

Front Bumper Removal/Installation

NOTE:

- Put on gloves to protect your hands.
- Have an assistant help you when removing and installing the front bumper.
- Take care not to scratch the front bumper or the body.

1. Apply protective tape (A) to the front bumper (B) beside edges of both headlights (C). Make sure the protective tape covers the edge of the bumper as shown.



2. Remove the screws (A, B) and the clips (C, D) securing the front bumper (E).

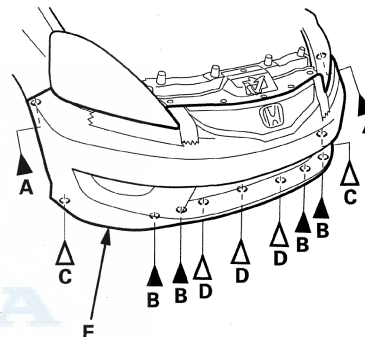
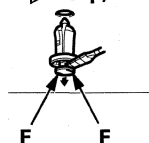
NOTE: To release the clips, pry up on the center pin at the notch (F).

Fastener Locations

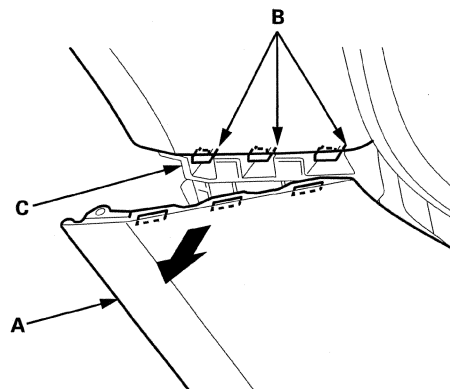
A ▶ : Screw, 2 B ▶ : Screw, 4 C ▶ : Clip, 2



D ▶ : Clip, 3

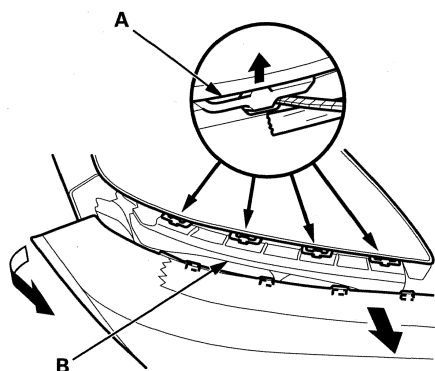


3. Pull on the front bumper (A) at the wheel arch areas to release it from the hooks (B) on the side spacers (C).





4. With the help of an assistant, release the bumper from the hooks (A) on the upper beam (B).



5. While holding the front bumper, remove the front grille cover (A).

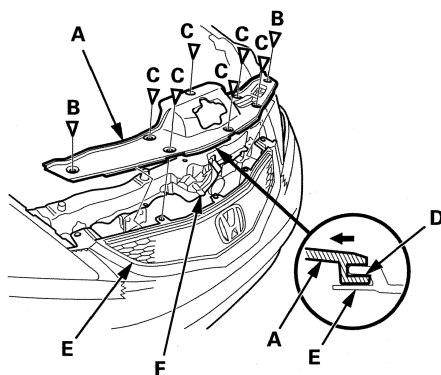
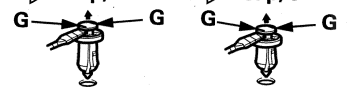
- 1. Remove the clips (B, C).
- 2. While pulling the rear edge of the cover up, slide the entire cover rearward to release it from the groove (D) of the front grille (E).
- 3. Pass the hood latch handle (F) through the hole in the cover.

NOTE: To release the clips, pry up on the center pin at the notch (G).

Fastener Locations

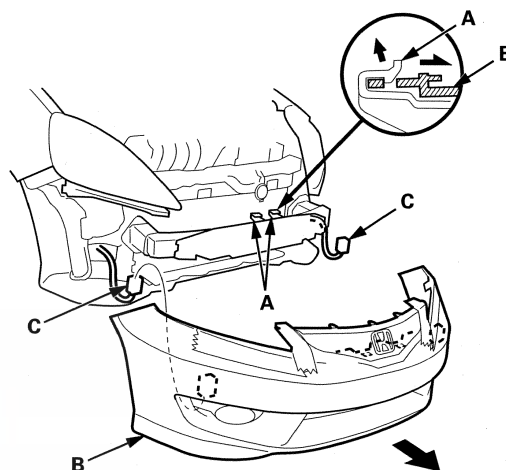
B ▷ : Clip, 2

C ▷ : Clip, 6



6. Release the hooks (A), and pull the front bumper (B) forward. Then hold the bumper, and disconnect the front fog light connectors (C), if equipped. Carefully remove the bumper.

NOTE: Have an assistant help you remove both sides of the bumper at the same time. This helps prevent scratches on the bumper or the body.



(cont'd)

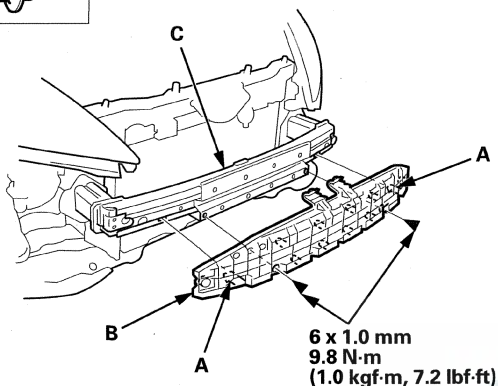
Bumpers

Front Bumper Removal/Installation (cont'd)

7. Remove the bolts and release the hooks (A), then remove the front bumper absorber (B) from the front bumper beam (C).

Fastener Locations

► : Bolt, 2



8. Install the bumper in the reverse order of removal, and note these items:

- If equipped, make sure the front fog light connectors are plugged in properly.
- Make sure the front bumper securely engages the hooks on both upper beams and both side spacers.
- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips and the hooks into place securely.

Lower Front Bumper Grille Replacement

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

With Front Fog Lights

NOTE:

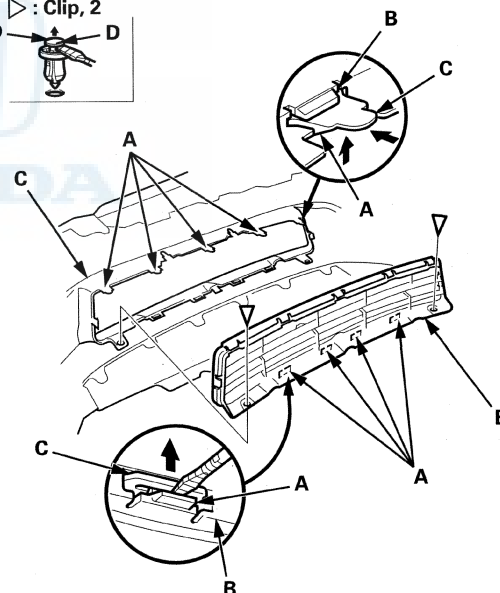
- Take care not to scratch the front bumper.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Remove the front bumper (see page 20-144).
2. Remove the clips, and release the hooks (A), then remove the lower front bumper grille (B) from the front bumper (C).

NOTE: To release the clips, pry up on the center pin at the notch (D).

Fastener Locations

▷ : Clip, 2



3. Install the bumper grille in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips and the hooks into place securely.



Lower Front Bumper Grille Cover Replacement

Canada Models Without Front Fog Lights

NOTE:

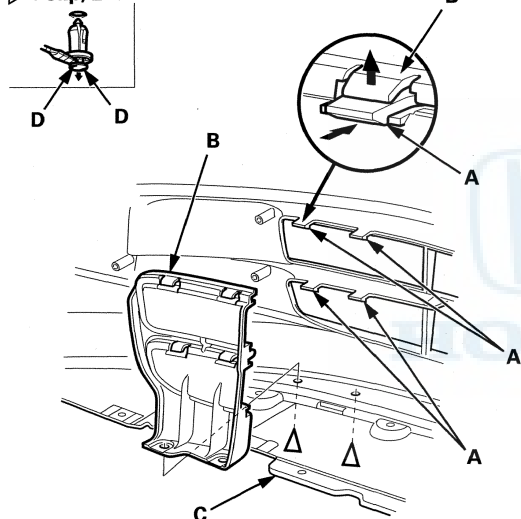
- Put on gloves to protect your hands.
- Take care not to scratch the front bumper.

1. Remove the front bumper (see page 20-144).
2. Remove the clips and the hooks (A), then remove the lower front bumper grille cover (B) from the front bumper (C).

NOTE: To release the clips, pry up on the center pin at the notch (D).

Fastener Locations

▷ : Clip, 2



3. Install the cover in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, and replace them with new ones.
- Push the clips and the hooks into place securely.

Front Air Spoiler Replacement

NOTE:

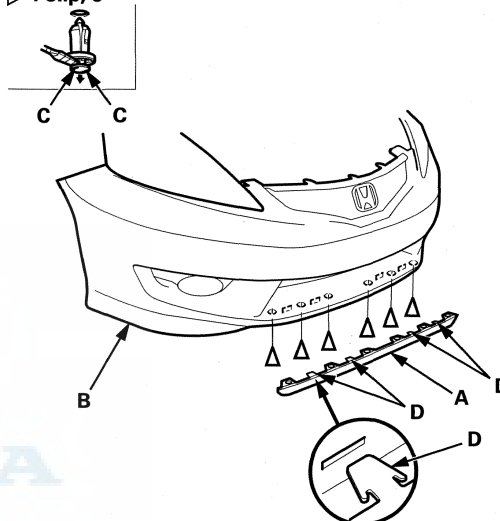
- Put on gloves to protect your hands.
- Take care not to scratch the front bumper.

1. Remove the clips securing the air spoiler (A) to the front bumper (B).

NOTE: To release the clips, pry up on the center pin at the notch (C).

Fastener Locations

▷ : Clip, 6



2. Pull the front air spoiler back to detach the hooks (D), and remove the spoiler.
3. Install the spoiler in the reverse order of removal:
 - If the clips are damaged or stress-whitened, replace them with new ones.
 - Push the clips and the hooks into place securely.

Bumpers

Rear Bumper Removal/Installation

NOTE:

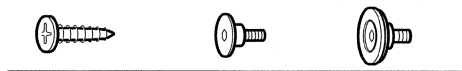
- Put on gloves to protect your hands.
- Have an assistant help you when removing and installing the rear bumper.
- Take care not to scratch the rear bumper or the body.

1. Remove the screws (A), the bolts (B, C), and the clips (D, E) securing the rear bumper (F).

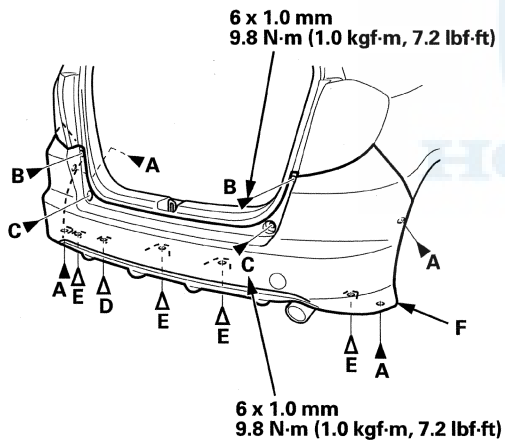
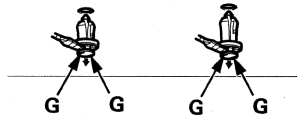
NOTE: To release the clips, pry up on the center pin at the notch (G).

Fastener Locations

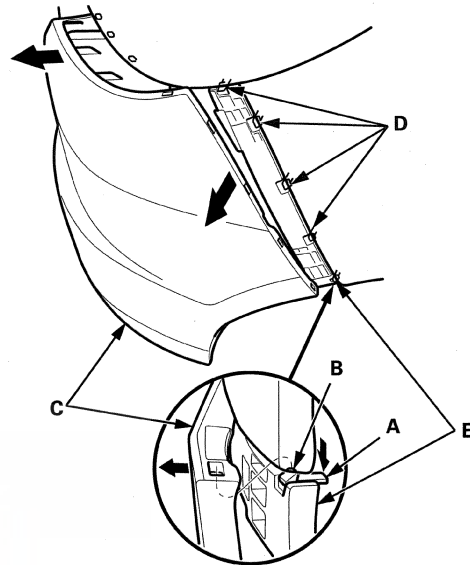
A ▶ : Screw, 4 B ▶ : Bolt, 2 C ▶ : Bolt, 2



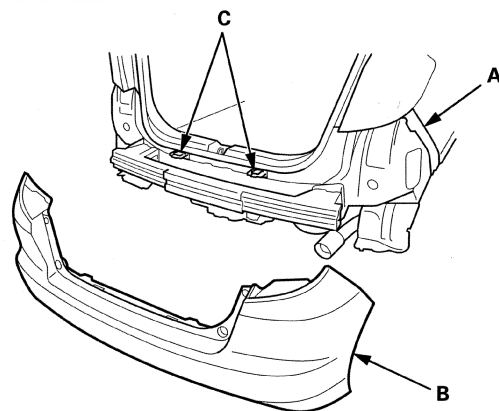
D ▶ : Clip, 1 E ▶ : Clip, 4



2. Push the tab (A) to release the bottom hook (B), then pull on the rear bumper (C) at the wheel arch areas to release it from the hooks (D) on the side spacers (E).



3. With the help of an assistant, hold the wheel arch portions away from the side spacer (A), and pull the rear bumper (B) to release the bumper from the hooks (C) on the body.



4. Install the bumper in the reverse order of removal, and note these items:

- Make sure the rear bumper securely engages the hooks on the body and on both side spacers.
- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips and the hooks into place securely.



Rear Bumper Air Spoiler Replacement

NOTE:

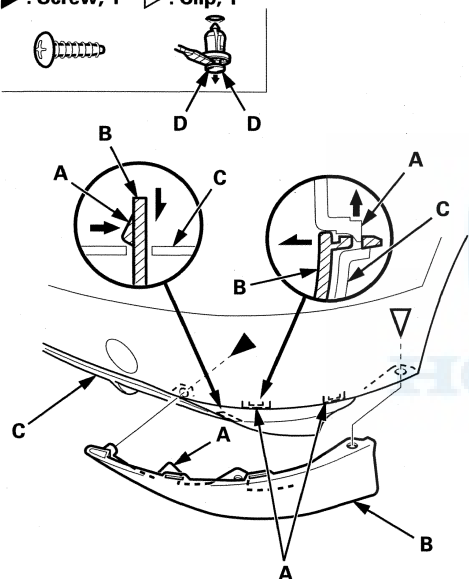
- Put on gloves to protect your hands.
- Take care not to scratch the rear bumper.

1. Remove the rear bumper (see page 20-148).
2. Remove the screw and the clip, and release the hooks (A), then remove the rear bumper air spoiler (B) from the rear bumper (C). Take care not to scratch the rear bumper.

NOTE: To release the clips, pry up on the center pin at the notch (D).

Fastener Locations

► : Screw, 1 ▷ : Clip, 1

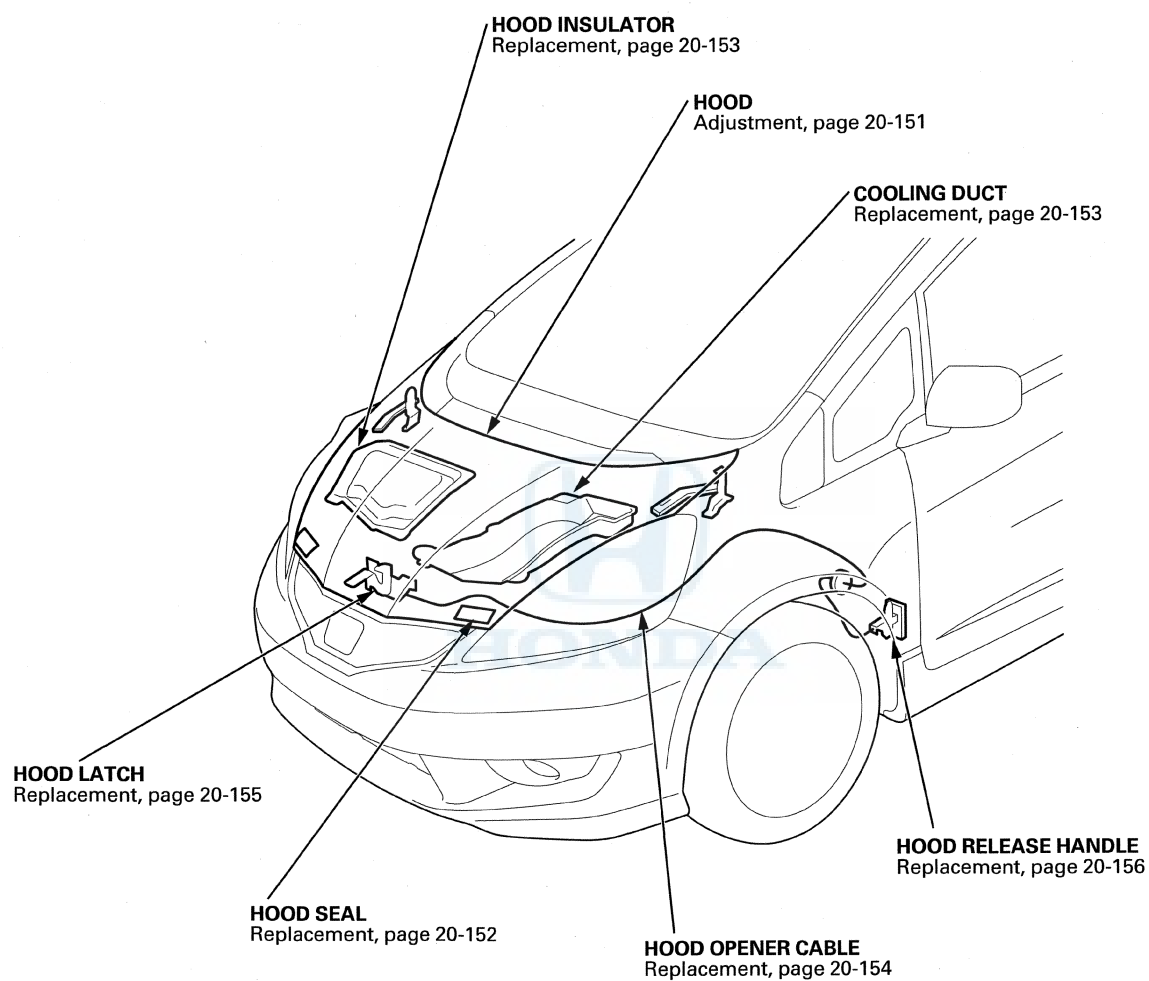


3. Install the spoiler in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips and the hooks into place securely.

Hood

Component Location Index



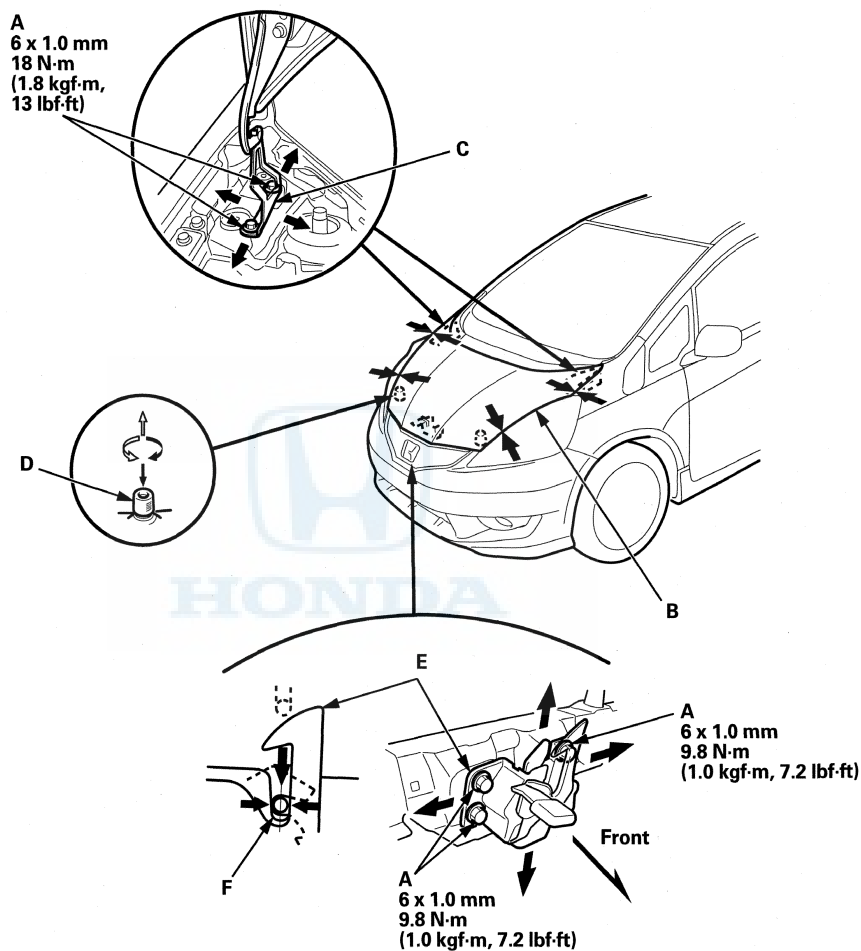


Hood Adjustment

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the hood, the body, or other related parts.

1. Remove the cowl cover (see page 20-168).
2. Slightly loosen each bolt (A).



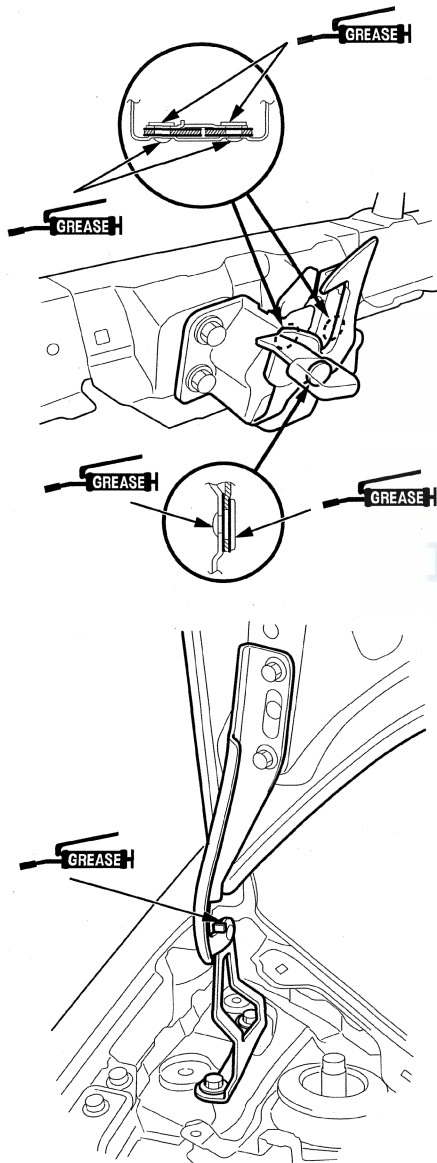
3. Adjust the hood (B) alignment in this sequence:
 - Adjust the hood right and left, as well as forward and rearward, by using the elongated holes in the hood hinges (C).
 - Turn the hood edge cushions (D), as necessary, to make the hood fit flush with the body at the front and side edges.
4. Adjust the hood latch (E) to obtain the proper height at the forward edge, and move the hood latch right or left until the striker (F) is centered in the hood latch.
5. Tighten the bolts to the specified torque.

(cont'd)

Hood

Hood Adjustment (cont'd)

6. Check that the hood opens properly and closes securely.
7. Apply touch-up paint to the hinge mounting bolts and around the hinges, and let the paint dry.
8. Apply multipurpose grease to the hood latch and the hood hinges as indicated by the arrows.



9. Reinstall all of the removed parts.

Hood Seal Replacement

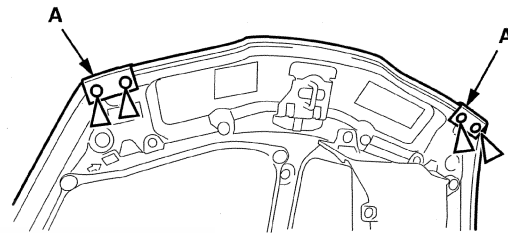
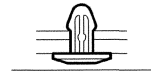
NOTE: Take care not to scratch the hood.

1. Detach the clips with a clip remover, then remove the hood seals (A).

For some models

Fastener Locations

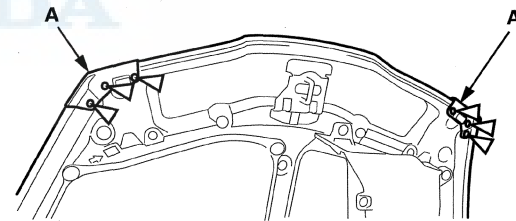
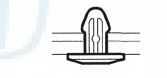
▷ : Clip, 4



For some models

Fastener Locations

▷ : Clip, 6



2. Install the seal in the reverse order of removal, and note these items:
 - If the clips are damaged or stress-whitened, replace them with new ones.
 - Push the clips into place securely.

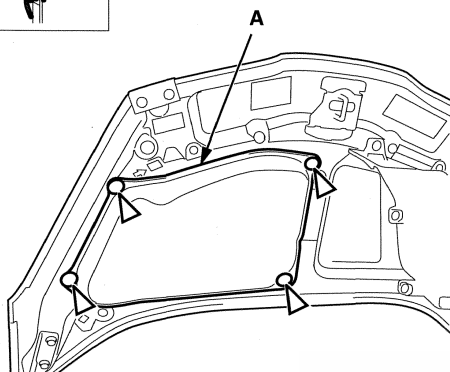


Hood Insulator Replacement

1. Detach the clips with a clip remover, then remove the hood insulator (A). Take care not to scratch the hood.

Fastener Locations

▷ : Clip, 4



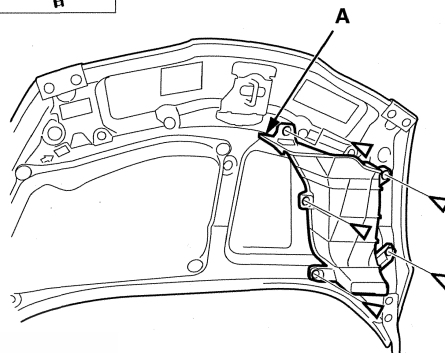
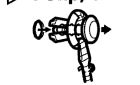
2. Install the insulator in the reverse order of removal, and note these items:
 - If the clips are damaged or stress-whitened, replace them with new ones.
 - Push the clips into place securely.

Cooling Duct Removal/Installation

1. Remove the clips, then remove the cooling duct (A). Take care not to scratch the hood.

Fastener Locations

▷ : Clip, 5



2. Install the cooling duct in the reverse order of removal, and note these items:
 - If the clips are damaged or stress-whitened, replace them with new ones.
 - Push the clips into place securely.

Hood

Hood Opener Cable Replacement

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body or its related parts.

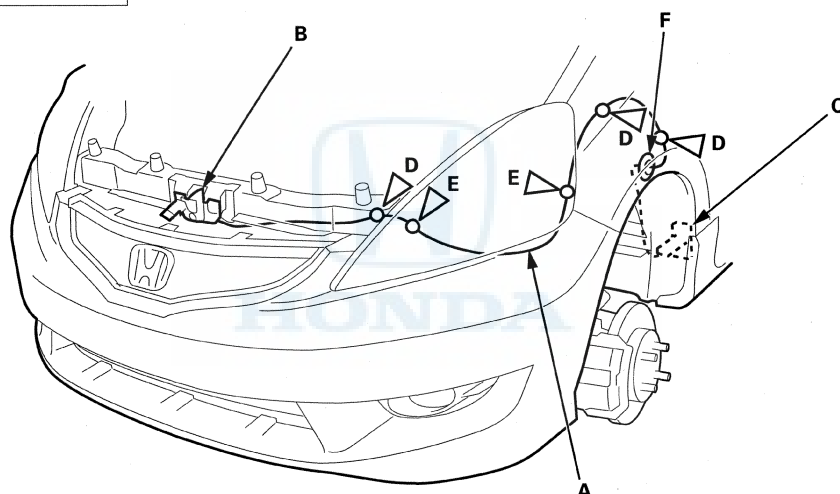
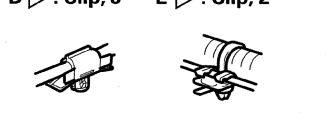
1. Remove these items:

- Front grille cover (see page 20-166)
- Front inner fender, left side as needed (see page 20-178)
- Driver's dashboard undercover (see page 20-98)
- Kick panel, driver's side (see page 20-66)

2. Disconnect the hood opener cable (A) from the hood latch (B) (see page 20-155).

Fastener Locations

D ▷ : Clip, 3 E ▷ : Clip, 2



3. Remove the hood release handle (C) (see page 20-156), and disconnect the hood opener cable.

4. Detach the clips (D) with a clip remover, release the hood opener cable from the clip (E), and remove the grommet (F) from the body, then remove the hood opener cable from the vehicle. Take care not to kink the cable.

5. Install the cable in the reverse order of removal.

NOTE: If the clips are damaged or stress-whitened, replace them with new ones.



Hood Latch Replacement

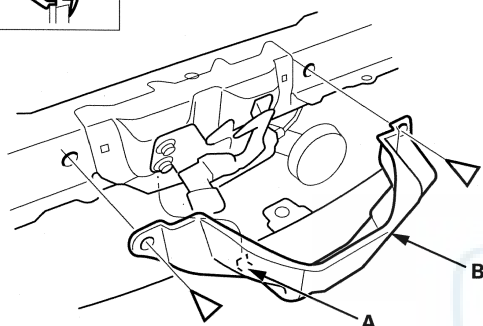
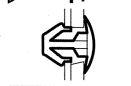
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body or related parts.

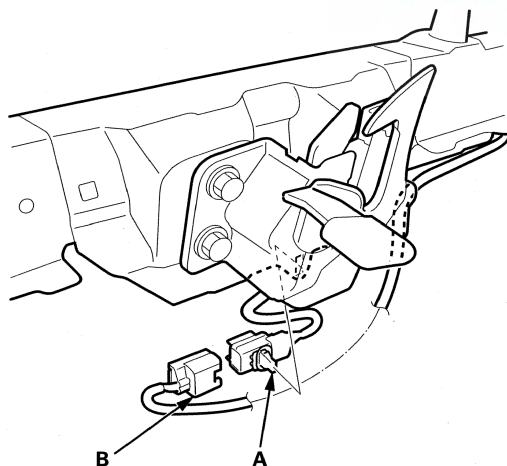
1. Remove the front grille cover (see page 20-166).
2. Remove the clips, and release the hooks (A) from the body, then remove the hood latch cover (B).

Fastener Locations

▷ : Clip, 2



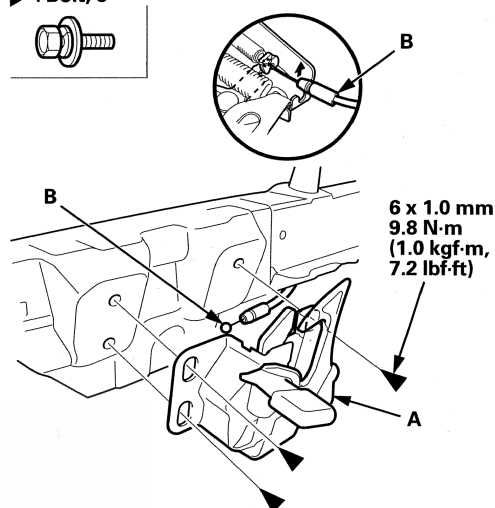
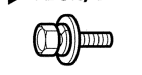
3. For some models: Remove the clip (A), then disconnect and detach the hood latch switch connector (B).



4. Remove the bolts, then remove the hood latch (A) from the body.

Fastener Locations

▷ : Bolt, 3



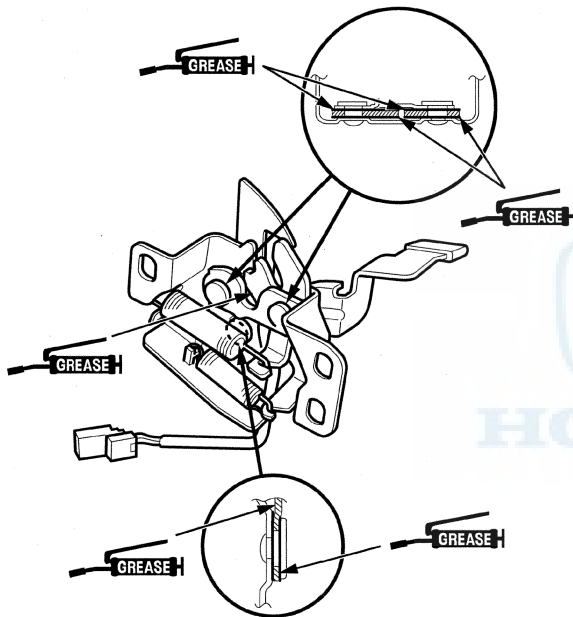
5. Disconnect the hood opener cable (B) from the hood latch. Take care not to kink the cable.

(cont'd)

Hood

Hood Latch Replacement (cont'd)

6. Install the latch in the reverse order of removal, and note these items:
- Apply multipurpose grease to each location of the hood latch indicated by the arrows.
 - Make sure the hood opener cable is connected properly and hood latch switch connector is plugged in properly (for some models).
 - Adjust the hood latch alignment (see step 4 on page 20-151).
 - Make sure the hood opens properly and locks securely.



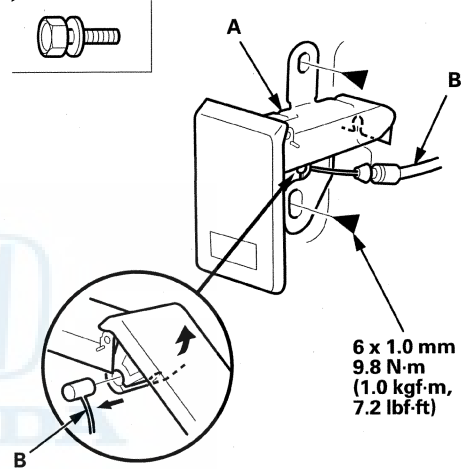
Hood Release Handle Replacement

NOTE:

- Put on gloves to protect your hands.
 - Take care not to scratch the body.
1. Remove these items:
 - Driver's dashboard undercover (see page 20-98)
 - Kick panel, driver's side (see page 20-66)
 2. Remove the bolts, then remove the hood release handle (A).

Fastener Locations

► : Bolt, 2

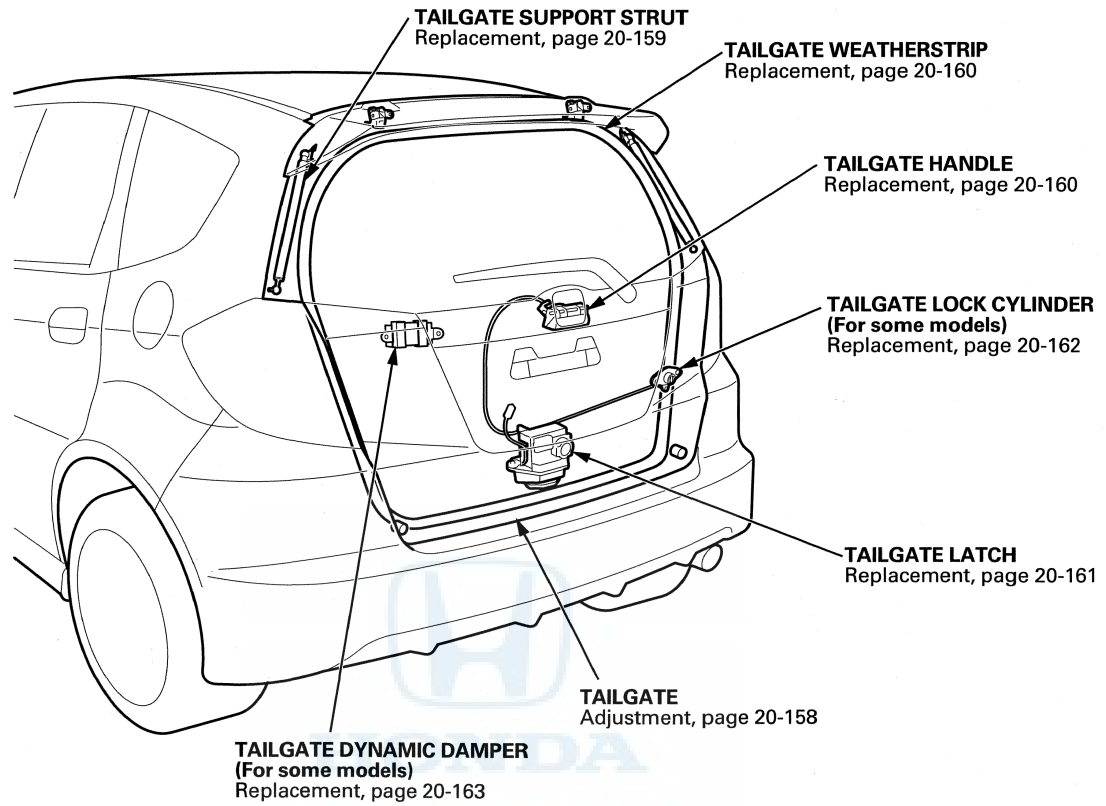


3. Disconnect the hood opener cable (B) from the hood release handle. Take care not to kink the cable.
4. Install the hood release handle in the reverse order of removal, and note these items:
 - Make sure the hood opener cable is connected properly.
 - Make sure the hood opens properly.

Tailgate



Component Location Index



Tailgate

Tailgate Adjustment

NOTE:

- Have an assistant help you when adjusting the tailgate.
- Take care not to scratch the tailgate, the body or other related parts.
- Put on gloves to protect your hands.
- The sealer around the hinges will crack when you adjust the tailgate. Apply new body seam sealer as needed to fill the cracks.

1. Remove these items:

- Rear door inner seal, as needed (see step 3 on page 20-68)
- Tailgate weatherstrip, as needed (see page 20-160)
- Cargo area side trim panel, as needed (see page 20-76)
- Quarter pillar trim, both side (see page 20-74)
- Ceiling light (see page 22-221)
- Rear grab handles (see page 20-84)

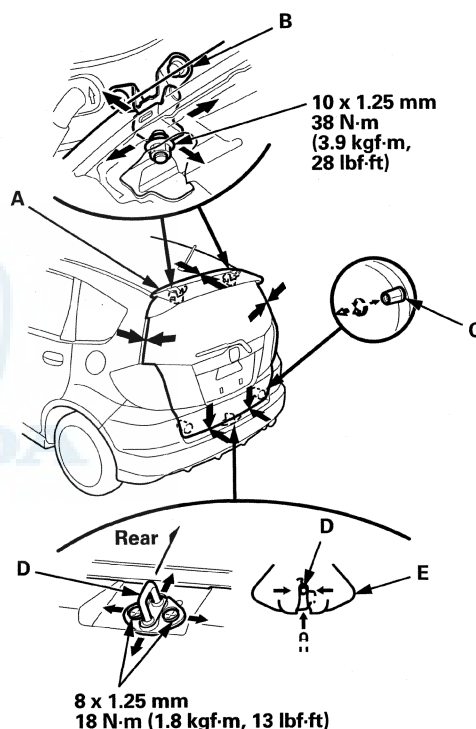
2. Pull down the rear portion of the headliner (see page 20-86). Take care not to bend the headliner excessively.

3. Remove the tailgate support strut from each side (see page 20-159).

4. Slightly loosen each nut.

5. Adjust the tailgate (A) alignment in the following sequence:

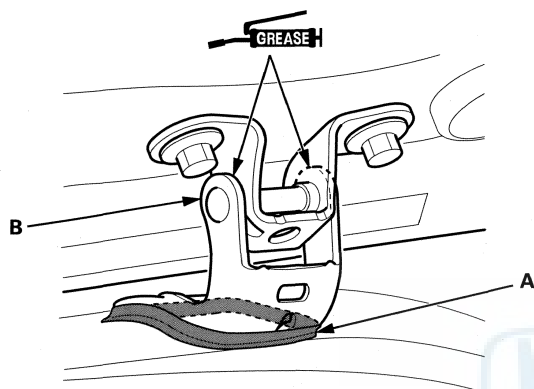
- Adjust the tailgate hinges (B) right and left, using the elongated holes.
- Turn the tailgate edge cushions (C), in or out as necessary, to make the tailgate fit flush with the body at the side edges.
- Adjust the fit between the tailgate and tailgate opening by moving the striker (D), and adjust the striker right or left until it is centered in the tailgate latch (E).





Tailgate Support Strut Replacement

6. Tighten each nut securely.
7. Check that the tailgate opens properly and locks securely.
8. Reinstall the support struts securely.
9. Apply new body seam sealer into the cracks in the sealed area (A) around the tailgate hinge (B), and let the sealer dry.



10. Apply touch-up paint to the hinge mounting bolts and around the hinges.
11. Apply multipurpose grease to the pivot portion of the tailgate hinges as indicated by the arrows.
12. Check for water leaks (see step 8 on page 20-34).
13. Reinstall all of the removed parts.

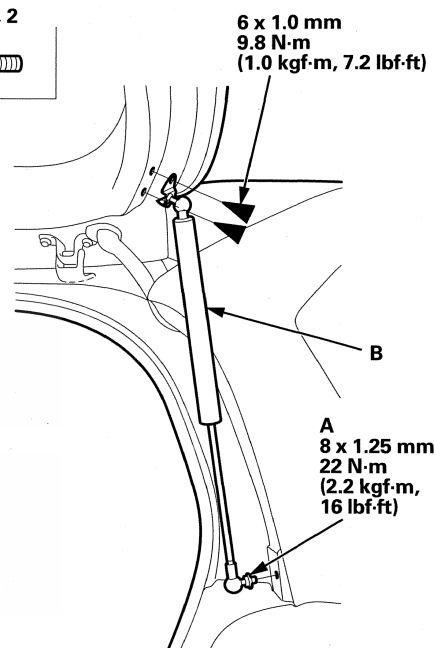
NOTE:

- Have an assistant help you when removing and installing the support strut.
- Take care not to scratch the body or the tailgate.

1. Remove the pivot bolt (A) from the body.

Fastener Locations

► : Bolt, 2

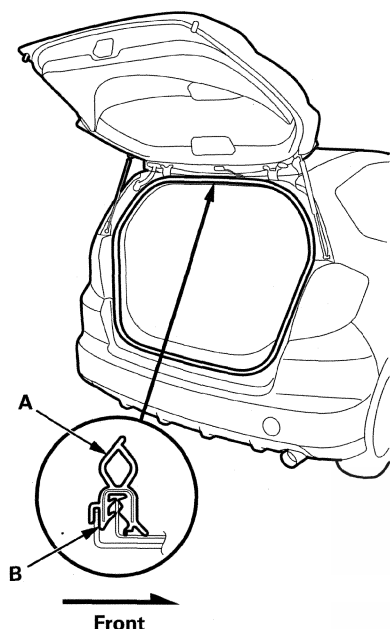


2. Remove the bolts, then remove the support strut (B) from the tailgate.
3. Install the tailgate support strut in the reverse order of removal.

Tailgate

Tailgate Weatherstrip Replacement

1. Remove the tailgate weatherstrip (A) by pulling out on it.



2. Locate the painted alignment mark (B) on the tailgate weatherstrip. Align the painted mark with the alignment tab in the center of the tailgate opening, and install the weatherstrip. Make sure it's seated completely and facing in the direction shown. Make sure there are no wrinkles in the weatherstrip.
3. Check for water leaks (see step 8 on page 20-34).

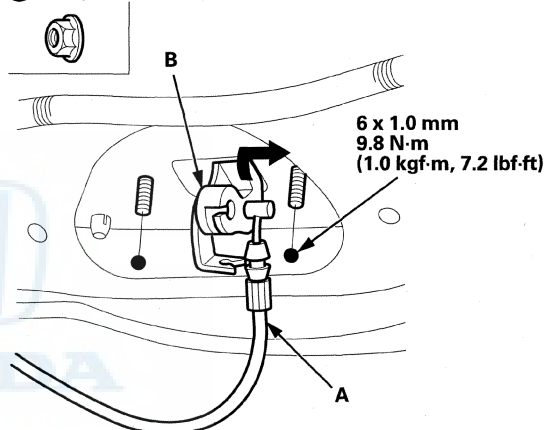
Tailgate Handle Replacement

NOTE:

- Put on gloves to protect your hands.
 - Take care not to scratch the tailgate or the related parts.
1. Remove these items:
 - Tailgate lower trim panel (see page 20-78)
 - Rear license trim (see page 20-176)
 2. Disconnect the tailgate opener cable (A) from the tailgate handle (B), and remove the nuts. Take care not to kink the cable.

Fastener Locations

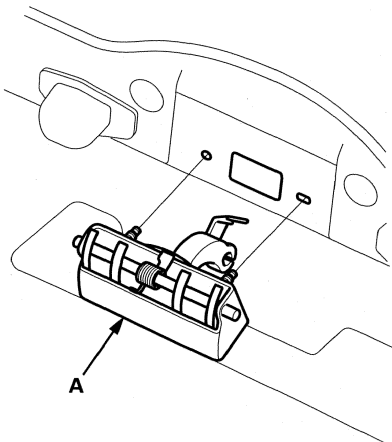
● : Nut, 2





Tailgate Latch Replacement

3. From outside of the tailgate, pull out the tailgate handle (A), then remove it.

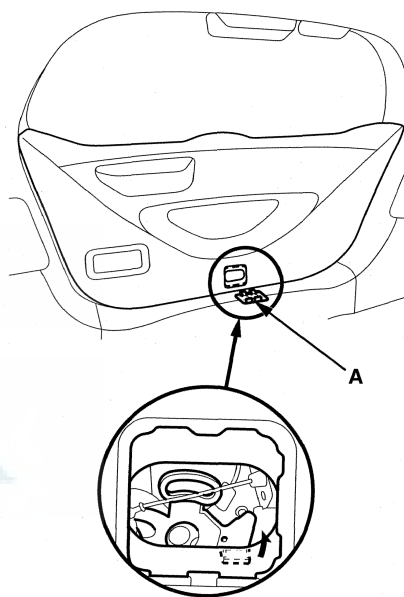


4. Install the handle in the reverse order of removal, and note these items:

- Make sure the tailgate opener cable is connected securely.
- Make sure the tailgate opens properly.

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the tailgate or the related parts.
- If the tailgate latch does not unlock by using the keyless entry transmitter or unlocking the driver's door lock, remove the maintenance lid (A) from the tailgate lower trim panel. Unlock the tailgate latch by turning the lock lever counterclockwise as shown. Open the tailgate by pulling the tailgate handle.



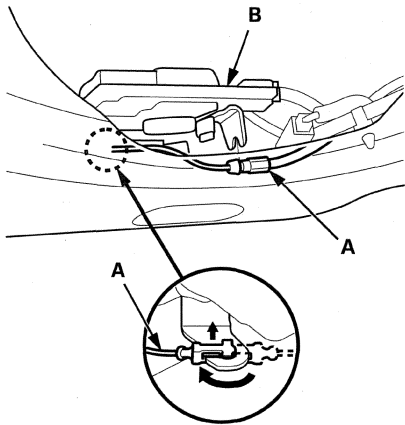
1. Remove the tailgate lower trim panel (see page 20-78).

(cont'd)

Tailgate

Tailgate Latch Replacement (cont'd)

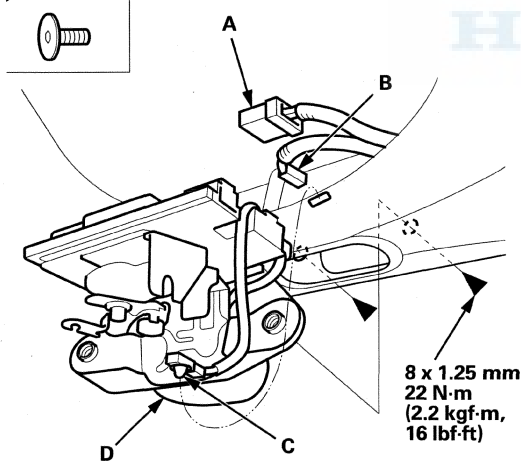
2. Disconnect the tailgate opener cable (A) from the tailgate latch (B). Take care not to kink the cable.



3. For some models: Disconnect the cylinder rod from the tailgate lock cylinder (see step 2 on page 20-162).
4. Disconnect the tailgate latch actuator connector (A) and the tailgate lock switch connector (B), and detach the clip (C), then remove the tailgate latch.

Fastener Locations

► : Bolt, 2



5. Remove the bolts, then pull out the tailgate latch (D) from the tailgate.
6. Install the tailgate latch in the reverse order of removal, and note these items:
 - Make sure the connectors are plugged in properly and the handle cable is connected properly.
 - Make sure the tailgate opens properly and locks securely.

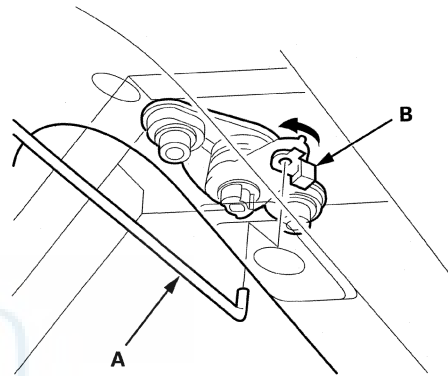
Tailgate Lock Cylinder Replacement

For Some Models

NOTE: Put on gloves to protect your hands.

1. Remove the tailgate lower trim panel (see page 20-78).
2. Disconnect the tailgate cylinder rod (A).

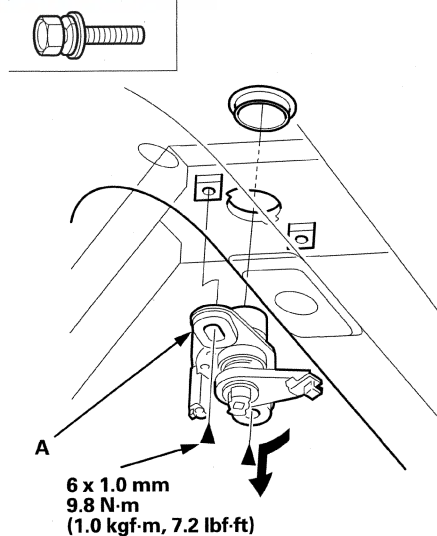
NOTE: Check for damaged or stress-whitened rod fastener (B).



3. Remove the bolts securing the lock cylinder (A), then remove the lock cylinder by turning it.

Fastener Locations

► : Bolt, 2



4. Install the lock cylinder in the reverse order of removal, and note these items:
 - Make sure the cylinder rod is connected properly.
 - Make sure the tailgate opens properly and locks securely.



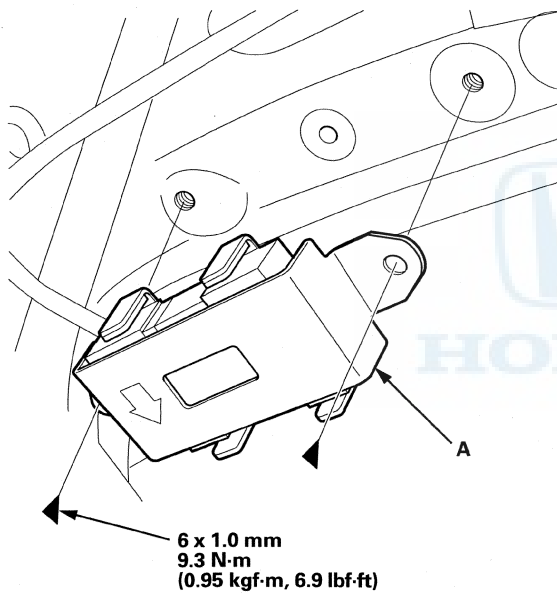
Tailgate Dynamic Damper Replacement

NOTE:

- Put on gloves to protect your hands.
 - Take care not to scratch the tailgate or the related parts.
1. Remove the tailgate lower trim panel (see page 20-78).
 2. Remove the bolts, then remove the tailgate dynamic damper (A) from the tailgate.

Fastener Locations

► : Bolt, 2



3. Install the tailgate dynamic damper in the reverse order of removal.

Fuel Fill Door

Fuel Fill Door Adapter Replacement

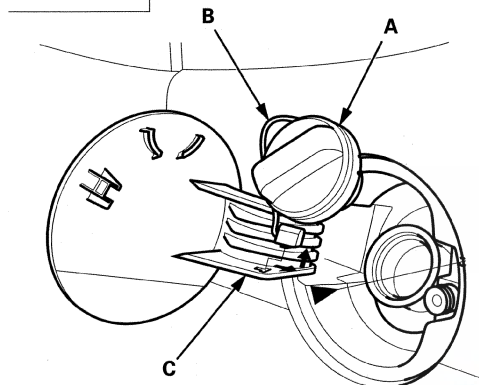
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.

1. Remove the fuel pipe protector (see page 20-183).
2. Remove the fuel cap (A) by turning it counterclockwise, and remove the fuel cap retainer strap (B) from the hinge arm (C). Remove the screw.

Fastener Location

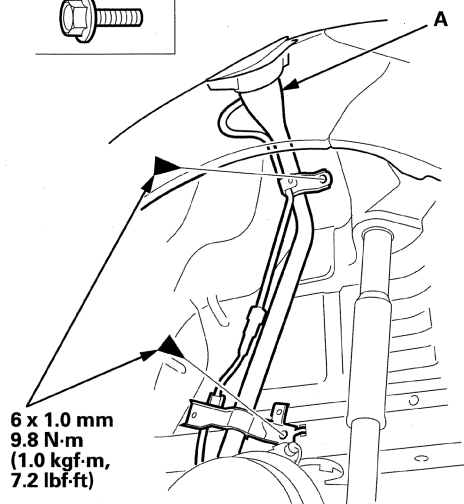
► : Screw, 1



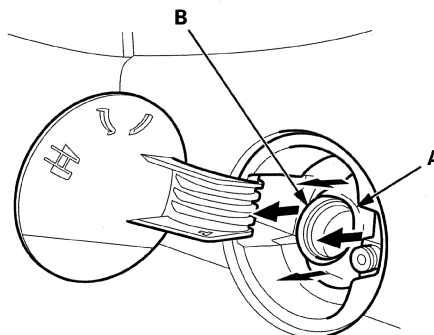
3. Remove the bolts, and lower the fuel filler pipe (A).

Fastener Locations

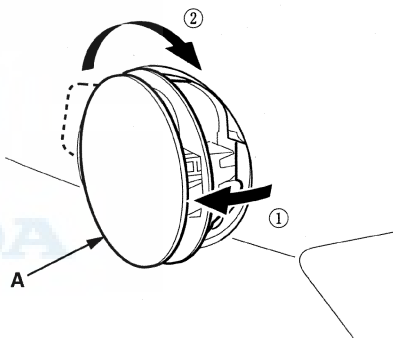
► : Bolt, 2



4. Pull the fuel fill door/adapter lip (A) out from the fuel filler pipe (B).



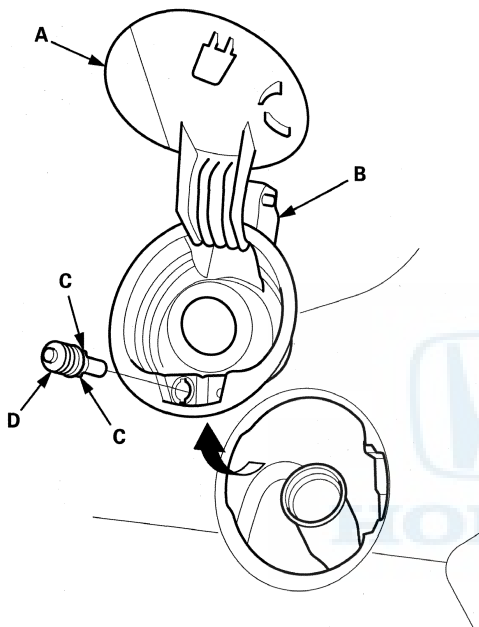
5. Hold the fuel fill door partly open, and pull out the fuel fill door/adapter (A) while rotating it 90 ° clockwise.



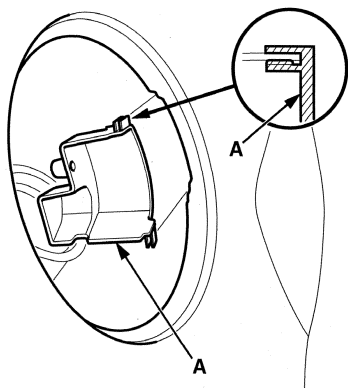


6. Remove the fuel fill door/adapter (A).

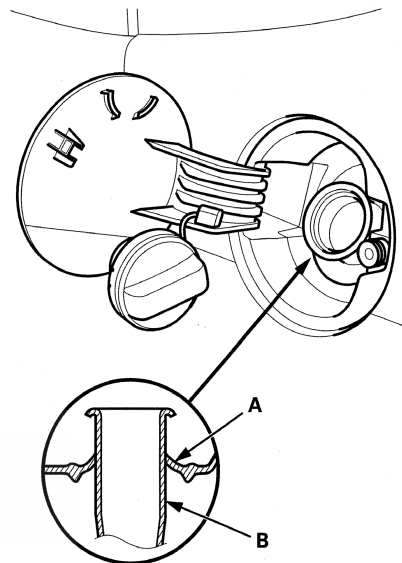
- 1. Pull the lower portion of the fuel fill door/adapter out.
- 2. Pull out the fuel fill door/adapter hinge (B) through the hole in the body.
- 3. If necessary, release the hooks (C), then remove the fuel fill door push lifter (D) from the fuel fill door/adapter.



7. If necessary, pull out the fuel fill adapter grommet (A).



8. Install the fuel fill door adapter in the reverse order of removal, and make sure the adapter lip (A) is fully seated on the fuel filler pipe (B).



Exterior Trim

Front Grille Cover Replacement

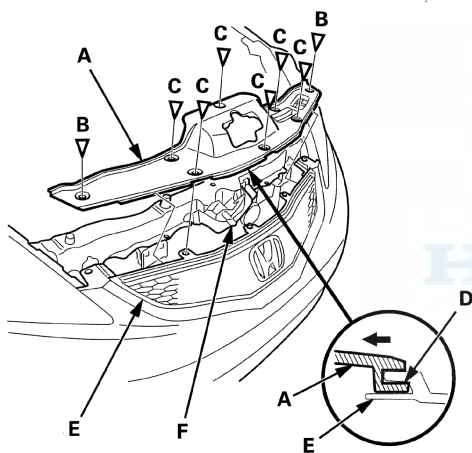
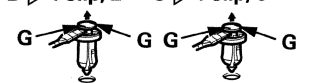
NOTE: Take care not to scratch the front grille or the body.

1. Remove the front grille cover (A).
 - 1. Remove the clips (B, C).
 - 2. While pulling the rear edge of the cover up, and slide the entire cover rearward to release it from the groove (D) of the front grille (E).
 - 3. Pass the hood latch handle (F) through the hole in the cover.

NOTE: To release the clips, pry up on the center pin at the notch (G).

Fastener Locations

B ▷ : Clip, 2 C ▷ : Clip, 6



2. Install the cover in the reverse order of removal, and note these items:
 - If the clips are damaged or stress-whitened, replace them with new ones.
 - Push the clips into place securely.

Front Grille Replacement

For some models

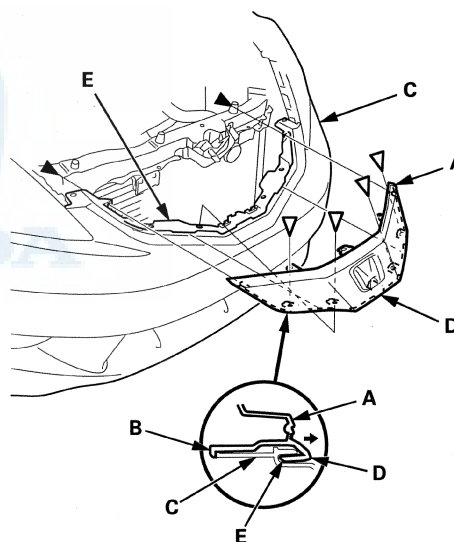
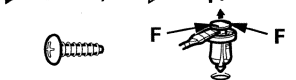
NOTE: Take care not to scratch the front bumper.

1. Remove the front grille cover (see page 20-166).
2. Remove the front grille (A).
 - 1. Remove the screws and the clips.
 - 2. Release the hooks (B) on the grille from the front bumper (C), and pull the grille out to release the ribs (D) from the front bumper groove (E).

NOTE: To release the clips, pry up on the center pin at the notch (F).

Fastener Locations

▶ : Screw, 2 ▷ : Clip, 4



3. Install the grille in the reverse order of removal, and note these items:
 - If the clips are damaged or stress-whitened, and replace them with new one.
 - Push the clips and the hooks into place securely.

For some models

NOTE: Take care not to scratch the front bumper.

1. Remove the front bumper (see page 20-144).

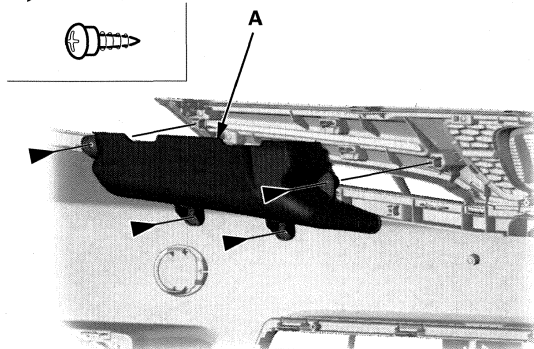


A-Pillar Corner Trim Replacement

2. Remove the screws, then remove the cooling guide (A).

Fastener Locations

► : Screw, 4



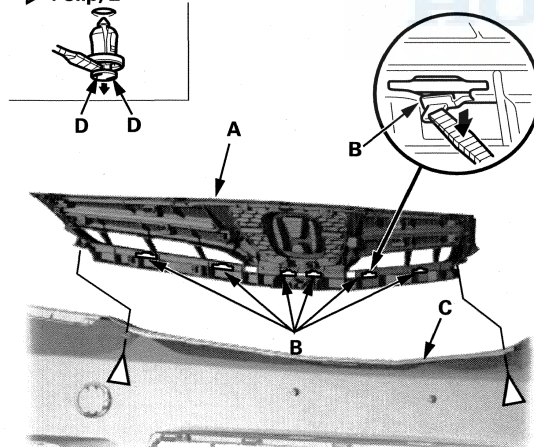
3. Remove the front grille (A).

- 1. Remove the clips.
- 2. Release the hooks (B) on the grille from the front bumper (C), and pull the grille from the front bumper.

NOTE: To release the clips, pry up on the center pin at the notch (D).

Fastener Locations

► : Clip, 2



4. Install the grille in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, and replace them with new one.
- Push the clips and the hooks into place securely.

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

NOTE:

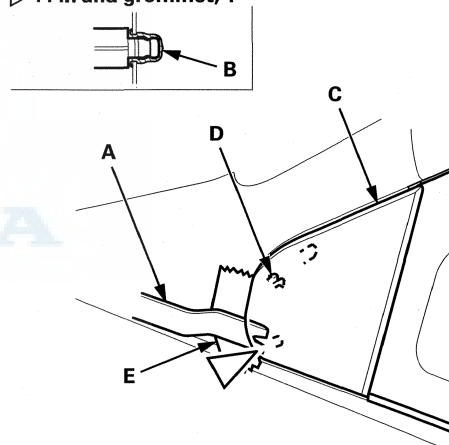
- Put on gloves to protect your hands.
- Take care not to scratch the corner trim or the body.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Carefully insert the appropriate trim tool (A) next to the grommet (B), and detach the pin and the grommet together by prying on the A-pillar corner trim (C), then detach the tab (D).

NOTE: Apply protective tape (E) to the body as shown.

Fastener Locations

► : Pin and grommet, 1

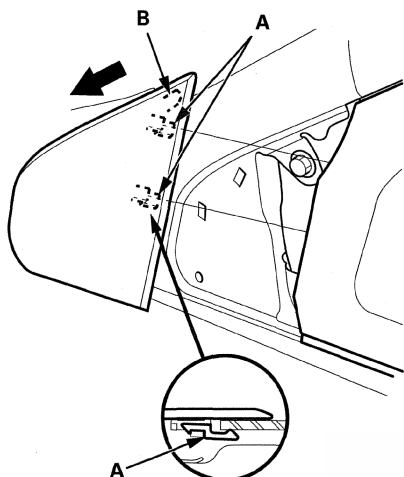


(cont'd)

Exterior Trim

A-Pillar Corner Trim Replacement (cont'd)

2. Slide the A-pillar corner trim forward in the direction shown, and detach the clips (A) and the tab (B) from the body, then remove the trim.



3. Install the trim in the reverse order of removal, and note these items:
- If the clips are damaged or stress-whitened, replace them with new ones.
 - Push the clips into place securely.

Cowl Cover Replacement

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

Removal

NOTE:

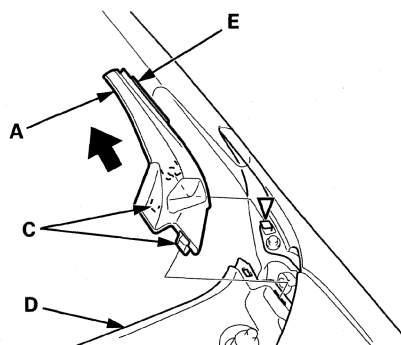
- Put on gloves to protect your hands.
- Take care not to damage the body.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Close the hood.
2. Remove the driver's hood hinge cover (A) and the passenger's hood hinge cover (B).
 - 1. Carefully pull the bottom of the cover up to release the hooks (C) from the cowl cover (D).
 - 2. Release the rib (E) from the edge of the body.
 - 3. Carefully slide the cover up along the A-pillar to release it from the clip.
 - 4. Remove the clip from the body.

Driver's cowl cover

Fastener Location

▷ : Clip, 1

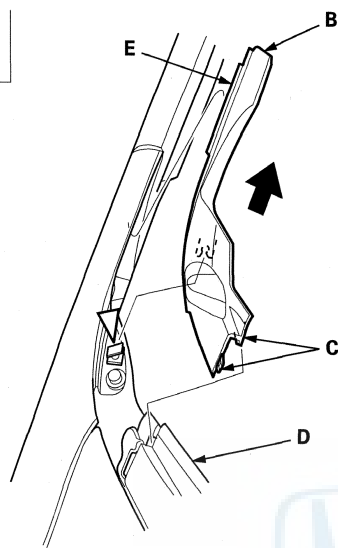




Passenger's cowl cover

Fastener Location

▷ : Clip, 1



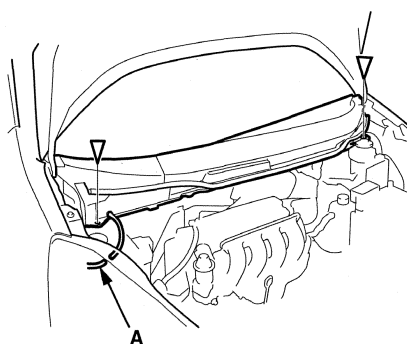
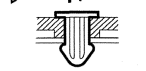
3. Open the hood.

4. Remove the windshield wiper arms (see page 22-264).

5. Detach the clips from the cowl cover with a clip remover, then disconnect the windshield washer tube (A).

Fastener Locations

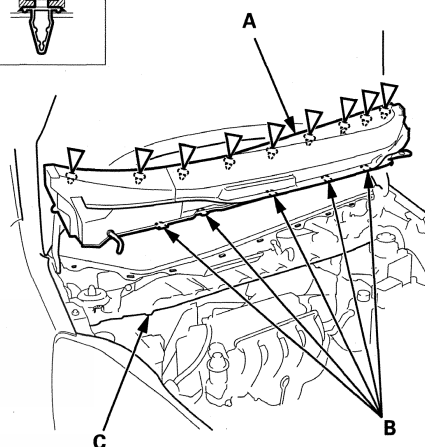
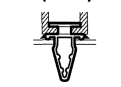
▷ : Clip, 2



6. Detach the clips by carefully pulling the windshield side edge of the cowl cover (A) upward. Pull the cowl cover forward to release the front hooks (B) from the under-cowl panel (C), then remove the cover.

Fastener Locations

▷ : Clip, 9 (Blue)



7. If the clips are damaged or stress-whitened, replace them with new ones.

(cont'd)

Exterior Trim

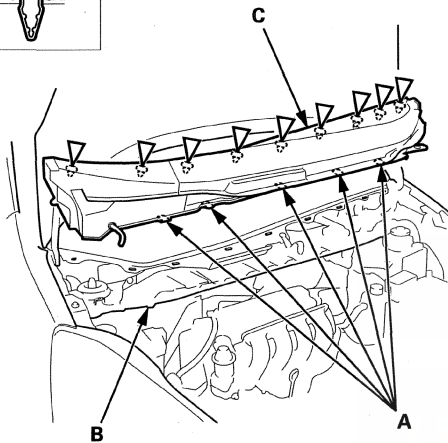
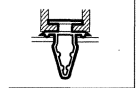
Cowl Cover Replacement (cont'd)

Installation

1. Install all of the front hooks (A) on the edge of the under-cowl panel (B), and fit the clips into the holes on the body, then push on the cowl cover (C) until the clips snap into place securely.

Fastener Locations

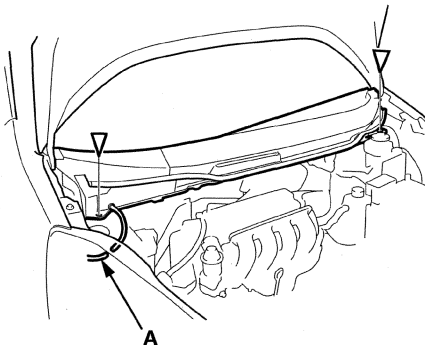
▷ : Clip, 9
(Blue)



2. Install the clips on the cowl cover, then connect the windshield washer tube (A) securely.

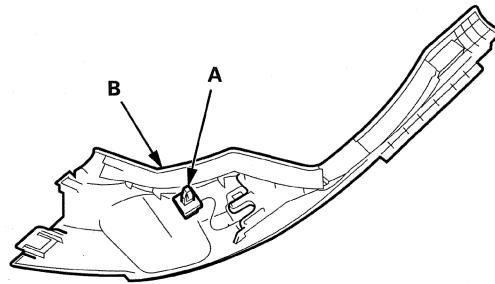
Fastener Locations

▷ : Clip, 2



3. Install the windshield wiper arms (see page 22-264).
4. Close the hood.

5. Install the clips (A) on both hood hinge covers (B). The passenger's hood hinge cover is shown; the driver's hood hinge cover is similar.



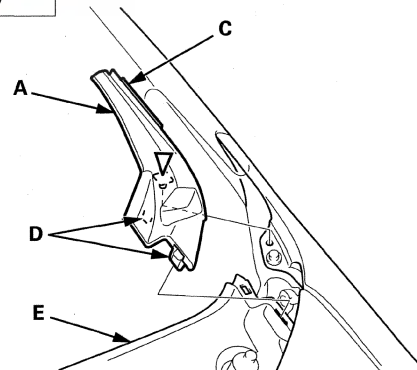
6. Install the hood hinge covers (A, B).

- 1. Install the rib (C) to the edge of the body.
- 2. Fit the clip and the hooks (D) into the holes in the body and the cowl cover (E), then push on the cover until they snap into place securely.

Driver's cowl cover

Fastener Location

▷ : Clip, 1



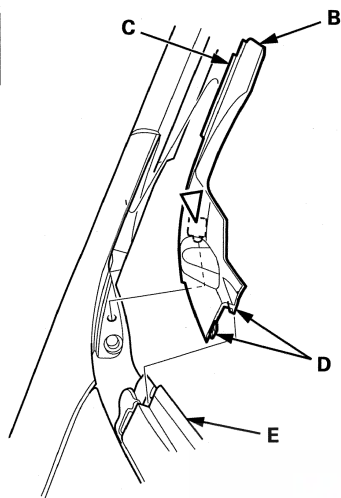


Roof Molding Replacement

Passenger's cowl cover

Fastener Location

▷ : Clip, 1



Special Tools Required

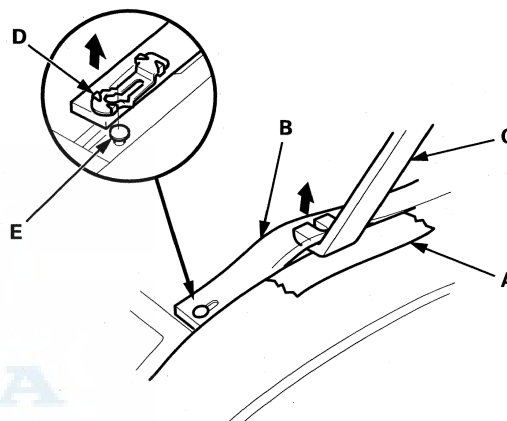
KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

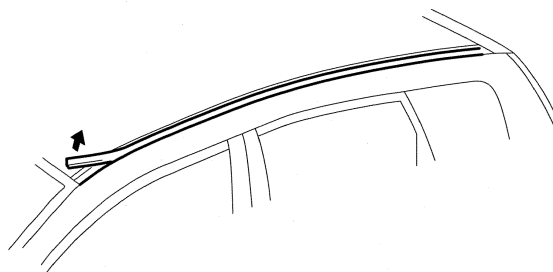
NOTE:

- Take care not to scratch the body.
- Take care not to bend the roof molding.
- Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.

1. Apply protective tape (A) to the body. Pry up on the roof molding (B) with the appropriate trim tool (C).



2. Pull up and slide the roof molding to release the front bracket (D) from the pin (E).
3. Pull up the front portion of the roof molding.

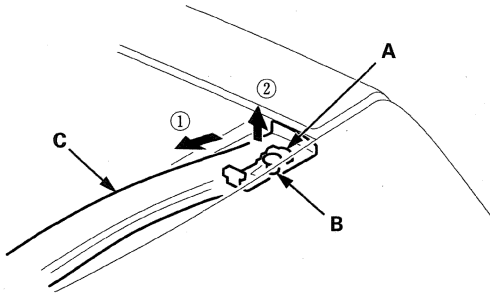


(cont'd)

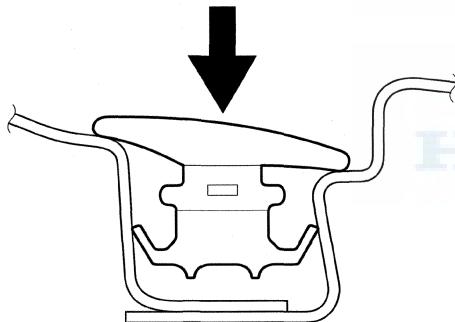
Exterior Trim

Roof Molding Replacement (cont'd)

4. Pull up and release the rear bracket (A) from the pin (B), then remove the roof molding (C).



5. Install the molding in the reverse order of removal, and note these items:
- Take care not to damage the windshield molding.
 - Make sure the roof molding is installed securely.





Side Sill Panel Replacement

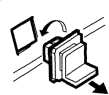
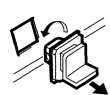
For Some Models

1. Remove the side sill panel (A).

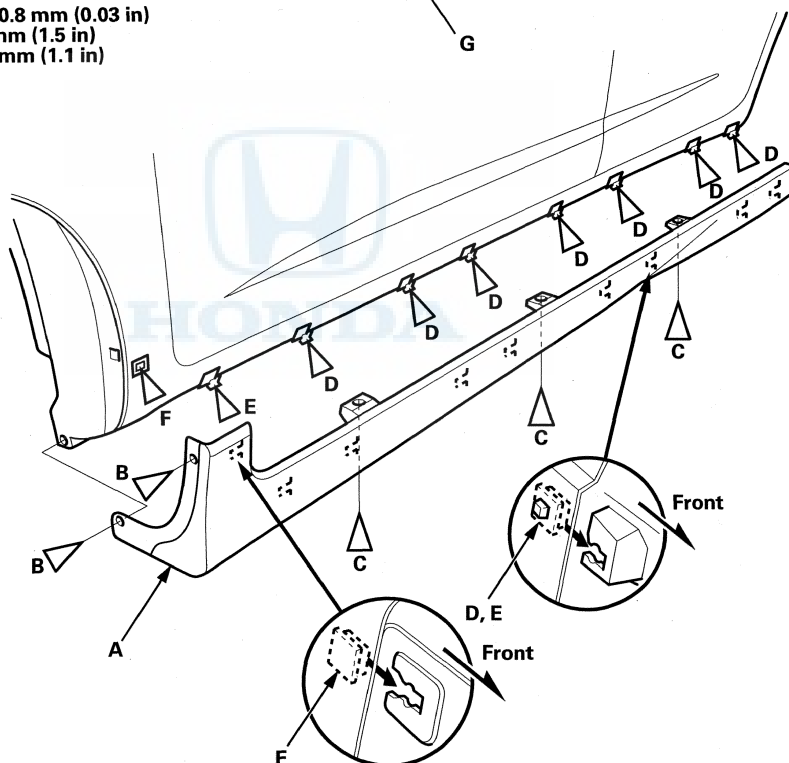
- 1. Remove the clips (B) on the back of the front wheel arch.
- 2. Remove the expansion clips (C).
- 3. Slide the side sill panel forward, and remove it. The side clips (D, E, F) will stay in the body.
- 4. Remove the side clips (D, E) from the body by turning them 45°.
- 5. If necessary, use a utility knife to cut the double-sided adhesive tape (G) that holds the side clips (F) to the body.
Take care not to scratch the body.

Fastener Locations

B ▷ : Clip, 2 C ▷ : Clip, 3 D ▷ : Clip, 7 E ▷ : Clip, 1 F ▷ : Clip, 1



Adhesive tape: Thickness 0.8 mm (0.03 in)
Width 38 mm (1.5 in)
Length 28 mm (1.1 in)



- 2. If the clips are damaged or stress-whitened, replace them with new ones.
- 3. Prepare the side clips (F) for installation by removing any remaining adhesive tape. Clean the side clip bonding surfaces with a shop towel dampened in isopropyl alcohol. Apply primer to the side clips, then attach new adhesive tape.
- 4. Clean the side clip body bonding surface with a shop towel dampened in isopropyl alcohol where adhesive tape will be attached.

(cont'd)

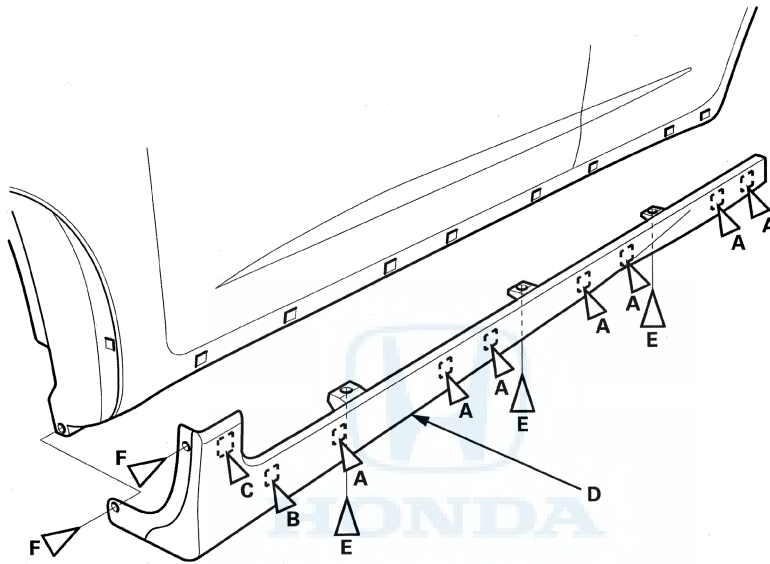
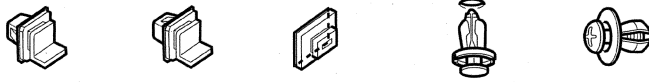
Exterior Trim

Side Sill Panel Replacement (cont'd)

5. Install the side clips (A, B, C) on the side sill panel (D).

Fastener Locations

A ▷ : Clip, 7 B ▷ : Clip, 1 C ▷ : Clip, 1 E ▷ : Clip, 3 F ▷ : Clip, 2



6. Hold the panel up, and fit all the side clips into the holes in the body. Push on the panel until the clips snap into place, and press the adhesive tape into place.
7. Install the expansion clips (E).
8. Install the clips (F) on the back of the front wheel arch.



Tailgate Spoiler Replacement

Special Tools Required

KTC Trim Tool Set SOJATP2014*

*Available through the Honda Tool and Equipment Program; call 888-424-6857

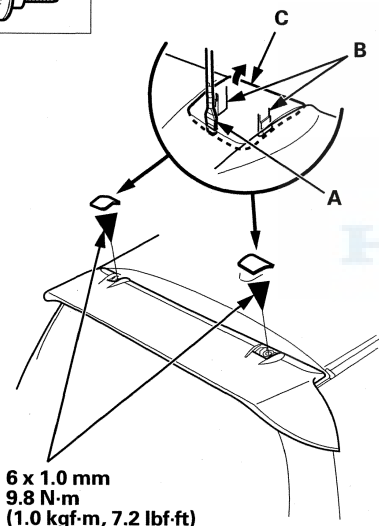
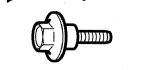
For Some Models

NOTE:

- Take care not to scratch the body.
 - Use the appropriate tool from the KTC trim tool set to avoid damage when removing components.
1. Pry up at the notches (A) with a flat-tip screwdriver wrapped with protective tape to release the hooks (B), then remove the lids (C) from both sides.

Fastener Locations

► : Bolt, 2



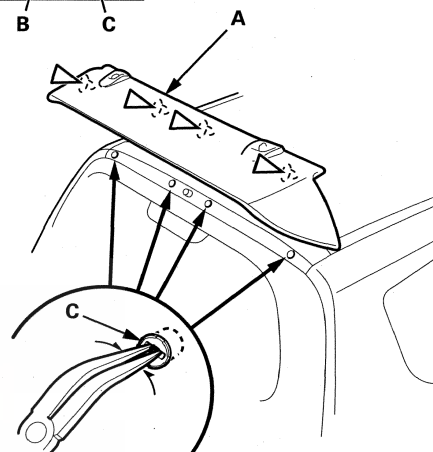
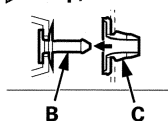
6 x 1.0 mm
9.8 N·m
(1.0 kgf·m, 7.2 lbf·ft)

2. Remove the bolts.

3. Lift up on the tailgate spoiler (A) to detach the pins (B) of the clips from the grommets (C), then remove the spoiler.

Fastener Locations

▷ : Clip, 4



4. Remove the grommets from the tailgate with snap ring pliers.
5. If the grommets or the pins are damaged or stress-whitened, replace them. Always replace both the pin and the grommet if either is damaged.
6. Install the grommets on the pins by pushing them into place.
7. Install the spoiler in the reverse order of removal, and push the clips into place securely.

Exterior Trim

Rear License Trim Replacement

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.

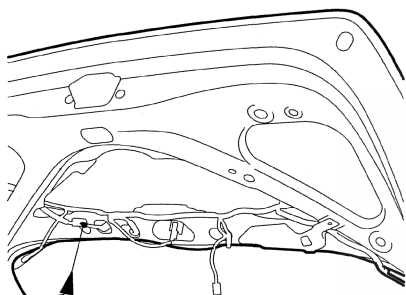
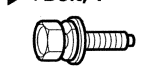
1. Remove these items:

- Tailgate lower trim panel (see page 20-78)
- Rear window wiper arm (see page 22-264)

2. From inside the tailgate, remove the bolt securing the rear license trim.

Fastener Location

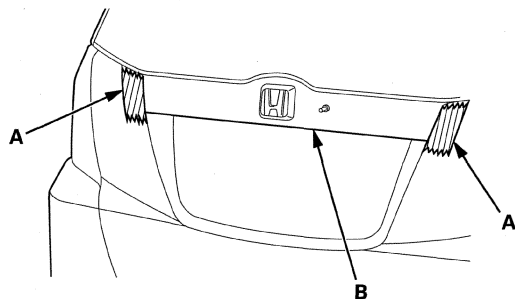
► : Bolt, 1



5 x 1.0 mm
5 N·m
(0.5 kgf·m, 4 lbf·ft)

3. Close the tailgate.

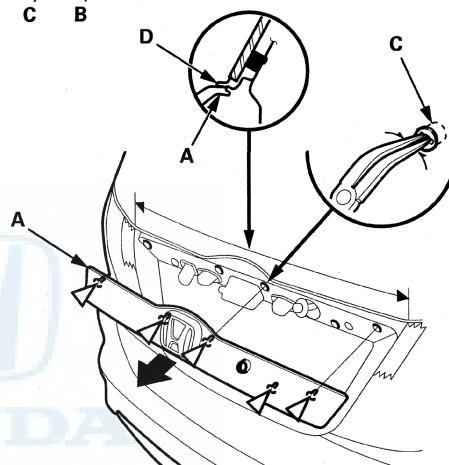
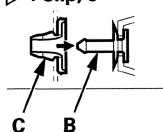
4. Apply protective tape (A) to the tailgate beside both side edges of the rear license trim (B) as shown.



5. First insert the appropriate trim tool in the outside edge of the rear license trim (A), and pry the clip to detach the pin (B) of the clip from the grommet (C). Repeat an opposite side, and pull out the trim to detach the remaining three clips, then remove the trim.

Fastener Locations

▷ : Clip, 5



6. Remove the grommets from the tailgate with snap ring pliers.

7. If the grommets or the pins are damaged or stress-whitened, replace them. Always replace both the pin and the grommet if either is damaged.

8. Install the grommets on the pins by pushing them into place.

9. Install the trim in the reverse order of removal, and note these items:

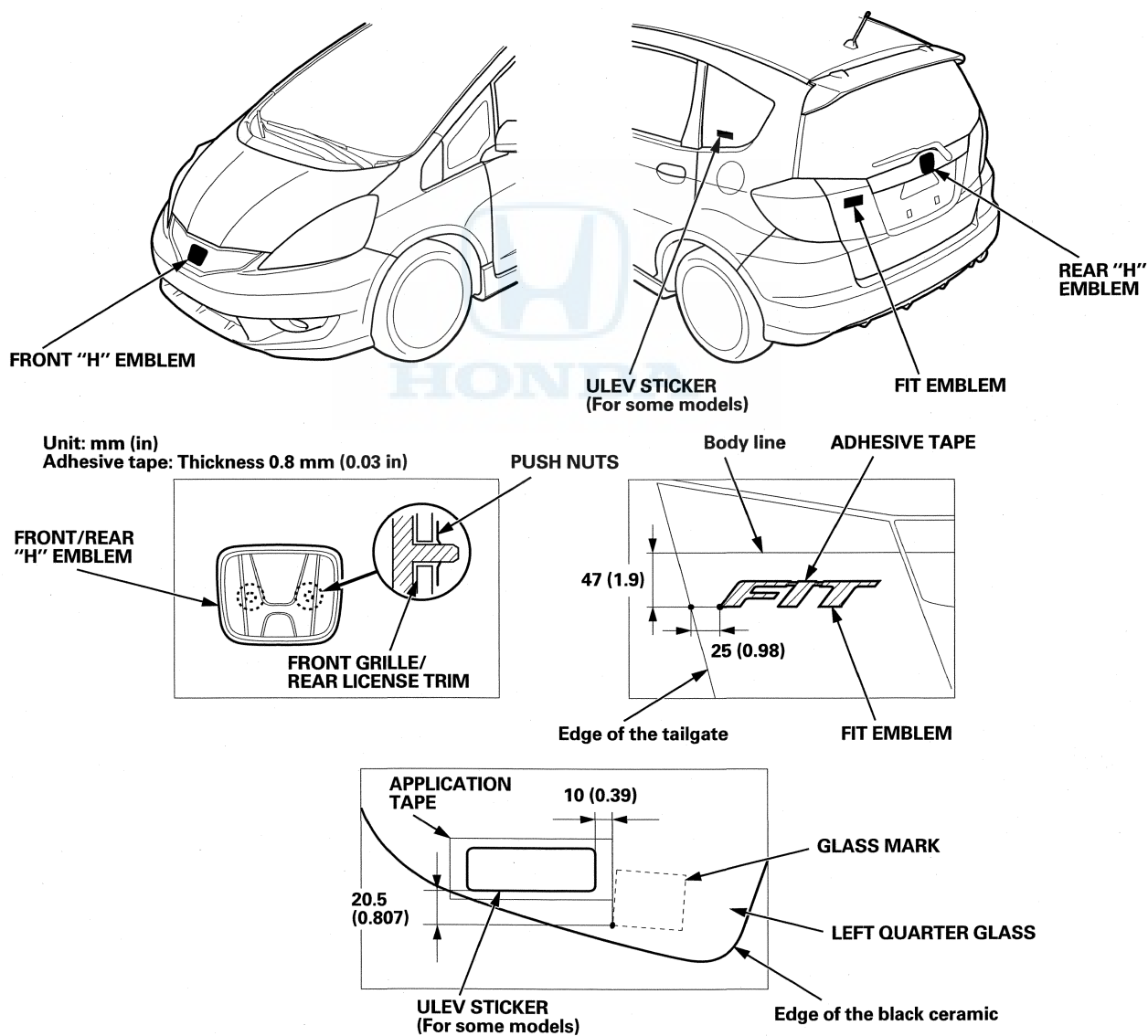
- If the clips are damaged or stress-whitened, replace them with new ones.
- Make sure the lip of the rear window rubber dam (D) is not pinched or rolled by the license plate trim. If needed, use a flat plastic spacer between the rubber dam and the trim during installation.
- Push the clips into place securely.



Emblem/Sticker Replacement

NOTE: When removing the emblems/stickers, take care not to scratch the body.

1. To remove the front "H" emblem, remove the front grille (see page 20-166).
2. To remove the rear "H" emblem, remove the rear license trim (see page 20-176).
3. Clean the body surface with a shop towel dampened in isopropyl alcohol. After cleaning, keep oil, grease, and water from getting on the surface.
4. Apply the emblems/sticker where shown. When installing the ULEV sticker on the inside surface of the left quarter glass, align the sticker with the edge of the glass mark as shown, then press the sticker into place, and remove the application tape.
5. After installing the front "H" emblem, reinstall the front grille (see page 20-166).
6. After installing the rear "H" emblem, reinstall the rear license trim (see page 20-176).



Fenderwell

Front Inner Fender Replacement

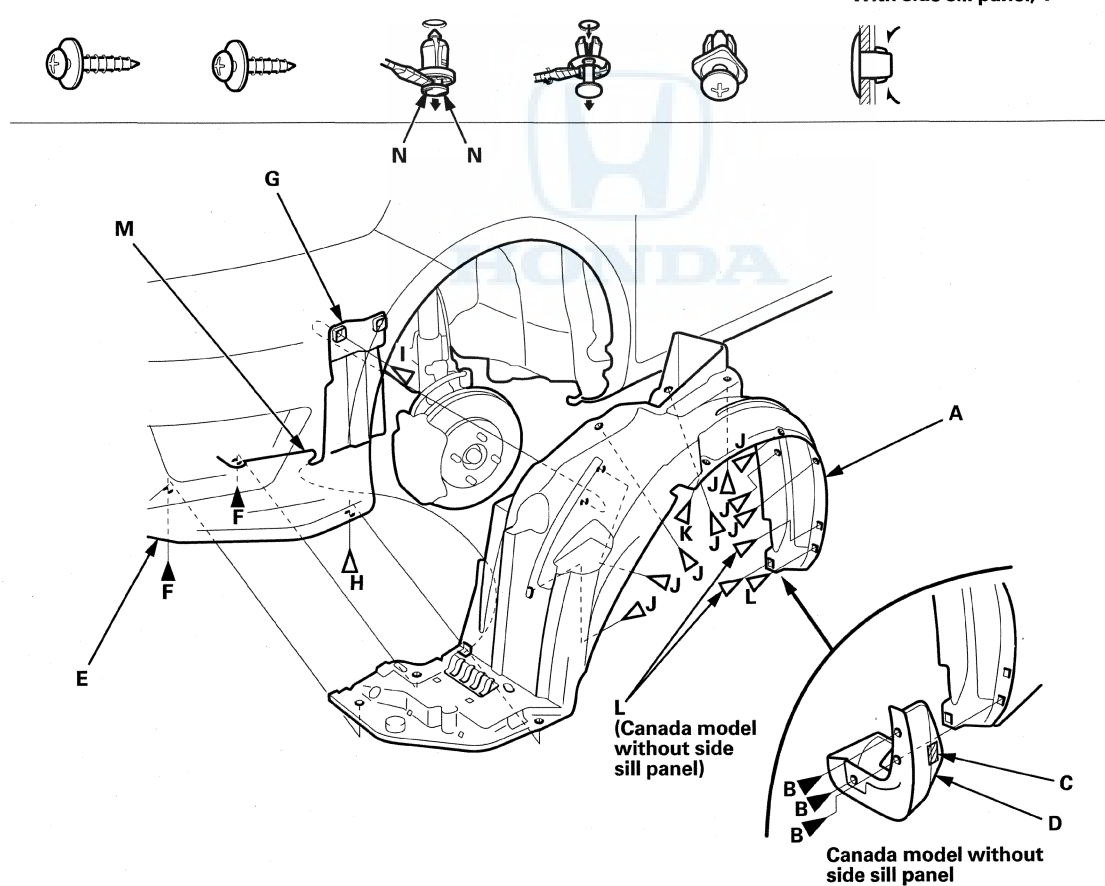
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.

1. For some models: Remove the side sill panel (see page 20-173).
2. Remove the front inner fender (A).
 - 1. Canada model without side sill panels: On the back of the wheel arch, remove the screws (B), release the adhesive tape (C) from the body, and remove the front splash guard (D).
 - 2. From under the front bumper (E), remove the screws (F) securing the front bumper, the splash shield (G), and the front inner fender.
 - 3. Remove the clip (H) securing the front bumper and the front inner fender.
 - 4. From the wheel arch, remove the clips (I, J, K, L).
 - 5. Release the hook (M) on the splash shield, then remove the front inner fender.

Fastener Locations

B ▶ : Screw, 3 F ▶ : Screw, 2 H, I ▶ : Clip, 2 J ▶ : Clip, 8 K ▶ : Clip, 1 L ▶ : Clip
Without side sill panel, 3
With side sill panel, 1





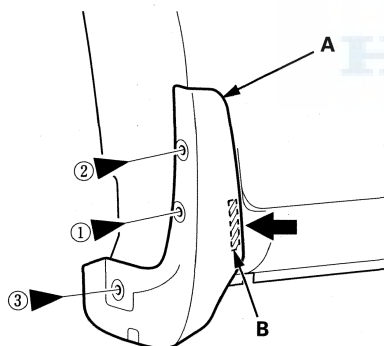
3. Canada model without side sill panel: Prepare the front splash guard for installation by removing any remaining adhesive tape. Clean the bonding surface with a shop towel dampened in isopropyl alcohol. Apply primer to the front splash guard, then attach new adhesive tape.

Adhesive tape: Thickness 1.2 mm (0.047 in)
Width 10 mm (0.39 in)
Length 60 mm (2.4 in)

4. Install the inner fender in the reverse order of removal, and note these items:
- If the clips are damaged or stress-whitened, replace them with new ones.
 - Push the clips and the hook into place securely.
 - Canada model without side sill panel: Fasten the front splash guard mounting screws in the sequence shown. Push the splash guard (A) against the body to make the adhesive (B) stick securely.

Fastener Locations

► : Screw, 3



Fenderwell

Splash Shield Replacement

NOTE:

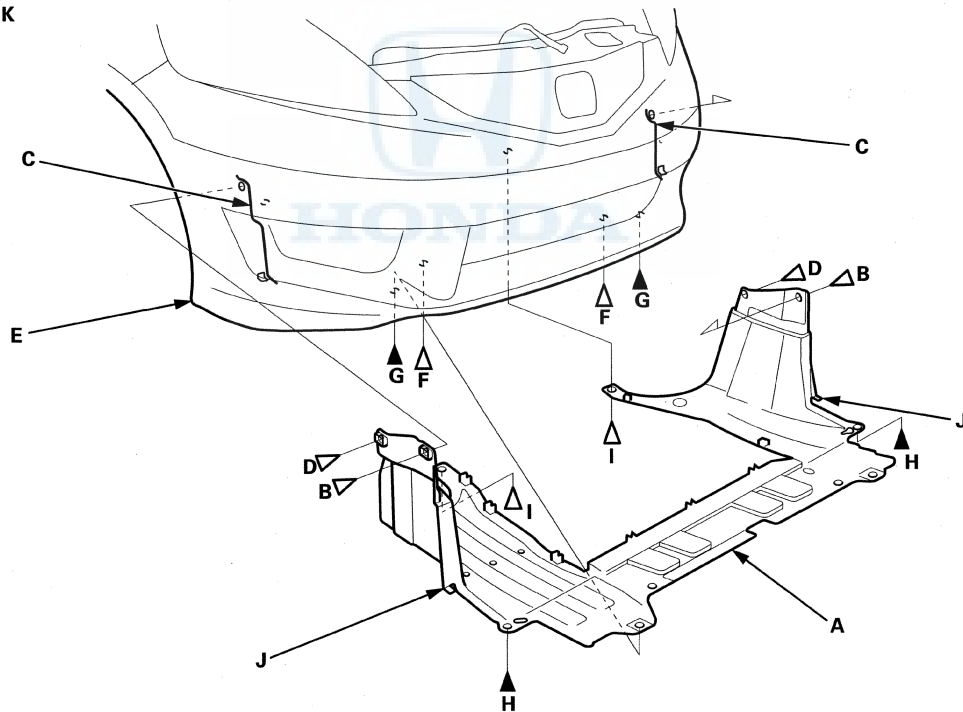
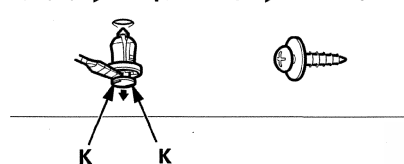
- Put on gloves to protect your hands.
- Take care not to scratch the body.

1. Remove the splash shield (A).

- 1. From the wheel arch on both sides, remove the clips (B) securing the front splash shield and the front inner fender (C) to the body, and remove the clips (D) securing the front splash shield to the body.
 - 2. From under the front bumper (E), remove the clips (F) and the screws (G).
 - 3. From under the body, remove the screws (H) securing the front splash shield to the front inner fender, and the clips (I) securing the front splash shield to the front suspension subframe.
 - 4. Release the hooks (J) of the front splash shield from the front inner fender, then pull the splash shield out.
- NOTE: To release the clips, pry up on the center pin at the notch (K).

Fastener Locations

B, D, F, I ▷ : Clip, 8 G, H ▶ : Screw, 4



2. Install the splash shield in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips and the hooks into place securely.



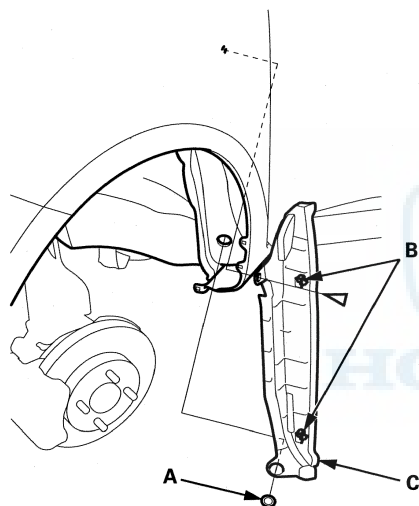
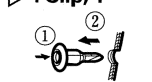
Front Fender Fairing Replacement

NOTE:

- Put on gloves to protect your hands.
 - Take care not to scratch the body.
1. Remove the front inner fender as needed (see page 20-178).
 2. From the wheel arch, remove the clip and the maintenance plug (A).

Fastener Location

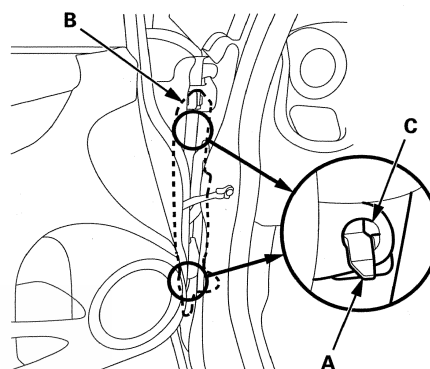
▷ : Clip, 1



3. Release the hooks (B) of the front fender fairing (C) from the holes in the front fender, and pull the fender fairing out, then remove it.

4. Install the fender fairing in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Before installing the clips, make sure the hooks (A) of the front fender fairing (B) are installed into the holes (C) in the front fender securely.
- Push the clip into place securely.



Rear Undercover Replacement

NOTE:

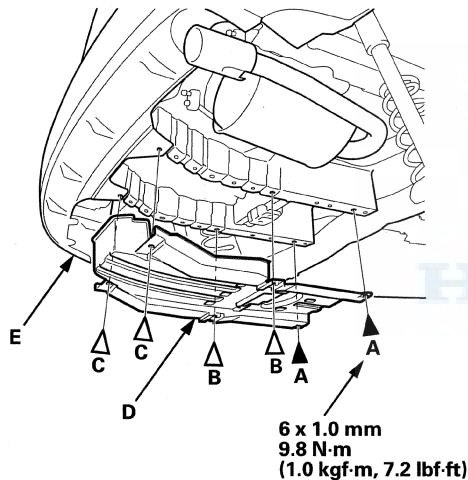
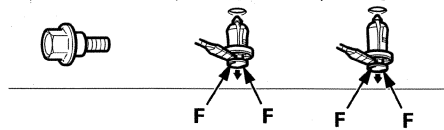
- Put on gloves to protect your hands.
- Take care not to scratch the rear bumper or the body.

1. Remove the bolts (A) and the clips (B, C) that secure the rear undercover (D) and the rear bumper (E) to the body, then remove the undercover.

NOTE: To release the clips, pry up on the center pin at the notch (F).

Fastener Locations

A ► : Bolt, 2 B ▷ : Clip, 2 C ▷ : Clip, 2



2. Install the undercover in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.

Rear Strake Replacement

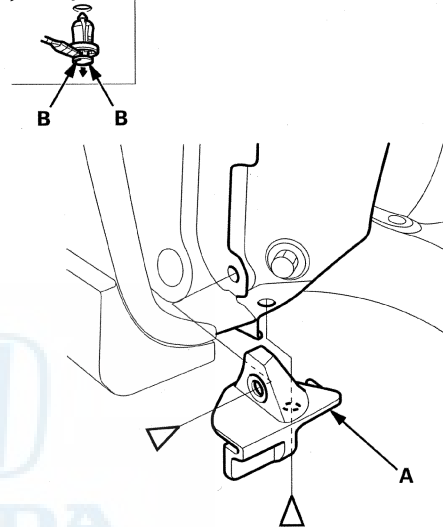
NOTE: Take care not to scratch the body.

1. Remove the clips, then remove the rear strake (A) from the body.

NOTE: To release the clips, pry up on the center pin at the notch (B).

Fastener Locations

▷ : Clip, 2



2. Install the strake in the reverse order of removal, and note these items:

- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.



Fuel Pipe Protector Replacement

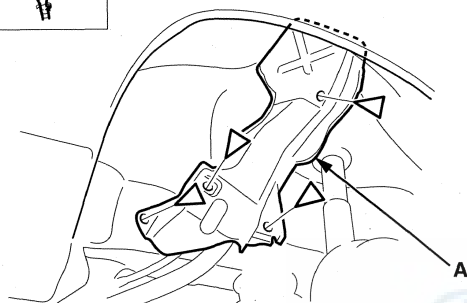
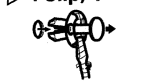
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.

1. Remove the clips, then remove the fuel pipe protector (A).

Fastener Locations

▷ : Clip, 4



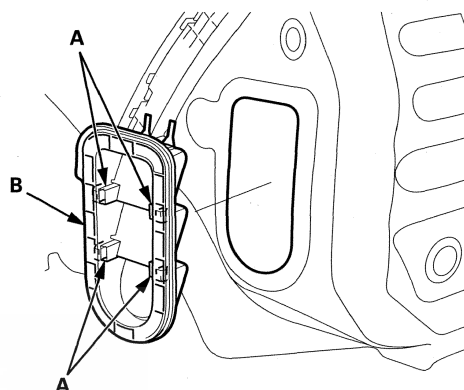
2. Install the protector in the reverse order of removal, and note these items:
 - If the clips are damaged or stress-whitened, replace them with new ones.
 - Push the clips into place securely.

Rear Air Outlet Replacement

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.

1. Remove the rear bumper (see page 20-148).
2. Detach the hooks (A), then remove the rear air outlet (B).



3. Install the air outlet by pushing on the hook portions until the hooks snap into place.

Fenderwell

Rear Inner Fender Replacement

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the body.

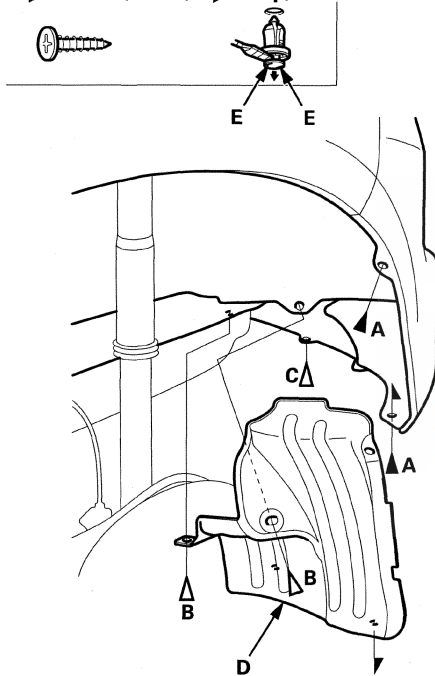
1. Remove the screws (A) and the clips (B, C), then remove the rear inner fender (D).

NOTE: To release the clips, pry up on the center pin at the notch (E).

Left side

Fastener Locations

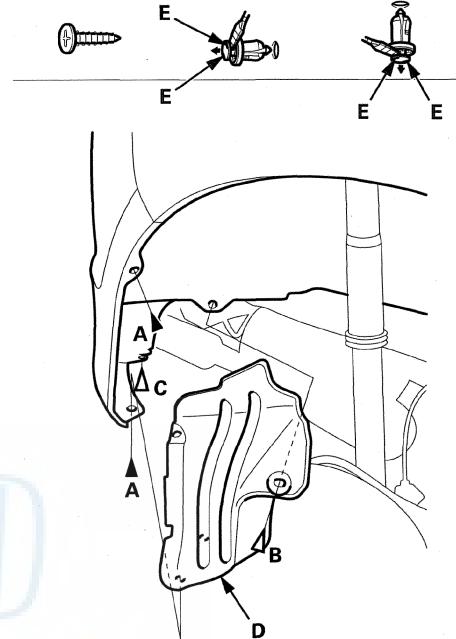
A ► : Screw, 2 B, C ► : Clip, 3



Right side

Fastener Locations

A ► : Screw, 2 B ► : Clip, 1 C ► : Clip, 1



2. Install the cover in the reverse order of removal, and note these items:

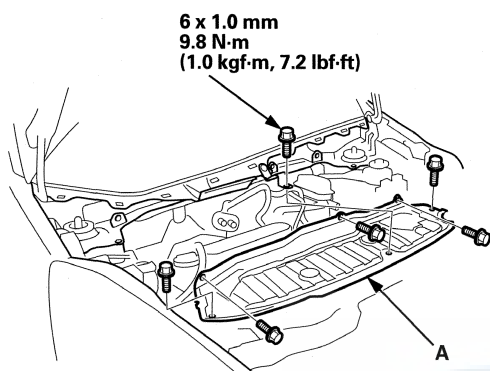
- If the clips are damaged or stress-whitened, replace them with new ones.
- Push the clips into place securely.



Under-Cowl Panel Replacement

NOTE: Take care not to scratch the body.

1. Remove these items:
 - Windshield wiper arms (see page 22-264)
 - Cowl cover (see page 20-168)
2. Remove the bolts, then remove the under-cowl panel (A).

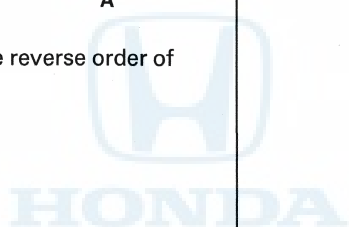
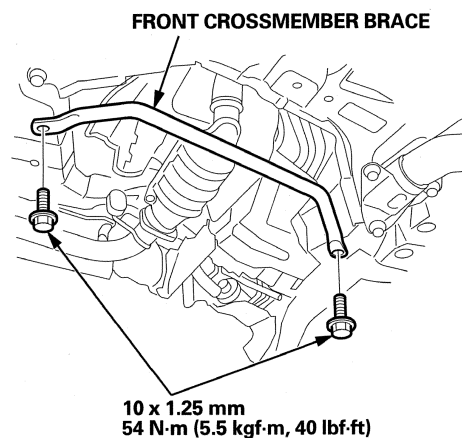


3. Install the under-cowl panel in the reverse order of removal.

Front Crossmember Brace Replacement

Front Crossmember Brace Torque

NOTE: Take care not to scratch the body.

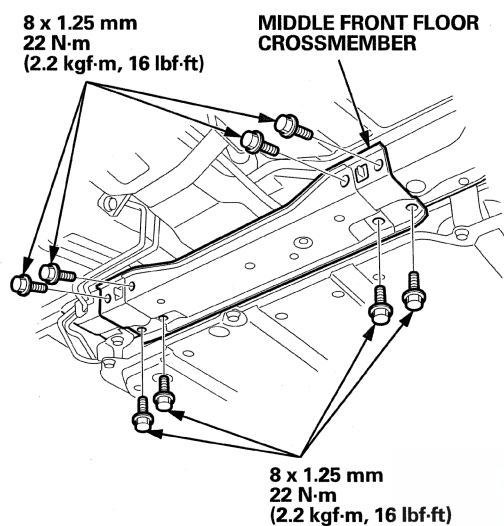


Frame

Middle Front Floor Crossmember Replacement

Middle Front Floor Crossmember Torque

NOTE: Take care not to scratch the body.



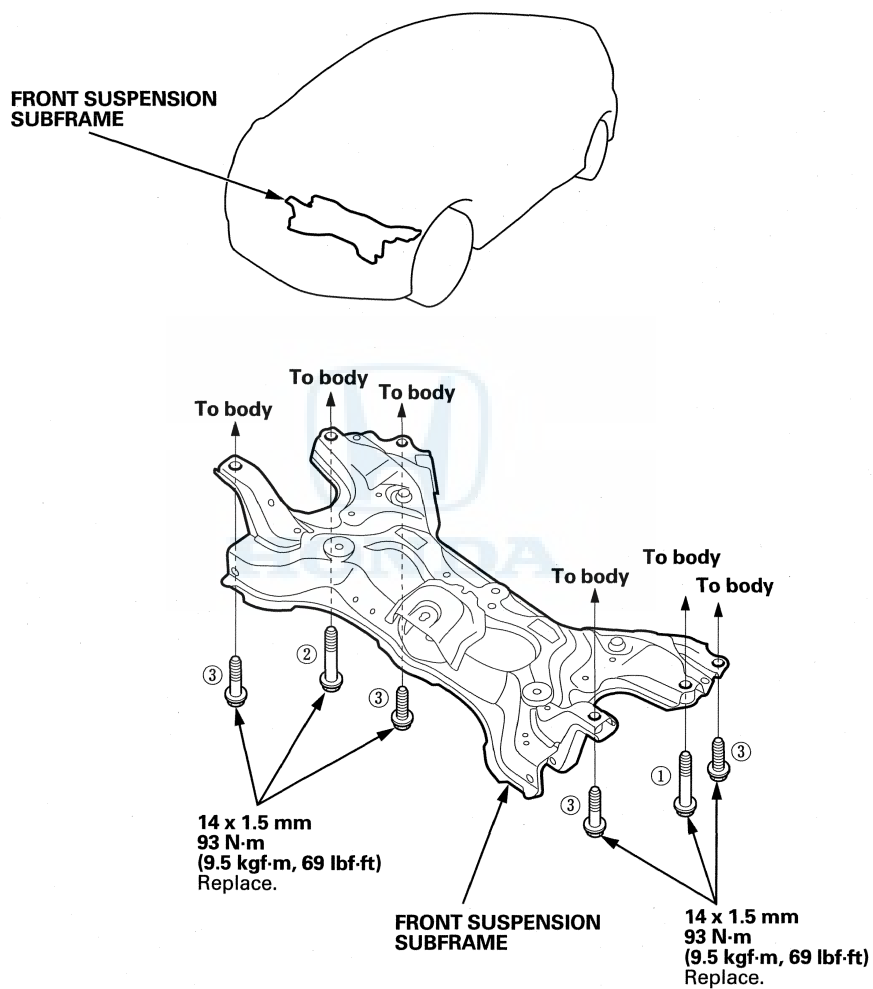


Subframe Replacement

Front Subframe Torque

NOTE:

- After loosening the subframe mounting bolts, be sure to replace them with new ones.
- Loosely install new front subframe mounting bolts, then tighten the bolts to the specified torque in the sequence shown.
- Tighten the new front subframe mounting bolts in the numbered sequence shown.



Frame

Frame Repair Chart

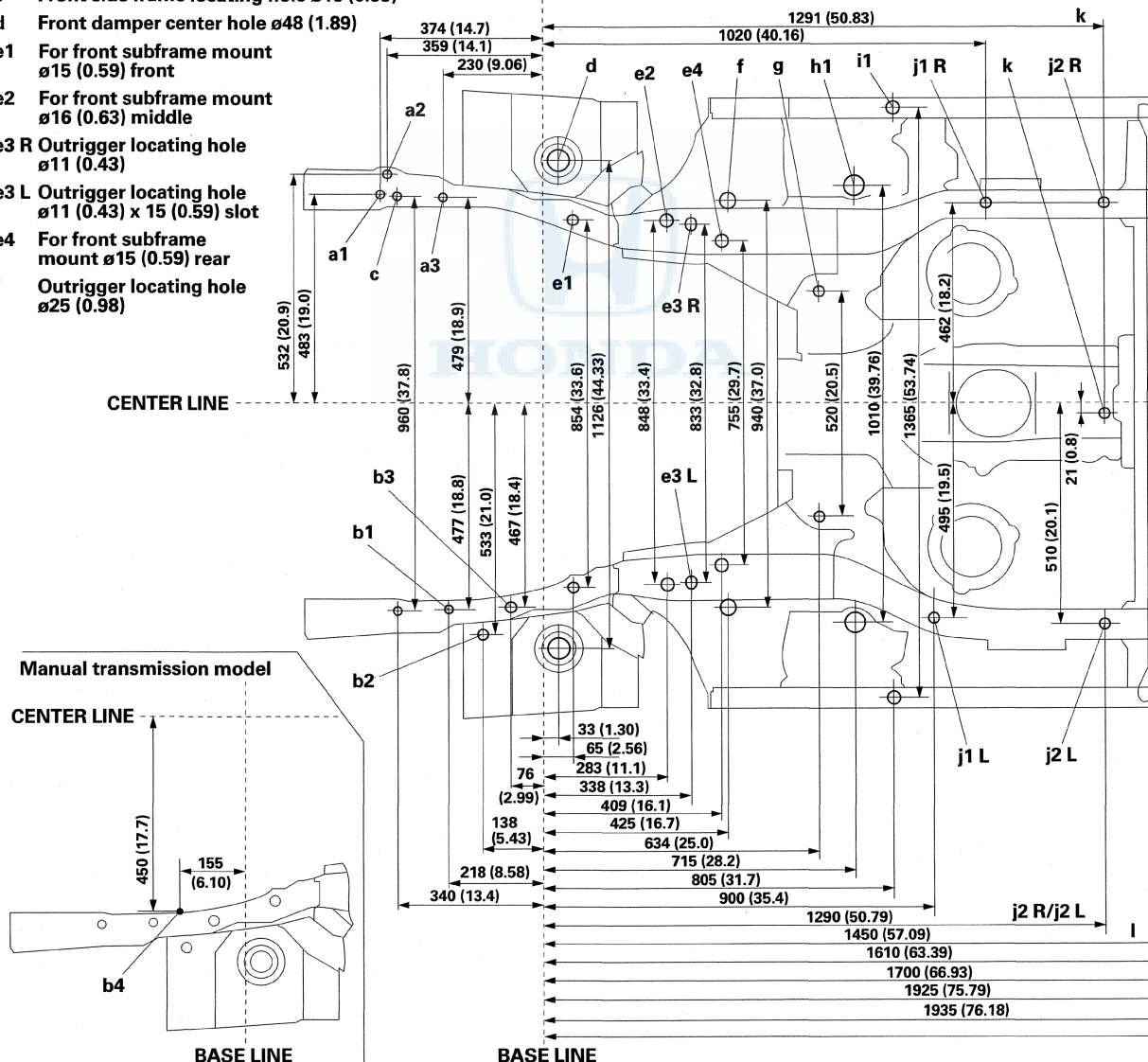
Top View

Unit: mm (in)

ø: Inner diameter

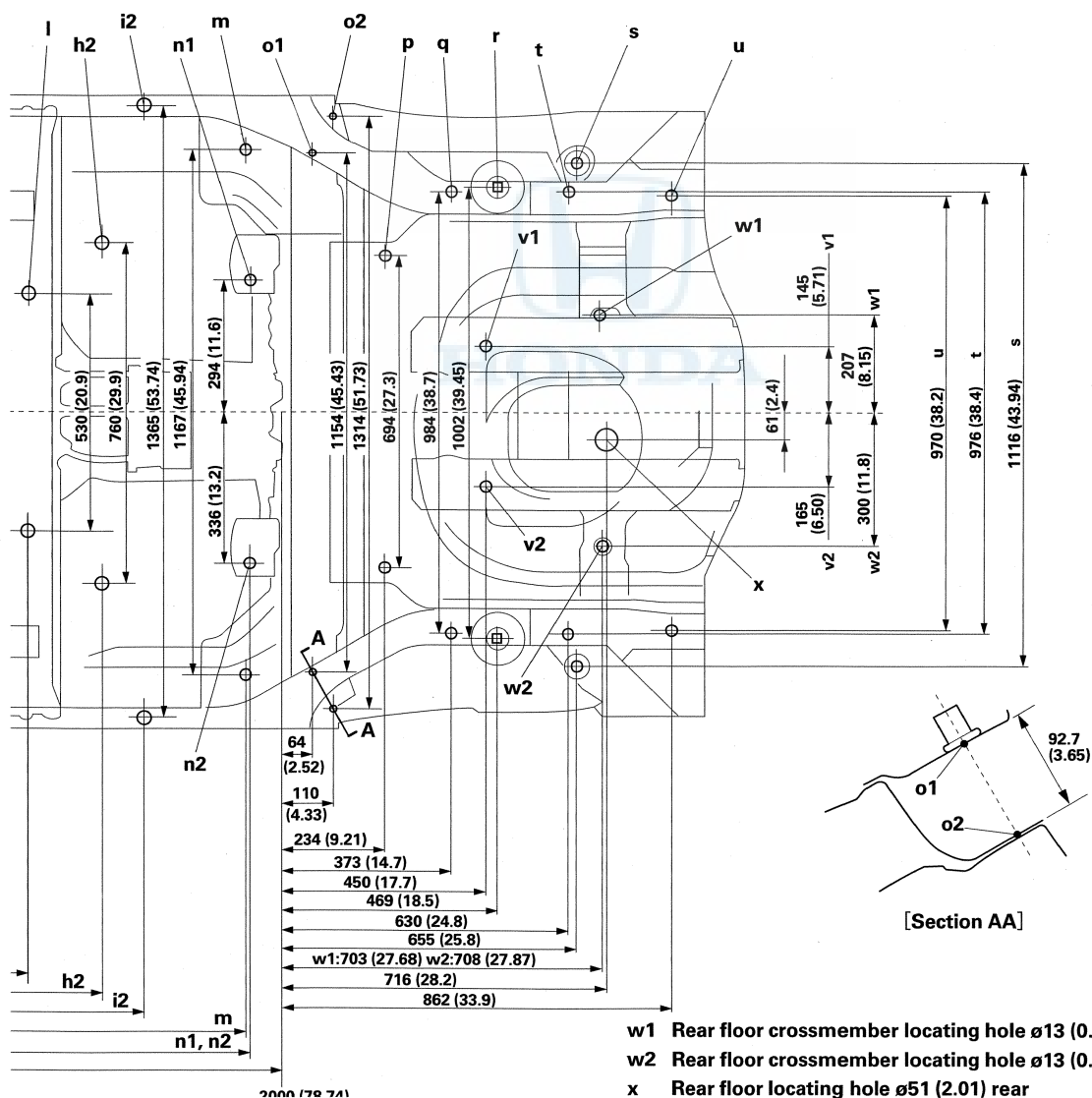
- a1 For engine side mount ø15 (0.59) front
- a2 For engine side mount ø13 (0.51) outer
- a3 For engine side mount ø15 (0.59) rear
- b1 For transmission mount ø15 (0.59) front
- b2 For transmission mount ø15 (0.59) wheelhouse side
- b3 For transmission mount ø15 (0.59) rear
- b4 For transmission mount ø13 (0.51) Manual transmission model
- c Front side frame locating hole ø16 (0.63)
- d Front damper center hole ø48 (1.89)
- e1 For front subframe mount ø15 (0.59) front
- e2 For front subframe mount ø16 (0.63) middle
- e3 R Outrigger locating hole ø11 (0.43)
- e3 L Outrigger locating hole ø11 (0.43) x 15 (0.59) slot
- e4 For front subframe mount ø15 (0.59) rear
- f Outrigger locating hole ø25 (0.98)

- g Floor center stiffener locating hole ø15 (0.59)
- h1 Front floor locating hole ø50 (1.97) front
- i1 Inside sill locating hole ø25 (0.98) front
- j1 R Floor frame locating hole ø15 (0.59) front
- j1 L Floor frame locating hole ø15 (0.59) front
- j2 R Floor frame locating hole ø15 (0.59) rear
- j2 L Floor frame locating hole ø15 (0.59) rear
- k Front floor center locating hole ø15 (0.59)





- | | | | |
|----|--|----|---|
| l | Front floor crossmember locating hole $\varnothing 25$ (0.98) | p | Rear floor locating hole $\varnothing 20$ (0.79) front |
| h2 | Front floor locating hole $\varnothing 25$ (0.98) rear | q | Rear frame A locating hole $\varnothing 15$ (0.59) |
| i2 | Inside sill locating hole $\varnothing 25$ (0.98) rear | r | For spring base mounting hole 15 (0.59) x 15 (0.59) square |
| m | Trailing arm gusset locating hole $\varnothing 20$ (0.79) | s | Rear damper center hole $\varnothing 24$ (0.94) |
| n1 | Rear seat guide bracket locating hole $\varnothing 9$ (0.35) right | t | Rear frame B locating hole $\varnothing 20$ (0.79) |
| n2 | Rear seat guide bracket locating hole $\varnothing 9$ (0.35) left | u | Rear floor side panel locating hole $\varnothing 20$ (0.79) |
| o1 | For trailing arm mount $\varnothing 15$ (0.59) inner | v1 | Rear floor center frame locating hole $\varnothing 15$ (0.59) right |
| o2 | For trailing arm mount $\varnothing 17$ (0.67) outer | v2 | Rear floor center frame locating hole $\varnothing 15$ (0.59) left |



- | | |
|----|--|
| w1 | Rear floor crossmember locating hole $\varnothing 13$ (0.51) right |
| w2 | Rear floor crossmember locating hole $\varnothing 13$ (0.51) left |
| x | Rear floor locating hole $\varnothing 51$ (2.01) rear |

(cont'd)

Frame

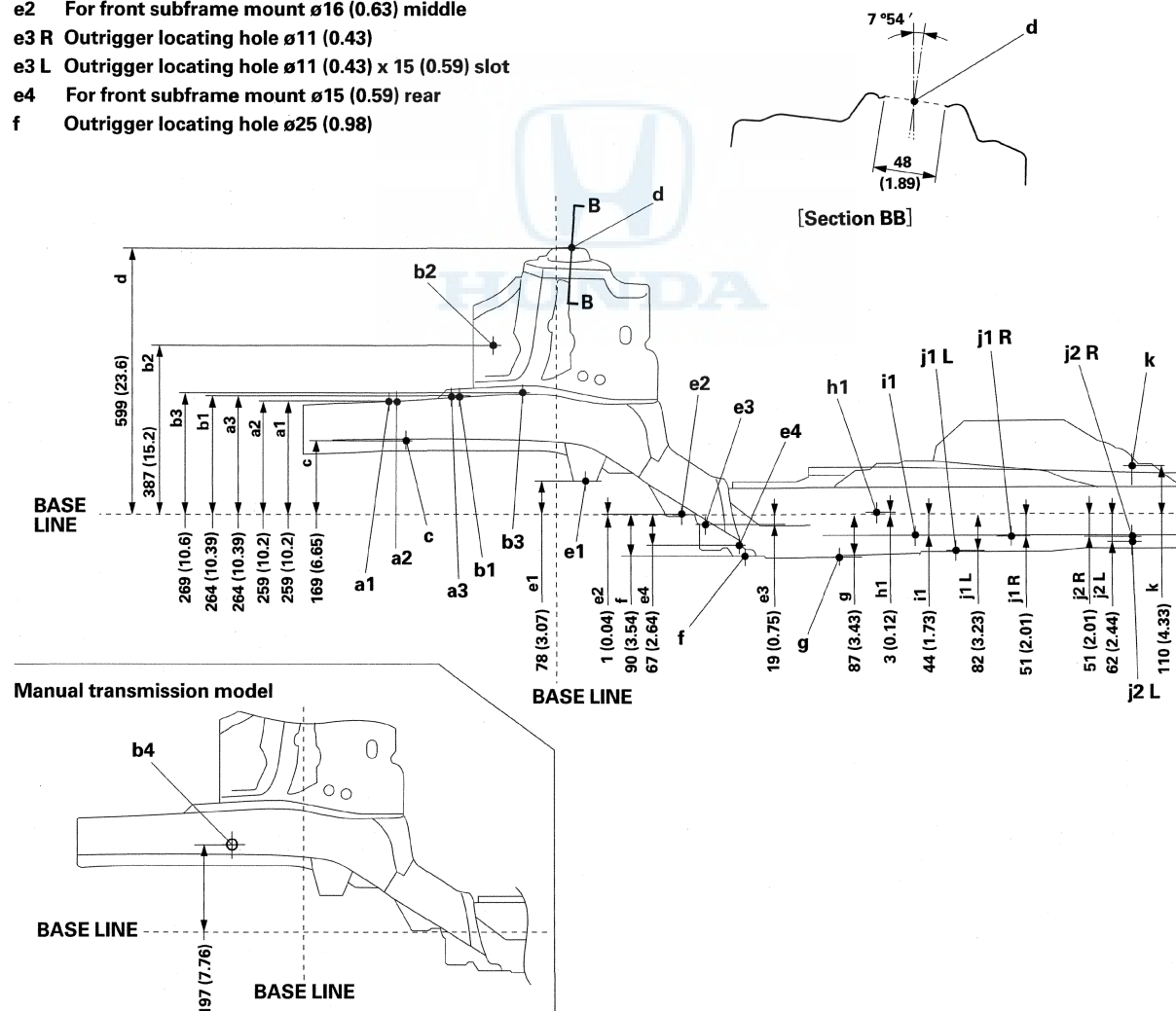
Frame Repair Chart (cont'd)

Side View

Unit: mm (in)

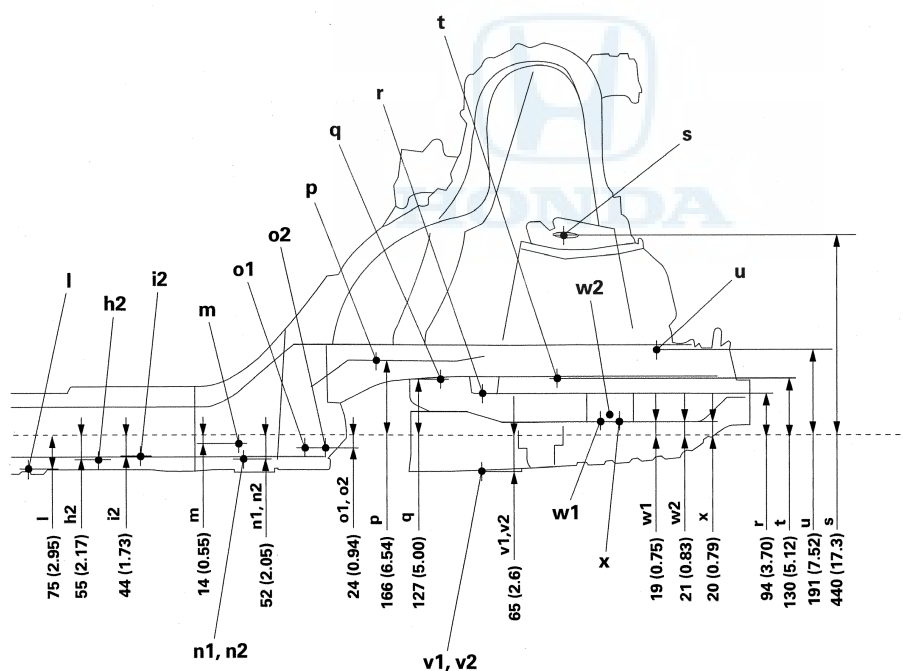
ø: Inner diameter

- | | | | |
|------|---|------|---|
| a1 | For engine side mount ø15 (0.59) front | g | Floor center stiffener locating hole ø15 (0.59) |
| a2 | For engine side mount ø13 (0.51) outer | h1 | Front floor locating hole ø50 (1.97) front |
| a3 | For engine side mount ø15 (0.59) rear | i1 | Inside sill locating hole ø25 (0.98) front |
| b1 | For transmission mount ø15 (0.59) front | j1 R | Floor frame locating hole ø15 (0.59) front |
| b2 | For transmission mount ø15 (0.59) wheelhouse side | j1 L | Floor frame locating hole ø15 (0.59) front |
| b3 | For transmission mount ø15 (0.59) rear | j2 R | Floor frame locating hole ø15 (0.59) rear |
| b4 | For transmission mount ø13 (0.51) Manual transmission model | j2 L | Floor frame locating hole ø15 (0.59) rear |
| c | Front side frame locating hole ø16 (0.63) | k | Front floor center locating hole ø15 (0.59) |
| d | Front damper center hole ø48 (1.89) | | |
| e1 | For front subframe mount ø15 (0.59) front | | |
| e2 | For front subframe mount ø16 (0.63) middle | | |
| e3 R | Outrigger locating hole ø11 (0.43) | | |
| e3 L | Outrigger locating hole ø11 (0.43) x 15 (0.59) slot | | |
| e4 | For front subframe mount ø15 (0.59) rear | | |
| f | Outrigger locating hole ø25 (0.98) | | |





- | | | | |
|----|--|----|---|
| l | Front floor crossmember locating hole $\varnothing 25$ (0.98) | r | For spring base mounting hole 15 (0.59) x 15 (0.59) square |
| h2 | Front floor locating hole $\varnothing 25$ (0.98) rear | s | Rear damper center hole $\varnothing 24$ (0.94) |
| i2 | Inside sill locating hole $\varnothing 25$ (0.98) rear | t | Rear frame B locating hole $\varnothing 20$ (0.79) |
| m | Trailing arm gusset locating hole $\varnothing 20$ (0.79) | u | Rear floor side panel locating hole $\varnothing 20$ (0.79) |
| n1 | Rear seat guide bracket locating hole $\varnothing 9$ (0.35) right | v1 | Rear floor center frame locating hole $\varnothing 15$ (0.59) right |
| n2 | Rear seat guide bracket locating hole $\varnothing 9$ (0.35) left | v2 | Rear floor center frame locating hole $\varnothing 15$ (0.59) left |
| o1 | For trailing arm mount $\varnothing 15$ (0.59) inner | w1 | Rear floor crossmember locating hole $\varnothing 13$ (0.51) right |
| o2 | For trailing arm mount $\varnothing 17$ (0.67) outer | w2 | Rear floor crossmember locating hole $\varnothing 13$ (0.51) left |
| p | Rear floor locating hole $\varnothing 20$ (0.79) front | x | Rear floor locating hole $\varnothing 51$ (2.01) rear |
| q | Rear frame A locating hole $\varnothing 15$ (0.59) | | |



SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If HVAC maintenance is required)

The Fit SRS includes a driver's airbag in the steering wheel hub, a front passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags, side airbags, and/or side curtain airbags.
- Do not bump or impact the SRS unit, front impact sensors, or side impact sensors, especially when the ignition switch is in ON (II), or for at least 3 minutes after the ignition switch is turned to LOCK (0); otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, front console, dashboard, dashboard lower panel, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.



Heating, Ventilation, and Air Conditioning

HVAC (Heating, Ventilation, and Air Conditioning)

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Heating

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Heating/Air Conditioning

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System Charging 21-71



HVAC (Heating, Ventilation, and Air Conditioning)

Special Tools

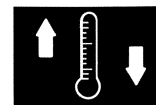
Ref.No.	Tool Number	Description	Qty
①	07AAF-000A150	A/C Compressor Kit	1



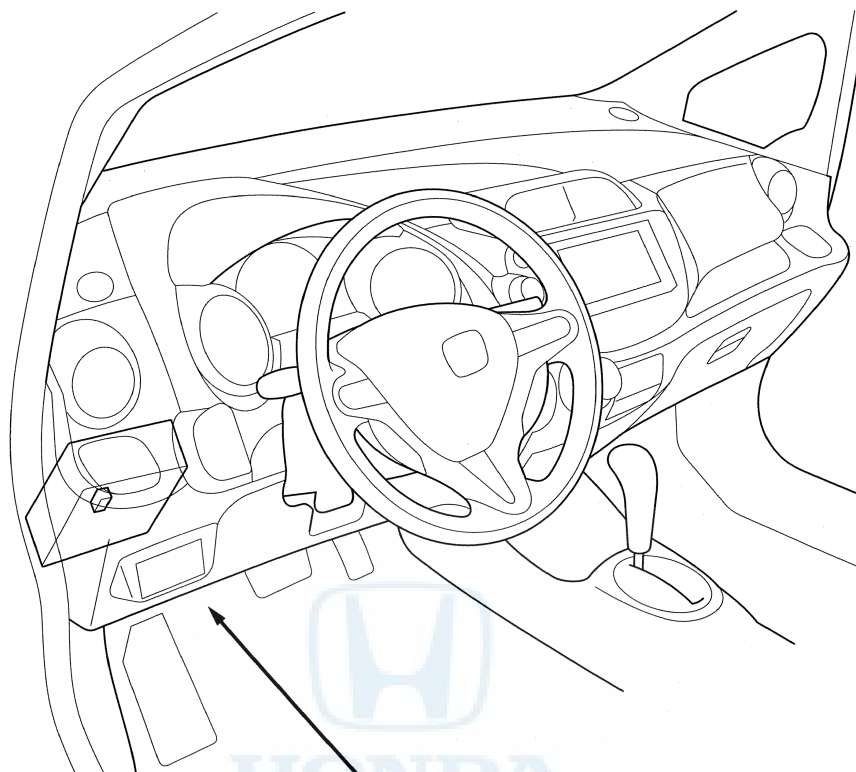
①



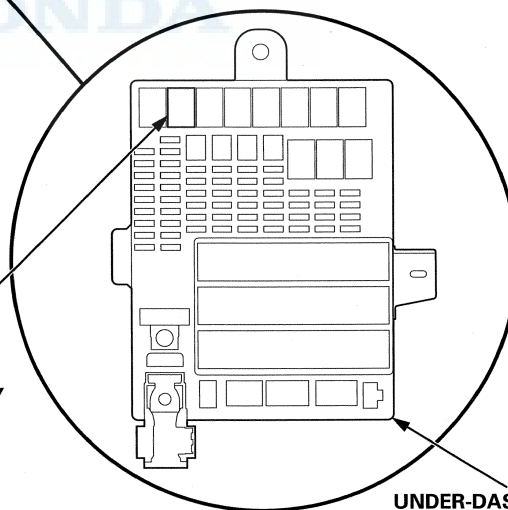
Heating



Component Location Index



BLOWER MOTOR RELAY
Test, page 22-76

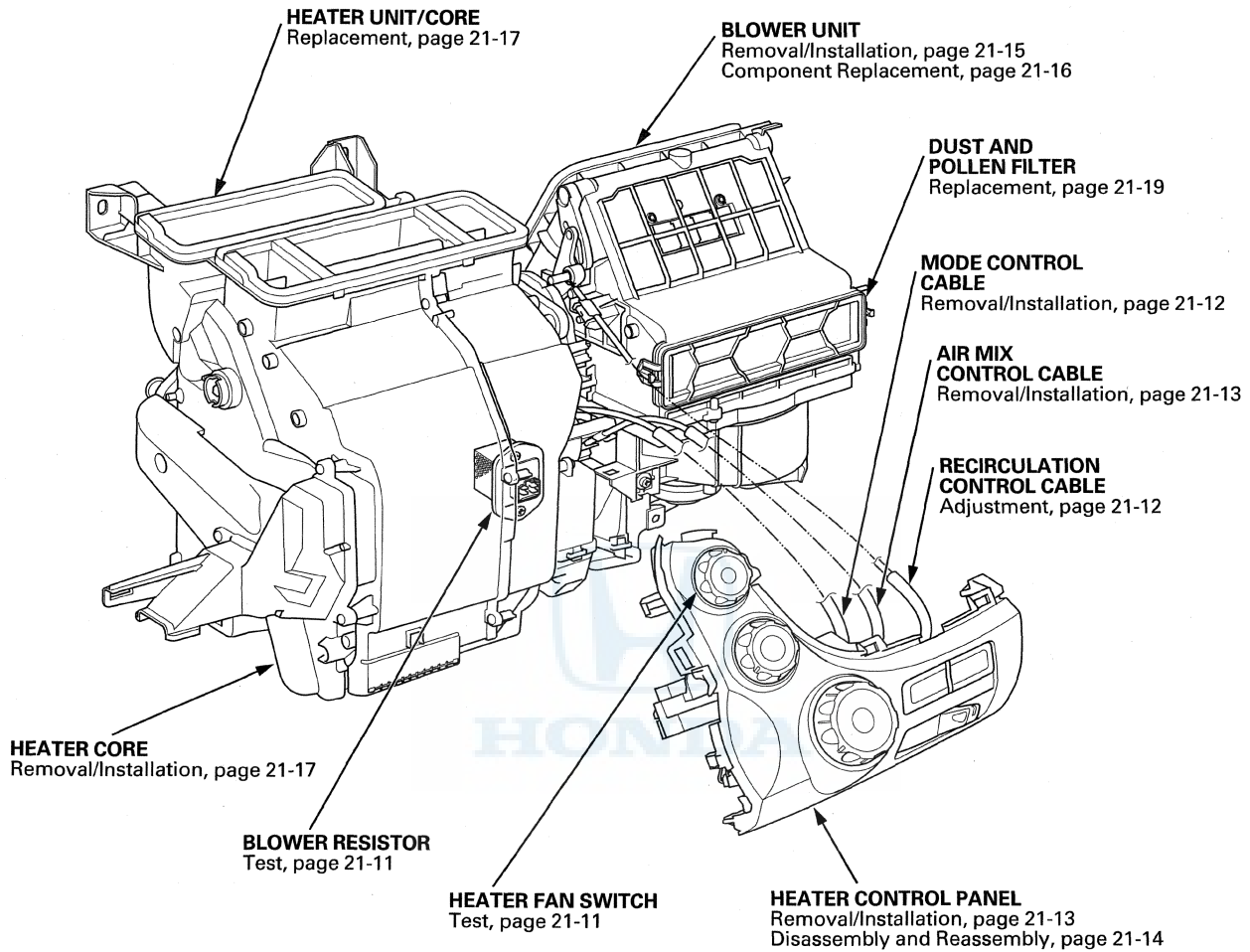


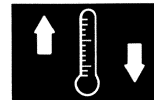
UNDER-DASH FUSE/RELAY BOX

(cont'd)

Heating

Component Location Index (cont'd)





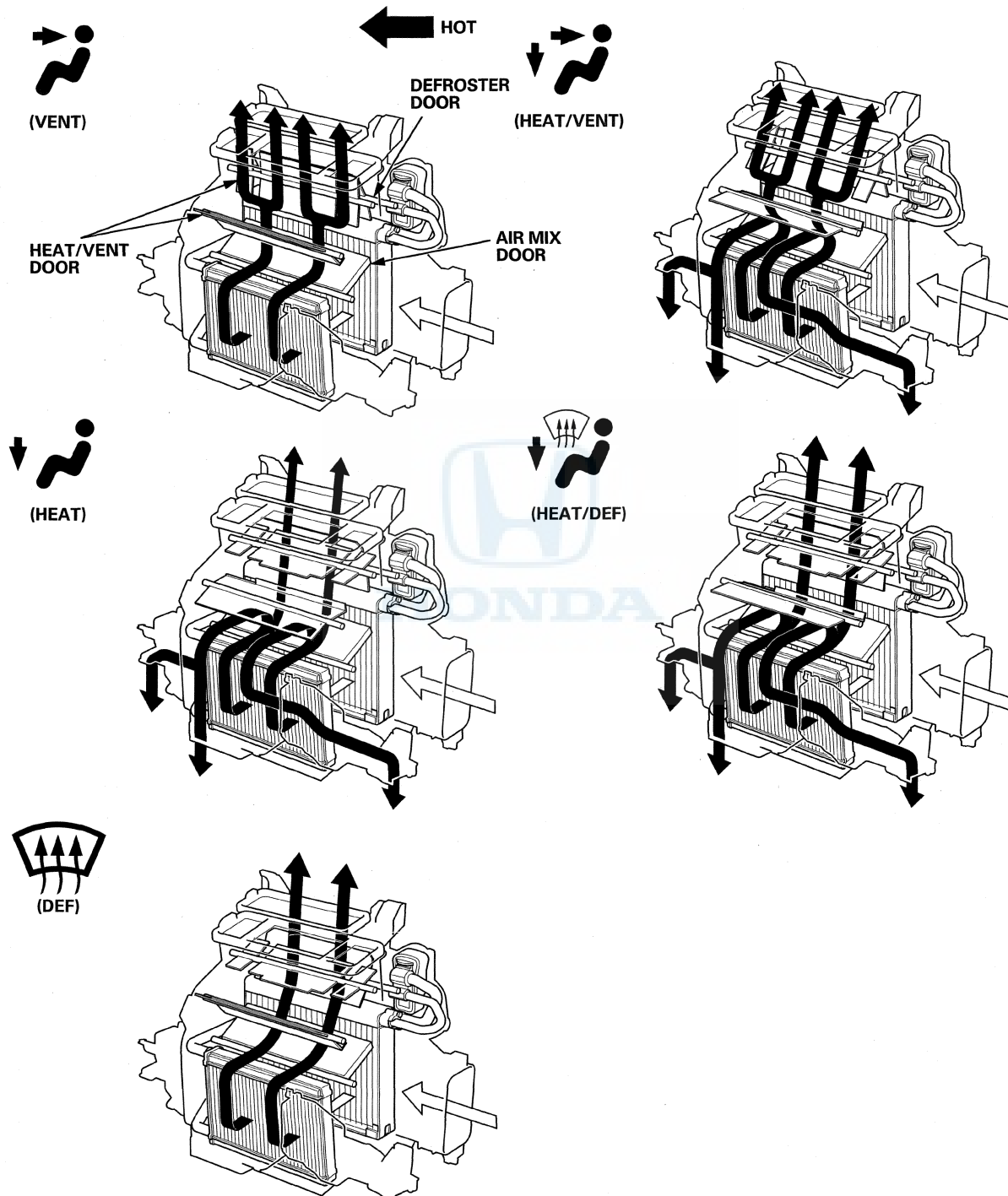
Symptom Troubleshooting Index

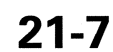
Symptom	Diagnostic procedure	Also check for
The blower motor does not run at all	Probable cause: A problem in the blower motor power or ground circuit Do the blower motor circuit troubleshooting (see page 21-8)	<ul style="list-style-type: none"> • Blown fuses No. 10 (7.5 A) or No. 57 (30 A) in the under-dash fuse/relay box • Faulty blower motor relay • Faulty heater fan switch • Poor ground at G501 (see page 22-30) • Poor ground at G502: With navigation (see page 22-32), Without navigation (see page 22-34) • Poor or loose connections at the terminals
The blower motor runs, but one or more speeds are inoperative	Probable cause: A problem in the circuits between the heater fan switch and the blower resistor Do the blower motor circuit troubleshooting (see page 21-8)	<ul style="list-style-type: none"> • Faulty blower resistor • Faulty blower fan switch • Poor or loose connections at the terminals
The blower motor runs with the fan switch off	Do the blower motor circuit troubleshooting (see page 21-8) Probable cause: A short in the blower motor ground circuit	<ul style="list-style-type: none"> • Faulty heater fan switch • Poor or loose connections at the terminals
Driver's and passenger's side vent temperatures vary by more than 52 °F (11 °C)	Probable cause: The recirculation control door or the air mix door is malfunctioning <ul style="list-style-type: none"> • Check the operation of the recirculation control cable and linkage (see page 21-12). Adjust or repair as needed • Check the operation of the air mix door cable and linkage (see page 21-13). Repair as needed 	Faulty heater controls (see page 21-14)
Insufficient heating	<ol style="list-style-type: none"> 1. Check the coolant level (see page 10-7) 2. Check the radiator cap (see page 10-3) 3. Check the coolant temperature during normal operation 4. Check the heater core inlet hose temperature: <ul style="list-style-type: none"> • If it is COLD, check for restrictions in the hose, a damaged or leaking thermostat, or a damaged or leaking water pump • If it is HOT, check for restrictions in the heater core. Back flush or replace the heater core 5. Check the operation of the air mix control cable and linkage (see page 21-13) 6. Check the blower motor unit for obstructions 7. Check for air leaks around the ducts and vents 	Damaged cylinder head gasket

Heating

System Description

Heating Door Positions





Heating

Blower Motor Circuit Troubleshooting

1. Turn the ignition switch to ON (II) and the heater fan switch ON.

Does the blower motor run at each speed?

YES—Go to step 2.

NO—Go to step 4.

2. Turn the heater fan switch OFF.

3. Make sure the ignition switch is ON (II).

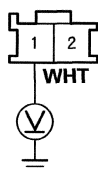
Does the blower motor run?

YES—Go to step 27.

NO—Intermittent problem. Check for loose wire or poor connections on the blower motor circuit. ■

4. Measure the voltage between blower motor 2P connector terminal No. 1 and body ground.

BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

Is there battery voltage?

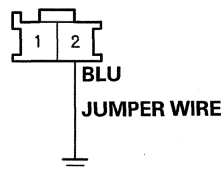
YES—Go to step 5.

NO—Go to step 9.

5. Turn the ignition switch to LOCK (0).

6. Ground blower motor connector terminal No. 2 with a jumper wire.

BLOWER MOTOR 2P CONNECTOR



Wire side of female terminals

7. Turn the ignition switch to ON (II).

Does the blower motor run?

YES—Go to step 17.

NO—Replace the blower motor (see page 21-16). ■

8. Turn the ignition switch to LOCK (0).

9. Check the No. 57 (30 A) and the No. 10 (7.5 A) fuses in the under-dash fuse/relay box.

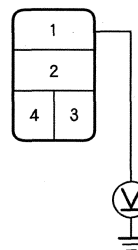
Are the fuses OK?

YES—Go to step 10.

NO—Replace the blown fuses, and recheck. If either fuse blows again, check for a short in the No. 57 (30 A) or the No. 10 (7.5 A) fuse circuits. ■

10. Measure the voltage between blower motor relay 4P socket terminal No. 1 and body ground.

BLOWER MOTOR RELAY 4P SOCKET

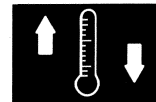


Terminal side of female terminals

Is there battery voltage?

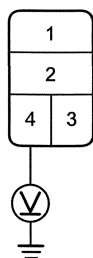
YES—Go to step 11.

NO—Replace the under-dash fuse/relay box (see page 22-65). ■



11. Turn the ignition switch to ON (II).
12. Measure the voltage between blower motor relay 4P socket terminal No. 4 and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Terminal side of female terminals

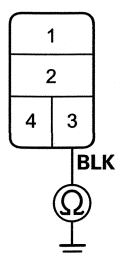
Is there battery voltage?

YES—Go to step 13.

NO—Replace the under-dash fuse/relay box (see page 22-65). ■

13. Turn the ignition switch to LOCK (0).
14. Check for continuity between blower motor relay 4P socket terminal No. 3 and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Terminal side of female terminals

Is there continuity?

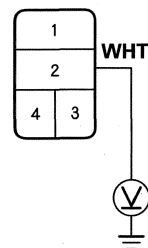
YES—Go to step 15.

NO—Check for an open in the wire between the blower motor relay and body ground. If the wire is OK, check for poor ground at G501 (see page 22-30). ■

15. Turn the ignition switch to ON (II).

16. Measure the voltage between blower motor relay 4P socket terminal No. 2 and body ground.

BLOWER MOTOR RELAY 4P SOCKET



Terminal side of female terminals

Is there battery voltage?

YES—Repair an open in the wire between the blower motor relay and the blower motor. ■

NO—Replace the blower motor relay. ■

17. Turn the ignition switch to LOCK (0).
18. Disconnect the jumper wire.
19. Disconnect the blower resistor 4P connector.
20. Test the blower resistor (see page 21-11).

Is the blower resistor OK?

YES—Go to step 21.

NO—Replace the blower resistor. ■

21. Reconnect the blower resistor 4P connector.
22. Disconnect the heater fan switch 8P connector.
23. Turn the ignition switch to ON (II).

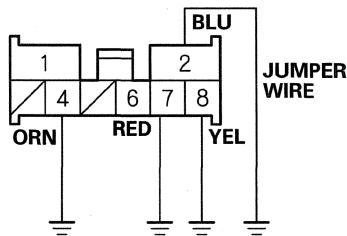
(cont'd)

Heating

Blower Motor Circuit Troubleshooting (cont'd)

24. Ground each of the heater fan switch 8P connector terminals with a jumper wire individually in the following order: No. 4, 7, 8, and 2.

HEATER FAN SWITCH 8P CONNECTOR



Wire side of female terminals

Does the blower motor run at progressively higher speeds?

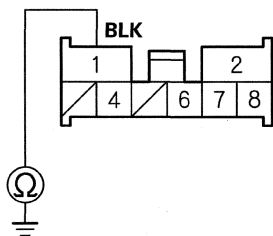
YES—Go to step 25.

NO—Repair an open in the wires between the blower resistor and the heater fan switch. ■

25. Turn the ignition switch to LOCK (0).

26. Check for continuity between heater fan switch 8P connector terminal No. 1 and body ground.

HEATER FAN SWITCH 8P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the heater fan switch (see page 21-14). ■

NO—Check for an open in the wire between the heater fan switch and body ground. If the wire is OK, check for poor ground at G502: With navigation (see page 22-32), Without navigation (see page 22-34). ■

27. Turn the ignition switch to LOCK (0).

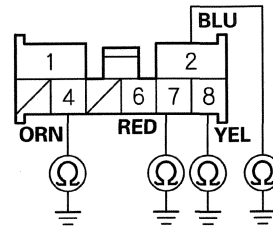
28. Disconnect the blower motor 2P connector.

29. Disconnect the blower resistor 4P connector.

30. Disconnect the heater fan switch 8P connector.

31. Check for continuity between body ground and heater fan switch 8P connector terminals No. 2, 4, 7, and 8 individually.

HEATER FAN SWITCH 8P CONNECTOR

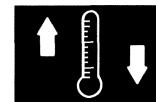


Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wires between the blower motor, the blower resistor, and the heater fan switch. ■

NO—Replace the heater fan switch (see page 21-14). ■

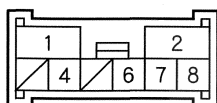


Heater Fan Switch Test

1. Remove the heater control panel (see page 21-13).
2. Check for continuity between the terminals in each switch position according to the table.

Terminal Position	1	2	4	6	7	8
OFF						
1	○	—	○	○		
2	○	—		○	○	
3	○	—		○		○
4	○	○	—	○		

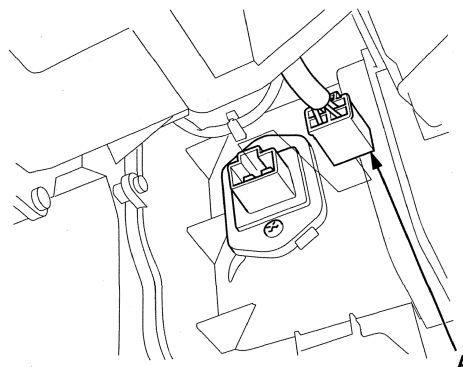
HEATER FAN SWITCH



3. If the continuity is not as specified, replace the heater fan switch (see page 21-14).

Blower Resistor Test

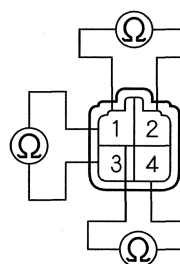
1. Disconnect the 4P connector (A) from the blower resistor.



2. Measure the resistance between the following terminals of the blower resistor, and compare them with the values in the table.

Terminal Resistance	1	2	3	4
About 0.33 Ω	○	—	○	
About 1.39 Ω	○	—		○
About 3.76 Ω	○	○		

BLOWER RESISTOR

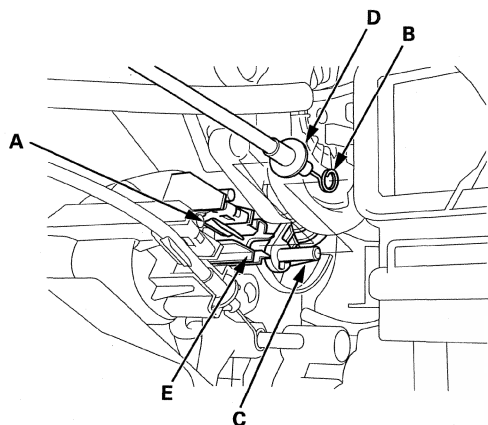


3. If the resistance is not within the specifications, replace the blower resistor.

Heating

Mode Control Cable Removal/Installation

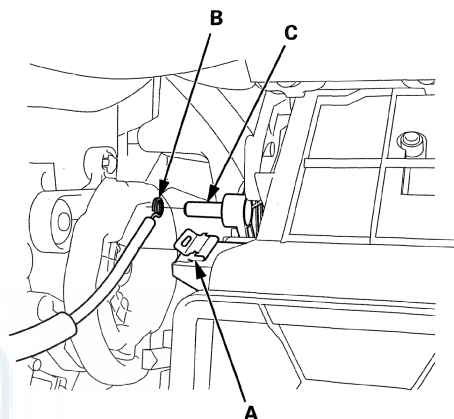
1. Open the glove box. Release the glove box stop on each side, then let the glove box hang down (see page 20-101).
2. Set the mode control dial to VENT (↻).
3. Detach the mode control cable housing from the clamp (A), and disconnect the inner cable (B) from the mode control linkage (C).



4. Detach the mode control cable from the mode control switch and remove it (see page 21-14).
5. Install the cable in the reverse order of removal, and note these items:
 - Make sure the ring (D) is fastened securely in the groove (E).
 - After installation, operate the controls to make sure they work properly.

Recirculation Control Cable Adjustment

1. Open the glove box. Release the glove box stop on each side, then let the glove box hang down (see page 20-101).
2. Set the recirculation control lever to FRESH (↻).
3. Detach the recirculation control cable housing from the clamp (A), and disconnect the inner cable (B) from the recirculation control linkage (C).

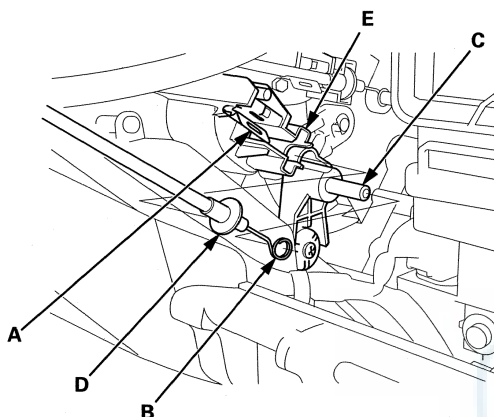


4. Turn the recirculation control linkage fully clockwise, and hold it. Attach the recirculation control cable to the recirculation control linkage, then install the recirculation control cable housing into the clamp.
5. If the recirculation control cable can't be adjusted to work properly, replace the cable:
 - 1. Detach the cable from the recirculation control linkage.
 - 2. Detach the cable from the recirculation control lever, and remove it (see page 21-14).
 - 3. Install the new cable in the reverse order of removal, then adjust the cable.
6. After installation, operate the controls to make sure they work properly.



Air Mix Control Cable Removal/Installation

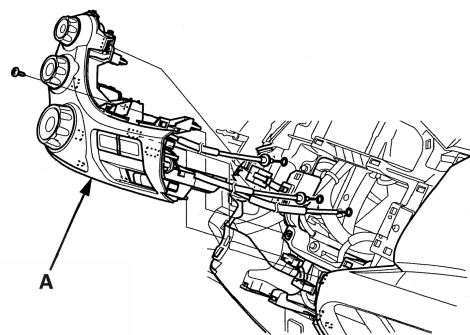
1. Open the glove box. Release the glove box stop on each side, then let the glove box hang down (see page 20-101).
2. Set the temperature control dial to MAX COOL.
3. Detach the air mix control cable housing from the clamp (A), and disconnect the inner cable (B) from the air mix control linkage (C).



4. Detach the air mix control cable from the temperature control dial and remove it (see page 21-14).
5. Install the cable in the reverse order of removal, and note these items:
 - Make sure the ring (D) is fastened securely in the groove (E).
 - After installation, operate the controls to make sure they work properly.

Heater Control Panel Removal/Installation

1. Remove the center panel (see page 23-67).
2. Remove the control cables from the blower/heater unit (see page 21-12).
3. Pull the right portion out of the instrument panel (see page 20-96).
4. Remove the screw, and pull the heater control panel (A) out to access the electrical connectors.

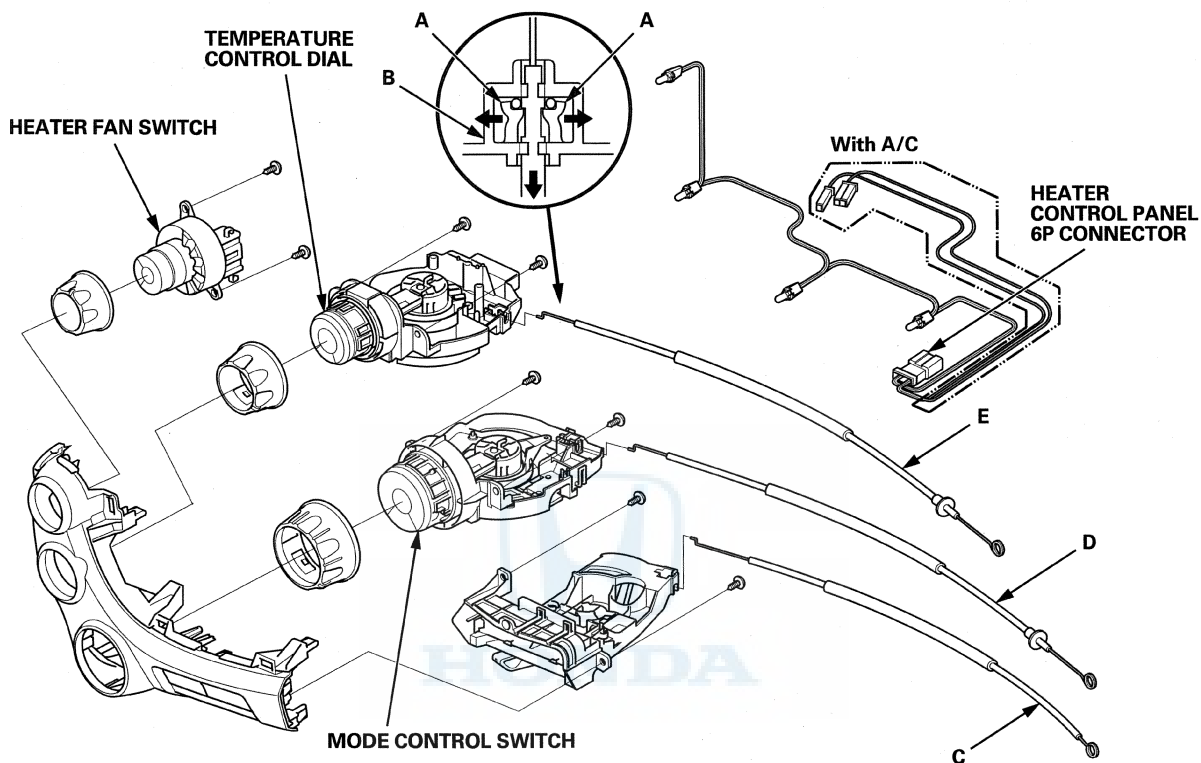


5. Disconnect the connectors, and remove the heater control panel along with the control cables.
6. Install the control panel in the reverse order of removal. After installation, operate the controls to make sure they work properly.

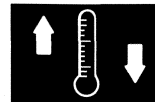
Heating

Heater Control Panel Disassembly and Reassembly

1. Remove the heater control panel (see page 21-13).
2. Spread the cable stops (A) in the cable holders (B) with snap ring pliers, then pull the recirculation control cable (C), the mode control cable (D), and the air mix control cable (E) out.

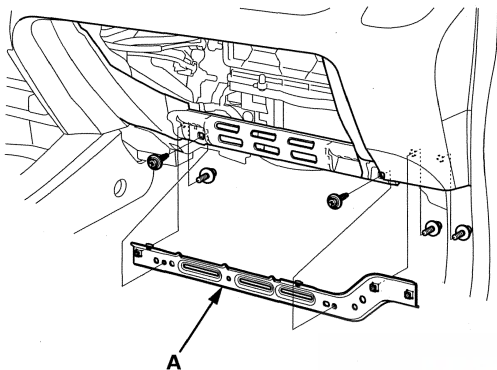


3. Hook the tip of the new control cable to the appropriate control dial or slider, then push the cable housing into the cable holder until it locks into place.
4. After assembly, make sure that the heater and fan controls operate normally.

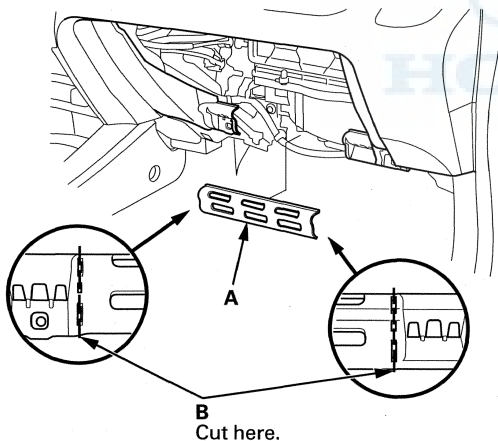


Blower Unit Removal/Installation

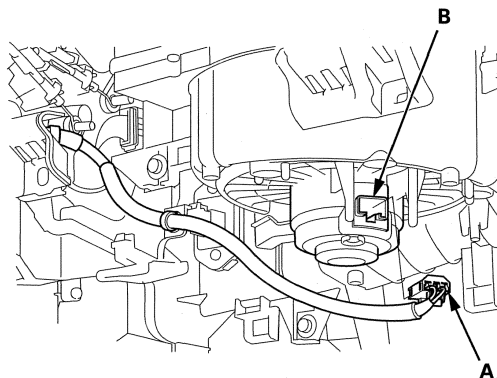
1. Remove the passenger's dashboard undercover (see page 20-101) and the glove box (see page 20-101).
2. Remove the recirculation control cable from the blower unit (see page 21-12).
3. Remove the bolts and the glove box frame (A).



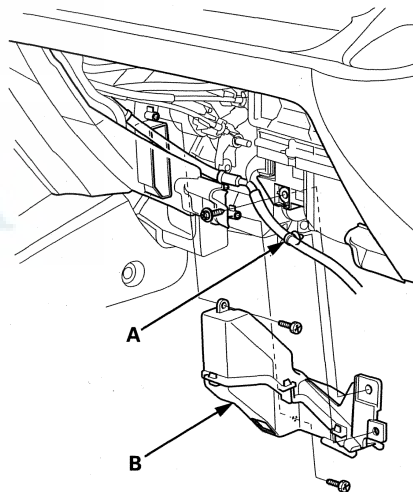
4. Cut the plastic cross brace (A) in the glove box opening with diagonal cutters in the area (B). Remove and discard the plastic cross brace.



5. Disconnect the connector (A) from the blower motor (B).



6. Remove the self-tapping screws and the harness clip (A), then remove the passenger's heater duct (B).

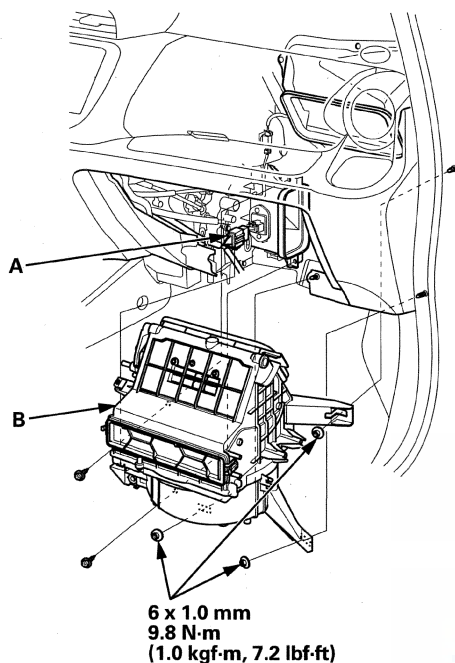


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Heating

Blower Unit Removal/Installation (cont'd)

7. Remove the connector clip (A), the self-tapping screws and the mounting nuts, then pull the blower unit (B) out.

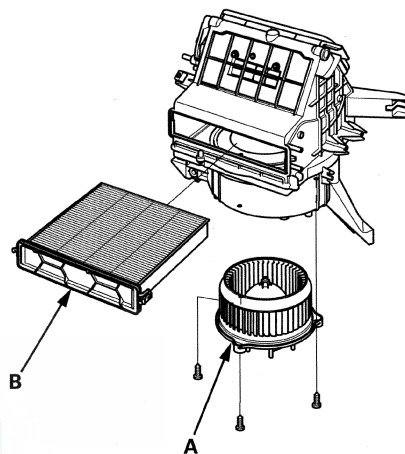


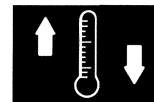
8. Install the unit in the reverse order of removal. Make sure that there is no air leakage.

Blower Unit Component Replacement

Note these items when overhauling the blower unit:

- The blower motor (A) and the dust and pollen filter (B) can be placed without removing the blower unit.
- Before reassembly, make sure that the recirculation control linkage and door move smoothly.



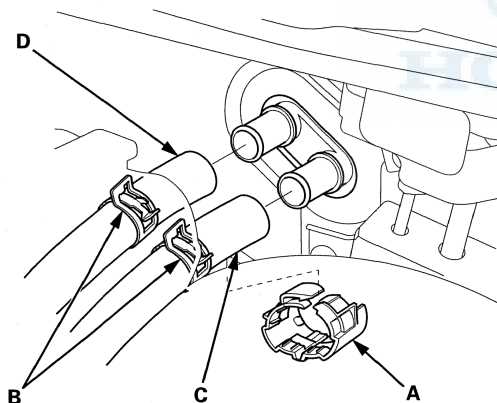


Heater Unit/Core Replacement

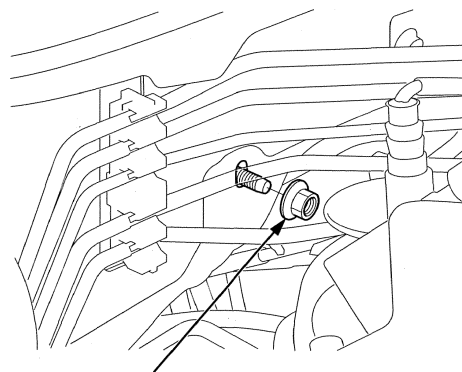
SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

1. Do the battery terminal disconnection procedure (see page 22-69).
2. Models with air conditioning: Recover the A/C refrigerant with a recovery/recycling/charging station (see page 21-69), then disconnect the A/C lines from the evaporator core (see page 21-67).
3. When the engine is cool, drain the engine coolant from the radiator (see page 10-8).
4. From the inlet heater hose, remove the clip (A). Slide the hose clamps (B) back, then disconnect the inlet heater hose (C) and the outlet heater hose (D) from the heater unit. Note the layout of the hoses. Engine coolant will run out when the hoses are disconnected; drain it into a clean drip pan. Be sure not to let coolant spill on the electrical parts or the painted surfaces. If any coolant spills, rinse it off immediately.

NOTE: Discard the removed clip (A) because it is unnecessary at the time of heater hose installation.

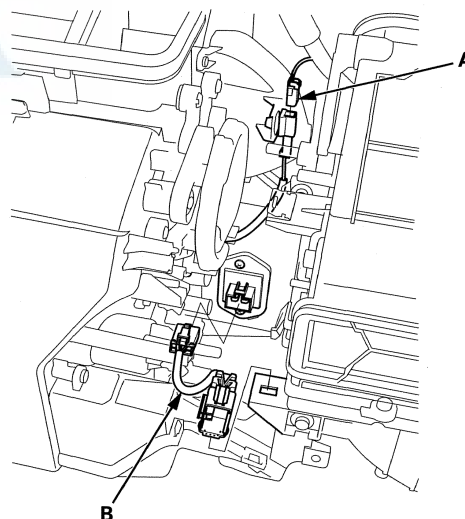


5. Remove the mounting nut from the heater unit. Take care not to damage or bend the fuel lines or the brake lines.



8 x 1.25 mm
12 N·m (1.2 kgf·m, 8.9 lbf·ft)

6. Remove the dashboard/steering hanger beam (see page 20-106).
7. Disconnect the connector (A) from the evaporator sensor, and remove the blower resistor wire harness (B).

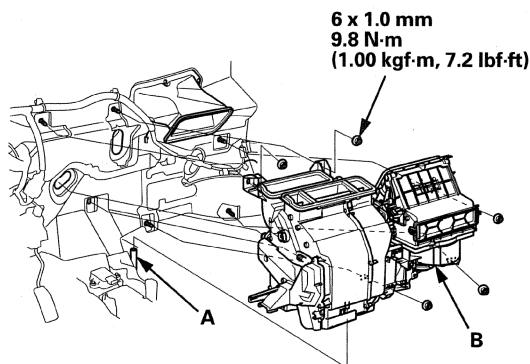


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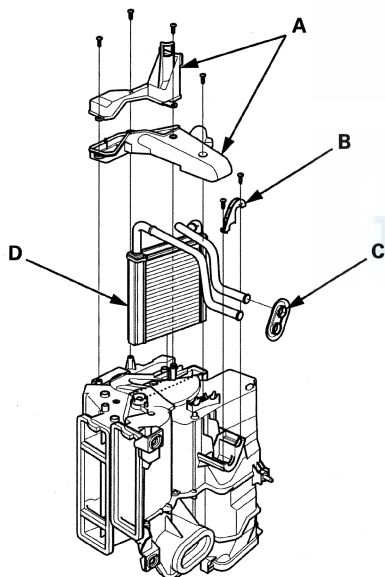
Heating

Heater Unit/Core Replacement (cont'd)

8. Remove the drain hose (A), then remove the mounting nuts and the blower-heater unit (B).



9. Remove the self-tapping screws and the heater core cover (A).

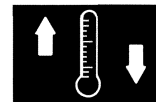


10. Remove the holder (B) and the grommet (C), then carefully pull out the heater core (D).
11. Install the heater core in the reverse order of removal.

12. Install the heater unit in the reverse order of removal, and note these items:

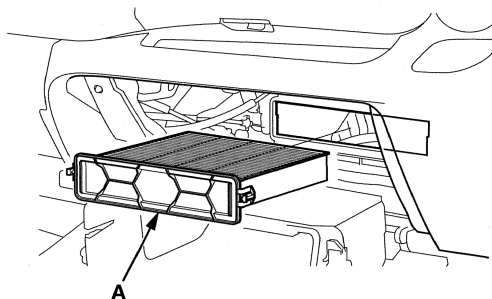
- Do not interchange the inlet and outlet heater hoses, and install the hose clamps securely.
- Refill the cooling system with engine coolant (see page 10-8).
- If necessary, recharge the A/C system (see page 21-71).
- Make sure that there is no coolant leakage.
- Make sure that there is no air leakage.

13. Do the battery terminal reconnection procedure (see page 22-69).

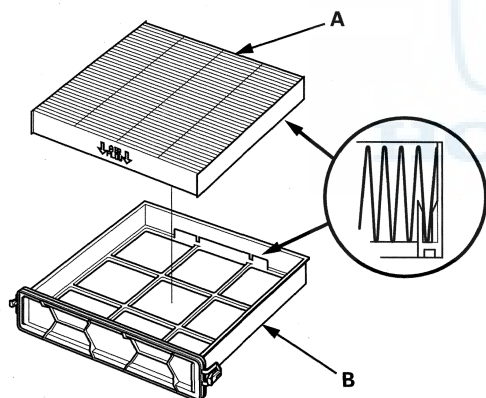


Dust and Pollen Filter Replacement

1. Open the glove box. Remove the glove box stop on each side, then let the glove box hang down (see page 20-101).
2. Pull the dust and pollen filter assembly (A) out from the blower unit.



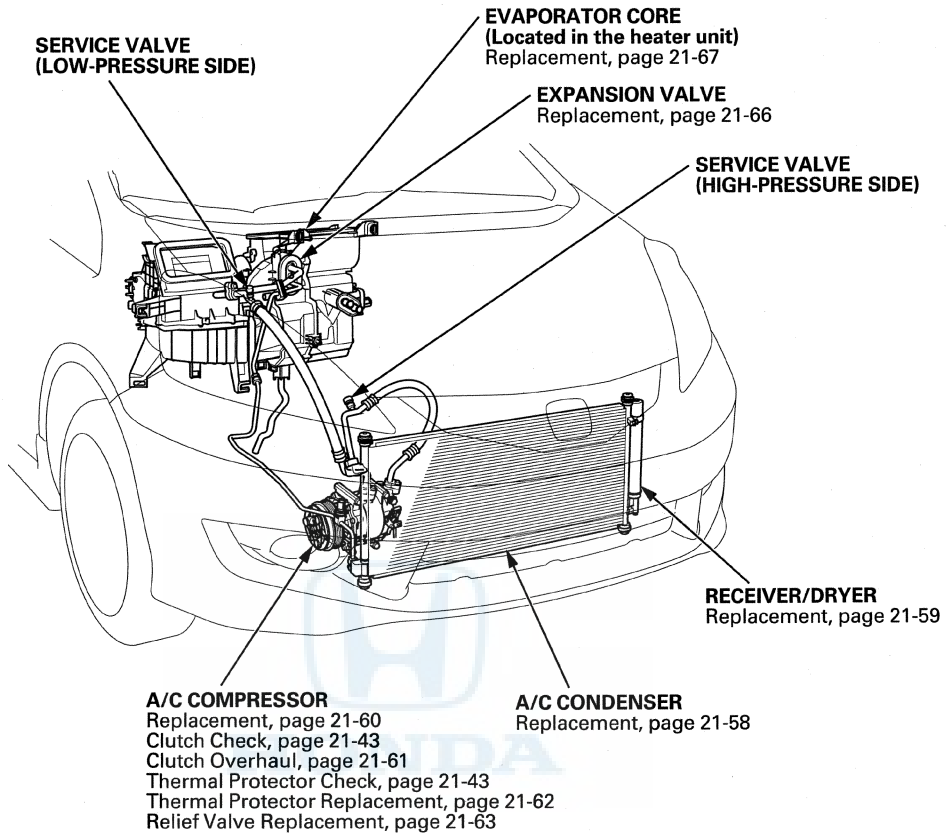
3. Remove the filter (A) from the housing (B), and replace the filter.

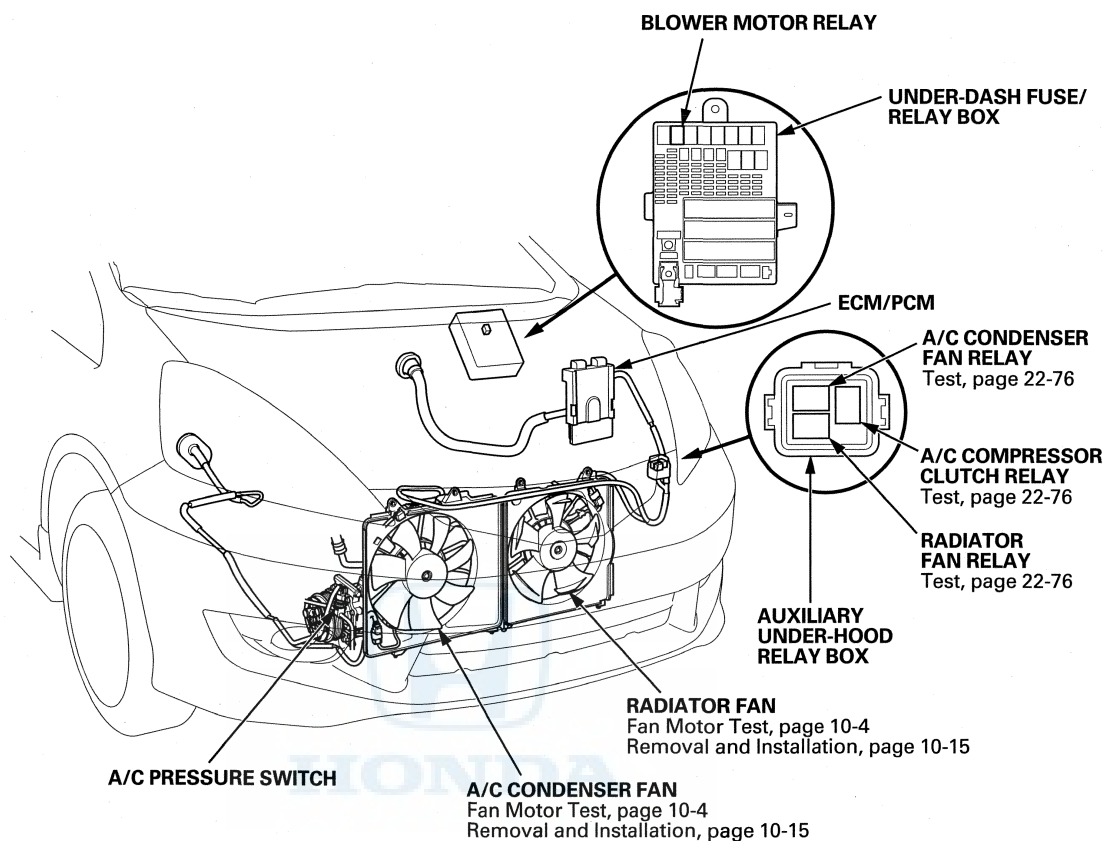


4. Install the filter in the reverse order of removal. Make sure that there is no air leaking out of the blower unit.

Heating/Air Conditioning

Component Location Index

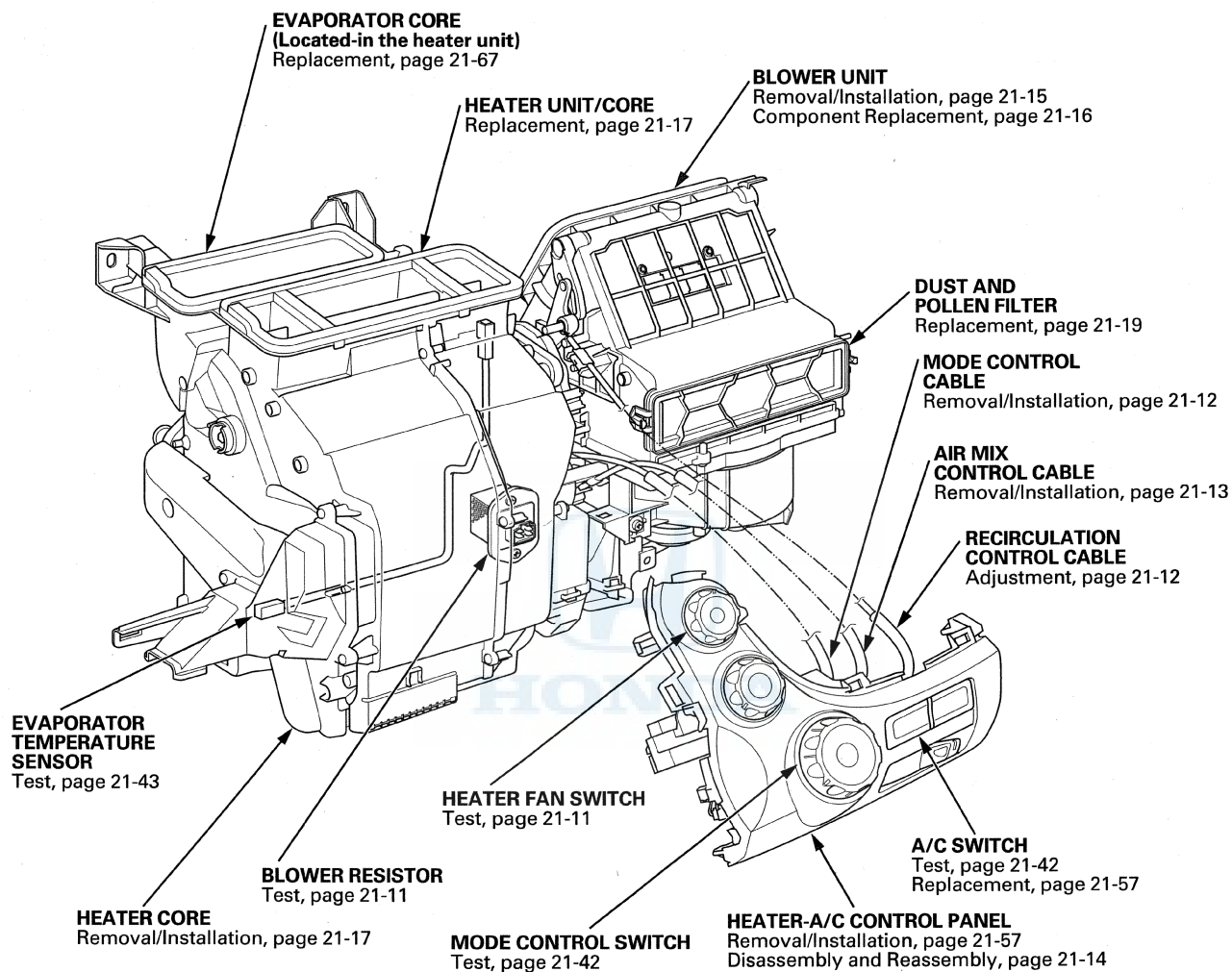


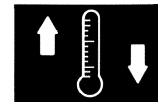


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Heating/Air Conditioning

Component Location Index (cont'd)





A/C Service Tips and Precautions

⚠ WARNING

- Compressed air mixed with the R-134a forms a combustible vapor.
- The vapor can burn or explode causing serious injury.
- Never use compressed air to pressure test R-134a service equipment or vehicle air conditioning systems.

⚠ CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

The air conditioning system uses HFC-134a (R-134a) refrigerant and polyalkyleneglycol (PAG) refrigerant oil.

Use only service equipment that is U.L.-listed and is certified to meet the requirements of SAE J2788 to remove R-134a from the air conditioning system.

If accidental system discharge occurs, ventilate the work area before resuming service.

R-134a service equipment or vehicle air conditioning systems should not be pressure tested or leak tested with compressed air.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

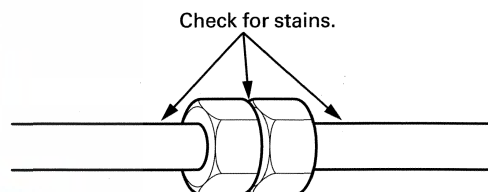
- Always disconnect the negative cable from the battery (see page 22-69) whenever replacing air conditioning parts.
- Keep moisture and dirt out of the system. When disconnecting any lines, plug or cap the fittings immediately; do not remove the caps or plugs until just before you reconnect each line.
- Before connecting any hose or line, apply a few drops of refrigerant oil to the O-ring.
- When tightening or loosening a fitting, use a second wrench to support the matching fitting.
- When discharging the system, use an R-134a refrigerant recovery/recycling/charging station; do not release refrigerant into the atmosphere.

A/C System Inspection

NOTE: For A/C system noise, go to the A/C System Noise Check (see page 21-49).

Before troubleshooting any problem with the air conditioning system, other than noise, do the following:

1. Check that the HVAC air intake plenum at the base of the windshield is not blocked by leaves or debris. Remove any blockage.
2. Check for kinks or sharp bends in the A/C lines and hoses (which can greatly reduce system performance). If any of the A/C lines and hoses are kinked or bent, replace them (see page 21-65).
3. Inspect the A/C components, the pressure lines, and the hoses for stains that may indicate a refrigerant or an A/C compressor oil leak. If there is any indication of leaks, do the Refrigerant Leak Check (see page 21-45) to confirm the leak(s).



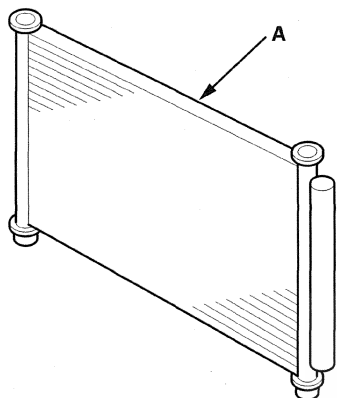
4. Inspect the drive belt for physical damage or signs of slippage (see page 4-29). If the drive belt is damaged or shows signs of slippage, replace it and recheck.

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Heating/Air Conditioning

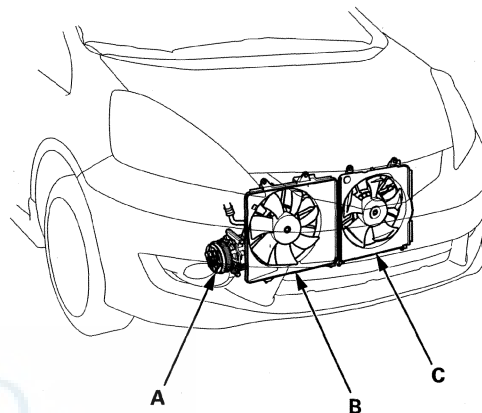
A/C System Inspection (cont'd)

5. Check the A/C condenser (A) for material clogging the fins (dirt, insects, etc.). If the A/C condenser is clogged or restricted, carefully clean any material from the A/C condenser fins with water and detergent. If deeper cleaning is required, clean the fins with HondaBrite cleaner (P/N 08732-0020B). Do not perform pressure test until the A/C condenser completely dry.



6. Check the A/C condenser for fin damage (bent fins). If any of the A/C condenser fins are bent, try to comb them straight. Do the Refrigerant Leak Check (see page 21-45) to check for leaks if there is visible damage to the A/C condenser. If the A/C condenser is leaking or the fins cannot be straightened, replace the A/C condenser.
7. Check the dust and pollen filter. If the dust and pollen filter is clogged or restricted, replace it (see page 21-19).
8. Start the engine, turn the air conditioning system on, and allow it to run for a few minutes and reach stable operation.
9. Check that the A/C operates at each position of the fan control switch (except OFF). If the A/C does not operate at all fan control switch positions, refer to the symptom troubleshooting (see page 21-25).

10. Check that the A/C compressor clutch armature plate (A) is rotating at the same speed as the rotor pulley and is engaging. If the A/C compressor clutch is not engaging properly, go to A/C Compressor Clutch Circuit Troubleshooting (see page 21-36).



11. Check that the A/C condenser fan (B) and the radiator fan (C) operate when the A/C compressor clutch is engaged and blow air toward the engine compartment. If one or both of the fans is not working properly, refer to the symptom troubleshooting (see page 21-25).
12. Check that the engine idle speed is correctly maintained when the A/C is switched on and off, (A/C compressor clutch is engaged and disengaged). If the idle speed increases more than 100 rpm when the A/C compressor engages, confirm that the A/C compressor is the cause of the idle speed increase. Replace the A/C compressor (see page 21-60), if necessary.



Symptom Troubleshooting Index

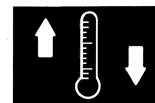
Symptom	Diagnostic procedure	Also check for
The blower motor does not run at all	Probable cause: A problem in the blower motor power or ground circuit Do the blower motor circuit troubleshooting (see page 21-8)	<ul style="list-style-type: none"> Blown fuse No. 10 (7.5 A) or No. 57 (30 A) in the under-dash fuse/relay box Faulty blower motor relay Faulty heater fan switch Poor ground at G501 (see page 22-30) Poor ground at G502: With navigation (see page 22-32), Without navigation (see page 22-34) Poor or loose connections at the terminals
The blower motor runs, but one or more speeds are inoperative	Probable cause: A problem in the circuits between the heater fan switch and the blower resistor Do the blower motor circuit troubleshooting (see page 21-8)	<ul style="list-style-type: none"> Faulty blower resistor Faulty blower fan switch Poor or loose connections at the terminals
The blower motor runs with the fan switch off	Probable cause: A short in the blower motor ground circuit Do the blower motor circuit troubleshooting (see page 21-8)	<ul style="list-style-type: none"> Faulty heater fan switch Poor or loose connections at the terminals
The A/C compressor clutch and the A/C condenser/radiator fans are inoperative, but the blower and heater controls work	Probable cause: A/C pressure switch circuit malfunction Do the A/C pressure switch circuit troubleshooting (see page 21-38)	<ul style="list-style-type: none"> Powertrain DTCs (see page 11-3) Poor or loose connections at the terminals
The A/C compressor clutch does not engage, but the A/C condenser/radiator fans operate, and the blower and heater controls work	Probable cause: No power to the A/C compressor clutch Do the A/C compressor clutch circuit troubleshooting (see page 21-36)	<ul style="list-style-type: none"> Blown fuse No. 43 (7.5 A) in the under-dash fuse/relay box A/C system pressure is normal (see page 21-51) A/C thermal protector has continuity (see page 21-43) Faulty heater fan switch Poor or loose connections at the terminals
The A/C condenser fan, or the radiator fan (or both) are inoperative with the A/C on	Probable cause: Condenser/radiator fan circuit malfunction <ul style="list-style-type: none"> Do the A/C condenser fan circuit troubleshooting (see page 21-34) Do the radiator fan circuit troubleshooting (see page 10-25) Do the radiator and A/C condenser fan common circuit troubleshooting (see page 21-35) 	<ul style="list-style-type: none"> Powertrain DTCs (see page 11-3) Poor or loose connections at the terminals
The A/C compressor clutch cycles rapidly on and off	Probable cause: A/C system is very low on refrigerant, indicating a possible leak Do the refrigerant leak check (see page 21-45) and repair any leaks. Replace the receiver/dryer (see page 21-59), then recharge the system to specifications (see page 21-71)	If there is no leak and the refrigerant level is normal, do the A/C compressor clutch circuit troubleshooting (see page 21-36), and look for an intermittent problem

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Heating/Air Conditioning

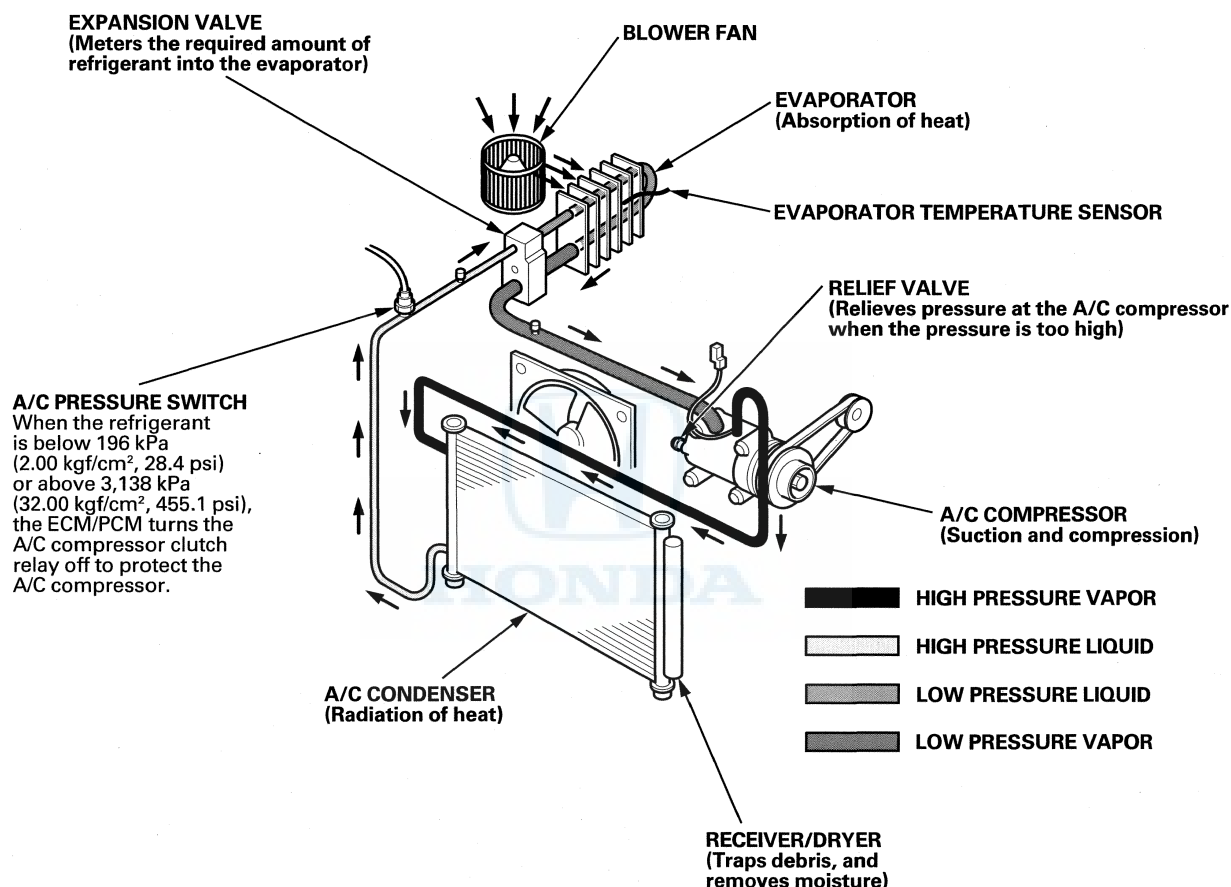
Symptom Troubleshooting Index (cont'd)

Symptom	Diagnostic procedure	Also check for
The A/C compressor clutch does not disengage when the A/C switch is off	<p>Probable cause: The A/C compressor clutch circuit is on (energized) continuously, or the A/C compressor clutch is mechanically jammed</p> <ul style="list-style-type: none"> Do the A/C compressor clutch circuit troubleshooting (see page 21-36), and repair any circuit problems If the A/C compressor clutch circuit is OK, then do the A/C compressor clutch check (see page 21-43), and repair any problems with the A/C compressor clutch 	<ul style="list-style-type: none"> The A/C compressor relief valve. If it has vented refrigerant to the atmosphere, correct the problem with the A/C compressor clutch or clutch circuit, then replace the relief valve (see page 21-63) Poor or loose connections at the terminals
The A/C compressor relief valve has vented refrigerant	<ul style="list-style-type: none"> Probable cause: The A/C condenser/radiator fans are inoperative: <ul style="list-style-type: none"> Do the A/C condenser fan circuit troubleshooting (see page 21-34) Do the radiator fan circuit troubleshooting (see page 10-25) Do the radiator and A/C condenser fan common circuit troubleshooting (see page 21-35) Probable cause: the A/C compressor clutch is not disengaging: <ul style="list-style-type: none"> Do the A/C compressor clutch circuit troubleshooting (see page 21-36) Do the A/C compressor clutch check (see page 21-43) Probable cause: A restriction in the high-pressure side of the system <ul style="list-style-type: none"> Recover A/C refrigerant (see page 21-69), then check the A/C condenser, the receiver/dryer, and the liquid line for restrictions. Repair as needed. Recharge the system to specifications (see page 21-71) 	<ul style="list-style-type: none"> Powertrain DTCs (see page 11-3) Poor or loose connections at the terminals
Driver's and passenger's side vent temperatures vary by more than 52 °F (11 °C)	<p>Probable cause: The recirculation control door or the air mix door is malfunctioning</p> <ul style="list-style-type: none"> Check the operation of the recirculation control cable and linkage (see page 21-12). Adjust or repair as needed Check the operation of the air mix door cable and linkage (see page 21-13). Repair as needed 	<ul style="list-style-type: none"> Faulty heater controls (see page 21-14) Clogged heater core Clogged evaporator Low refrigerant level
Insufficient heating	<ol style="list-style-type: none"> Check the coolant level (see page 10-7) Check the radiator cap (see page 10-3) Check the coolant temperature during normal operation Check the heater core inlet hose temperature: <ul style="list-style-type: none"> If it is COLD, check for restrictions in the hose, a damaged or leaking thermostat, or a damaged or leaking water pump If it is HOT, check for restrictions in the heater core. Back flush or replace the heater core Check the operation of the air mix cable and linkage (see page 21-13) Check the blower motor unit for obstructions Check for air leaks around the ducts and vents 	Damaged cylinder head gasket



System Description

The A/C system removes heat from the passenger compartment by transferring heat from the ambient air to the evaporator. The A/C refrigerant expands in the evaporator, and the evaporator becomes very cold and absorbs the heat from the ambient air. The blower fan pushes air across the evaporator where the heat is absorbed, and then it blows the cool air into the passenger compartment.



This vehicle uses HFC-134a (R-134a) refrigerant, which does not contain chlorofluorocarbons. Pay attention to the following service items:

- Use only the recommended polyalkyleneglycol (PAG) refrigerant oil (SP-10) designed for the R-134a A/C compressor. Intermixing the recommended (PAG) refrigerant oil with any other refrigerant oil will result in A/C compressor failure.
- All A/C system parts (A/C compressor, discharge line, suction line, evaporator, A/C condenser, receiver/dryer, expansion valve, O-rings for joints) are designed for refrigerant R-134a.
- Use a halogen gas leak detector designed for refrigerant R-134a.
- Use only a recovery/recycling/charging station for refrigerant R-134a.
- Always recover refrigerant R-134a with an approved recovery/recycling/charging station before disconnecting any A/C fitting.

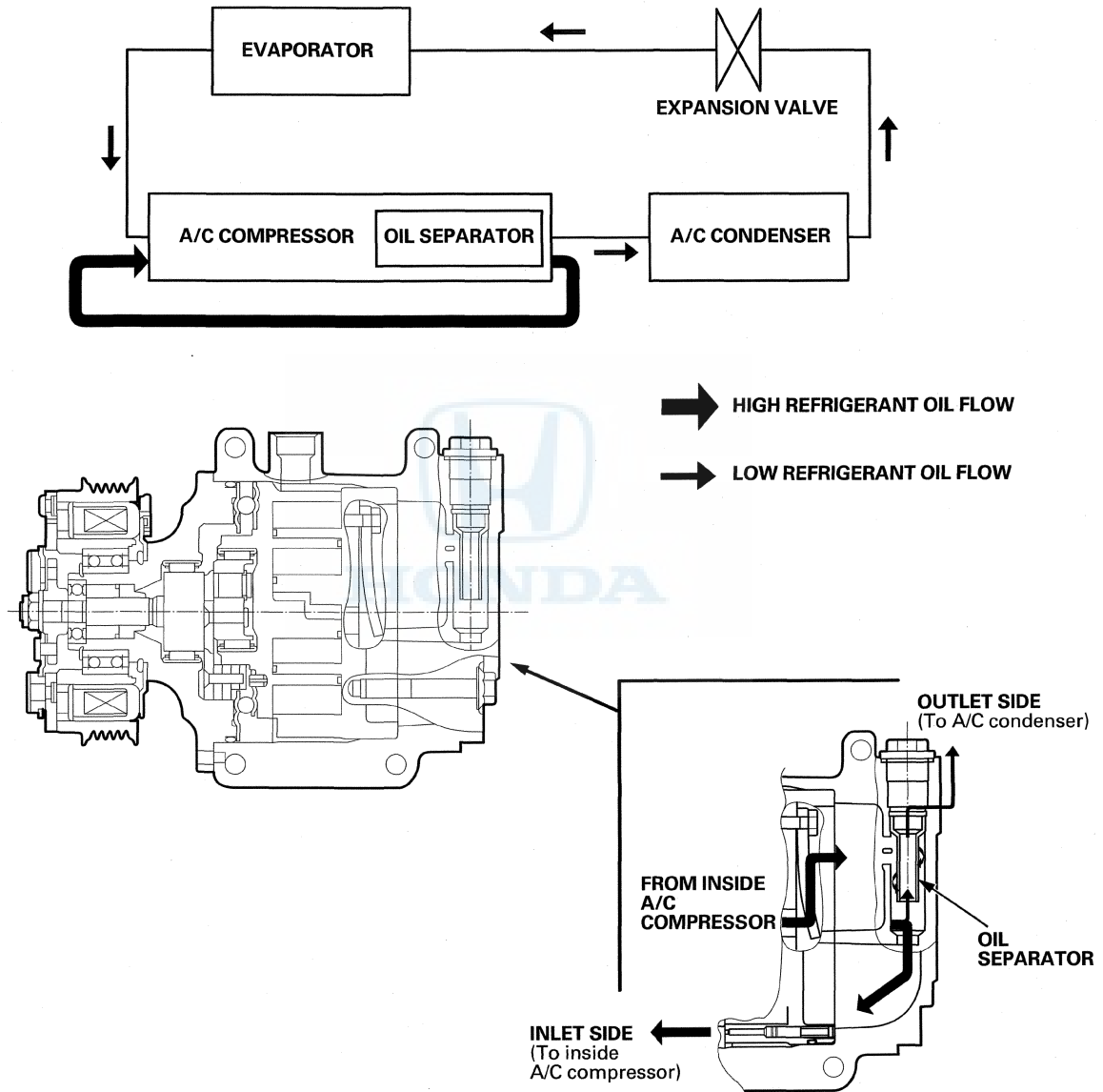
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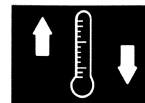
Heating/Air Conditioning

System Description (cont'd)

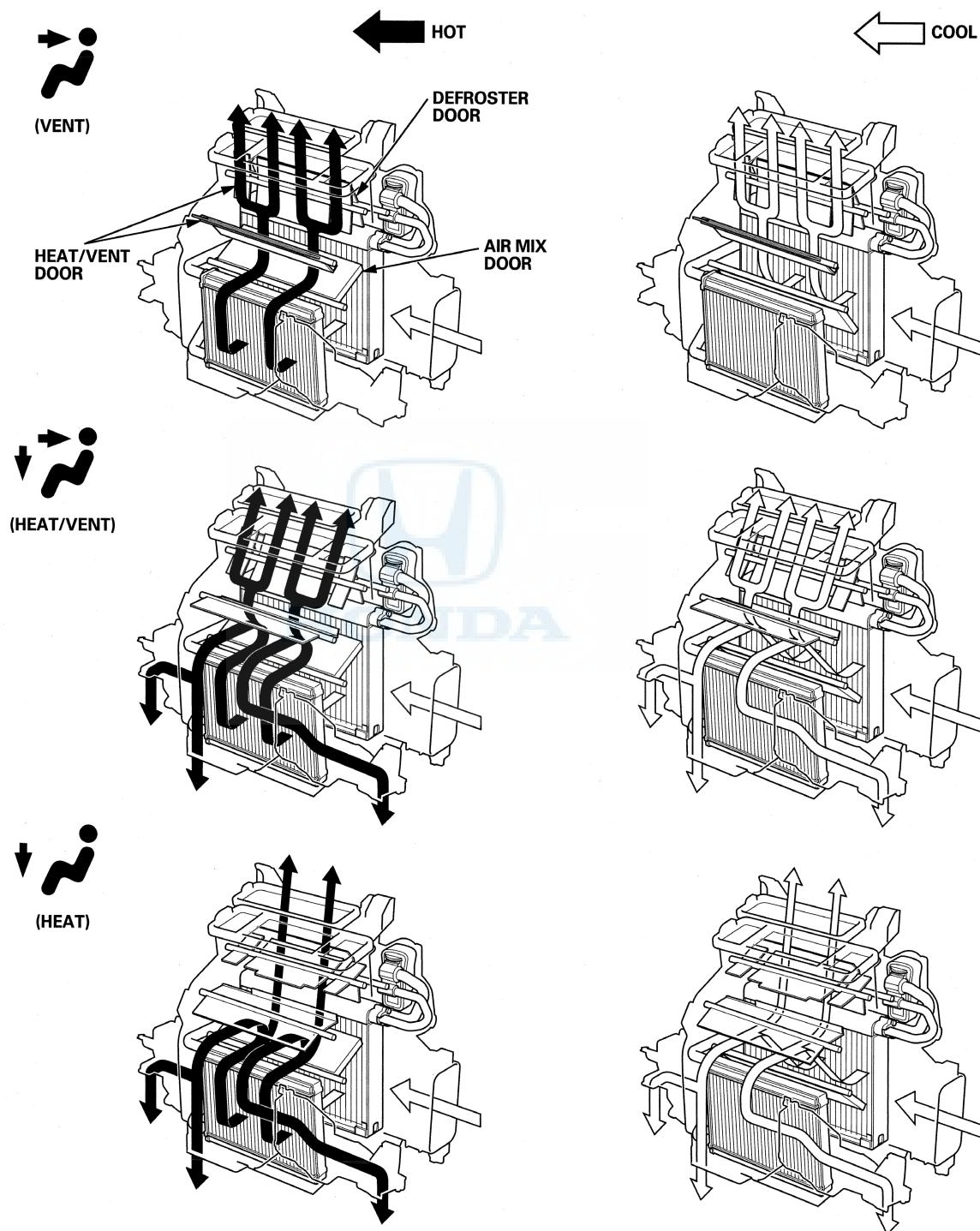
Oil Separator ('09-10 models)

Oil emission from the A/C compressor to the A/C line is reduced by placing an oil separator in the A/C compressor. This results in a thinner oil film inside the heat exchangers (A/C condenser and evaporator). Air conditioning efficiency is increased without sacrificing engine performance.





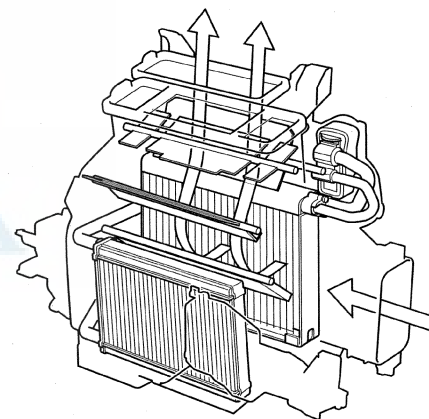
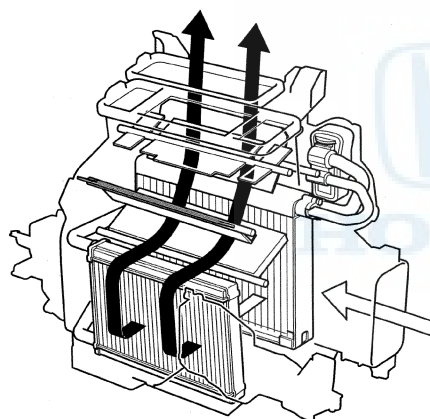
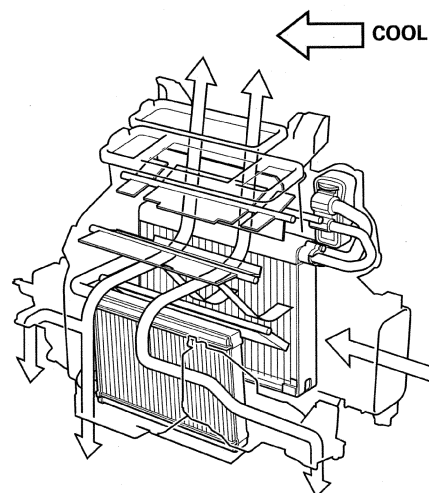
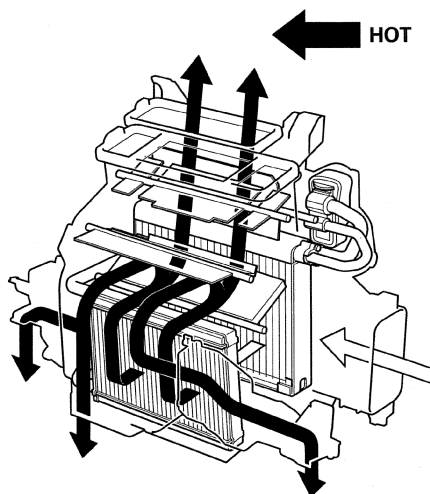
Heating/Air Conditioning Door Positions

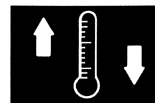


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Heating/Air Conditioning

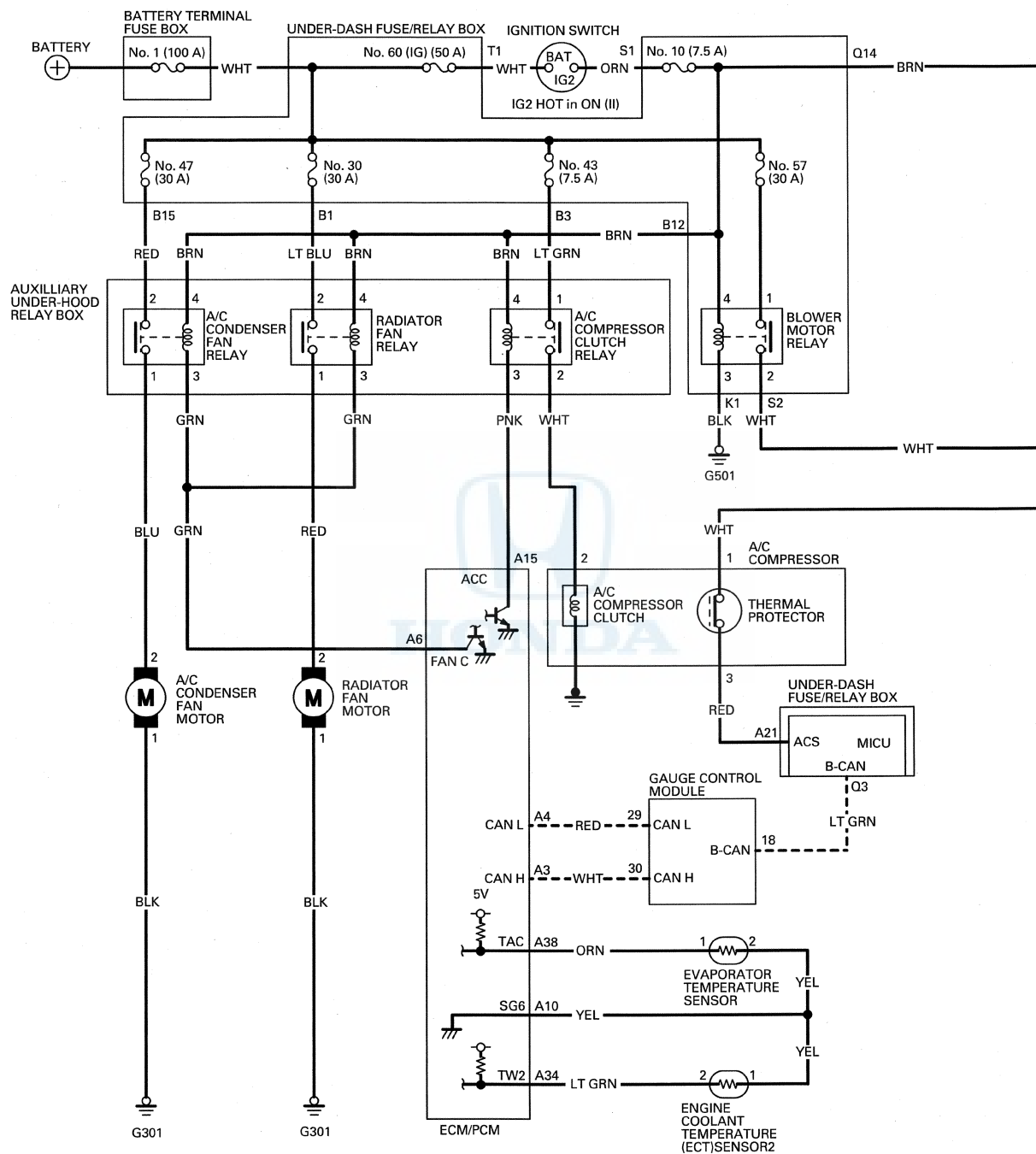
System Description (cont'd)

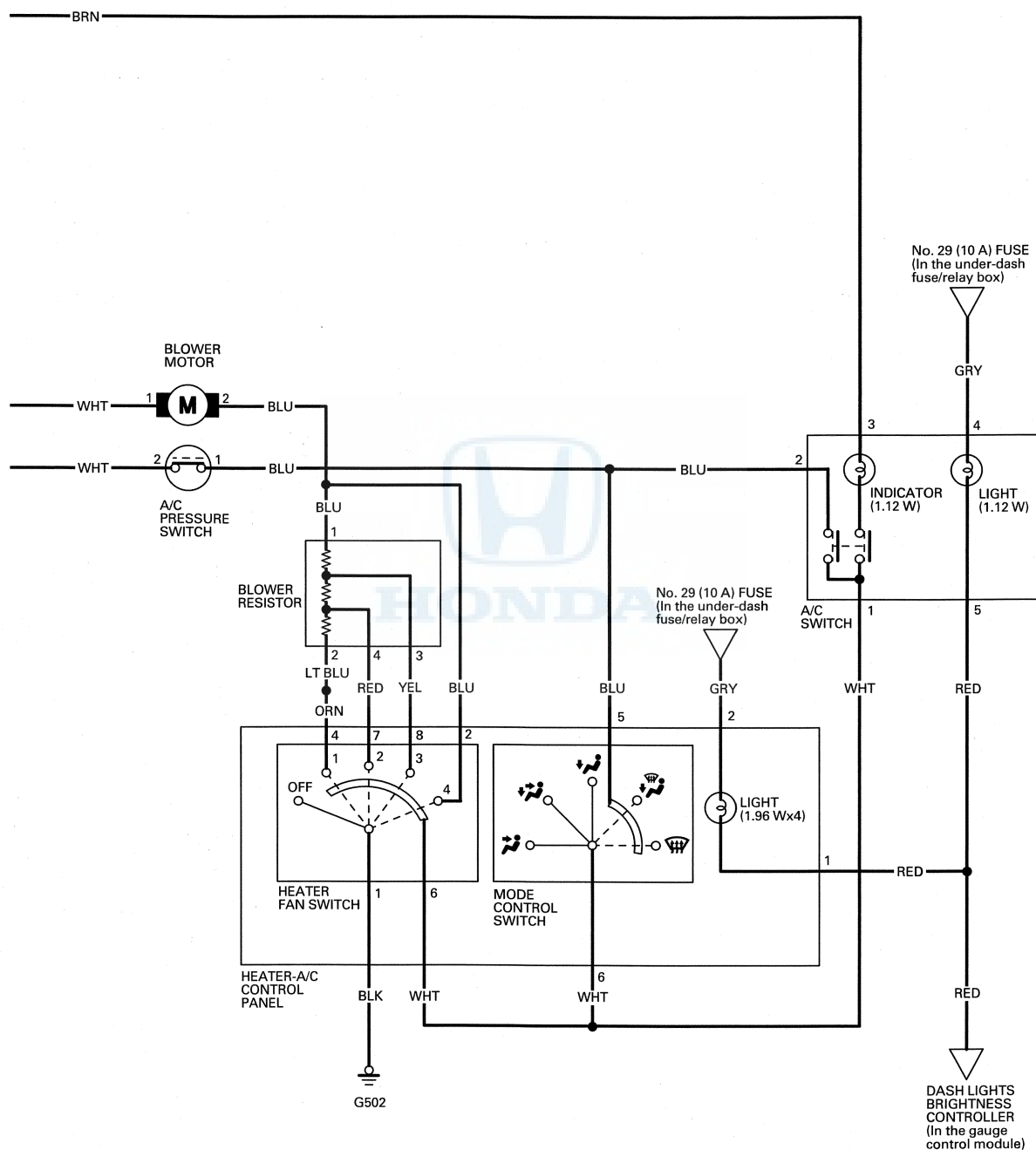
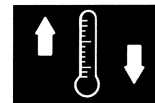




Heating/Air Conditioning

Circuit Diagram





Heating/Air Conditioning

A/C Condenser Fan Circuit Troubleshooting

NOTE:

- Do not use this troubleshooting procedure if the compressor is also inoperative with the A/C on. Refer to the symptom troubleshooting index.
- Before doing any symptom troubleshooting, check for powertrain DTCs. (see page 11-3)

1. Check the No. 47 (30 A) and the No. 10 (7.5 A) fuses in the under-dash fuse/relay box.

Are the fuses OK?

YES—Go to step 2.

NO—Replace the blown fuses, and recheck. If either fuse blows again, check for a short in the No. 47 (30 A) or No. 10 (7.5 A) fuse circuits. ■

2. Remove the A/C condenser fan relay from the auxiliary under-hood relay box, and test it (see page 22-76).

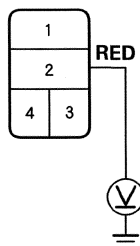
Is the relay OK?

YES—Go to step 3.

NO—Replace the A/C condenser fan relay. ■

3. Measure the voltage between A/C condenser fan relay 4P socket terminal No. 2 and body ground.

A/C CONDENSER FAN RELAY 4P SOCKET



Terminal side of female terminals

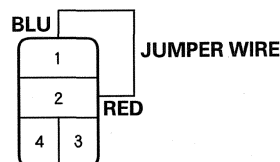
Is there battery voltage?

YES—Go to step 4.

NO—Repair an open in the wire between the No. 47 (30 A) fuse in the under-dash fuse/relay box and the A/C condenser fan relay. ■

4. Connect the A/C condenser fan relay 4P socket terminals No. 1 and No. 2 with a jumper wire.

A/C CONDENSER FAN RELAY 4P SOCKET



Terminal side of female terminals

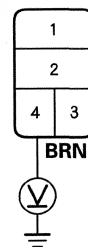
Does the A/C condenser fan run?

YES—Go to step 5.

NO—Go to step 8.

5. Disconnect the jumper wire.
6. Turn the ignition switch to ON (II).
7. Measure the voltage between A/C condenser fan relay 4P socket terminal No. 4 and body ground.

A/C CONDENSER FAN RELAY 4P SOCKET



Terminal side of female terminals

Is there battery voltage?

YES—Repair an open in the wire between the A/C condenser fan relay and the ECM/PCM. ■

NO—Repair an open in the wire between the No. 10 (7.5 A) fuse in the under-dash fuse/relay box and the A/C condenser fan relay. ■

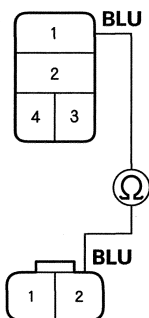
8. Disconnect the jumper wire.
9. Disconnect the A/C condenser fan 2P connector.



Radiator and A/C Condenser Fan Common Circuit Troubleshooting

10. Check for continuity between A/C condenser fan relay 4P socket terminal No. 1 and A/C condenser fan motor 2P connector terminal No. 2.

A/C CONDENSER FAN RELAY 4P SOCKET
Terminal side of female terminals



A/C CONDENSER FAN 2P MOTOR CONNECTOR
Wire side of female terminals

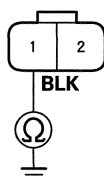
Is there continuity?

YES—Go to step 11.

NO—Repair an open in the wire between the A/C condenser fan relay and the A/C condenser fan motor. ■

11. Check for continuity between A/C condenser fan 2P motor connector terminal No. 1 and body ground.

A/C CONDENSER FAN 2P MOTOR CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Replace the A/C condenser fan motor (see page 10-15). ■

NO—Check for an open in the wire between the A/C condenser fan motor and body ground. If the wire is OK, check for poor ground at G301 (see page 22-26). ■

NOTE:

- Do not use this troubleshooting procedure if the A/C compressor is inoperative. Refer to the symptom troubleshooting index.
- Before doing any symptom troubleshooting, check for powertrain DTCs (see page 11-3).

- Remove the radiator fan relay and A/C condenser fan relay from the auxiliary under-hood relay box, and test them (see page 22-76).

Are the relays OK?

YES—Go to step 2.

NO—Replace the relays. ■

- Reinstall the relays.

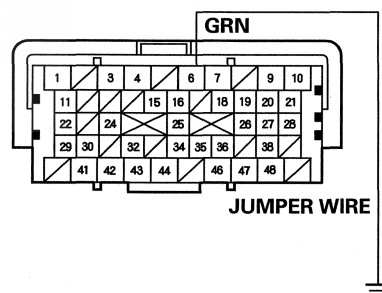
- Jump the SCS line with the HDS.

NOTE: This step must be done to protect the engine control module/powertrain control module (ECM/PCM) from damage.

- Disconnect ECM/PCM connector A (49P).

- Connect the ECM/PCM connector A6 to body ground with a jumper wire.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

- Turn the ignition switch to ON (II).

Do the fans run?

YES—Check for loose wires or poor connections at ECM/PCM connector A (49P). If the connections are good, substitute a known-good ECM/PCM (see page 11-7), and recheck. If the symptom/indication goes away, replace the original ECM/PCM (see page 11-215). ■

NO—Repair an open in the wire between the radiator fan relay, the A/C condenser fan relay, and the ECM/PCM. ■

Heating/Air Conditioning

A/C Compressor Clutch Circuit Troubleshooting

NOTE:

- It is normal for the A/C compressor to turn off under certain conditions, such as low idle, high engine coolant temperature, hard acceleration, or high/low refrigerant pressure.
- Do not use this troubleshooting procedure if the fans are also inoperative with the A/C on. Refer to the symptom troubleshooting index.
- Before doing any symptom troubleshooting, check for powertrain DTCs (see page 11-3).

1. Check the No. 43 (7.5 A) and the No. 10 (7.5 A) fuses in the under-dash fuse/relay box.

Are the fuses OK?

YES—Go to step 2.

NO—Replace the blown fuses, and recheck. If either fuse blown again, check for a short in the No. 43 (7.5 A) or No. 10 (7.5 A) fuse circuits.■

2. Connect the HDS to the DLC.

3. Start the engine.

4. Turn on the A/C.

5. Check the A/C CLUTCH in the PGM-FI Data List with the HDS.

Is the A/C CLUTCH on?

YES—Go to step 7.

NO—Go to step 6.

6. Check the engine coolant temperature and idle speed (use the HDS PGM-FI Data List if possible).

TP sensor	About 0.5 V at idle	
RPM	A/T	740—840 at idle
	M/T	700—800 at idle
ECT sensor 2	176—212 °F (80—100 °C)	

Are all the values within the specifications?

YES—Go to A/C pressure switch circuit troubleshooting (see page 21-38).■

NO—Troubleshoot the value that is not within the specifications.■

7. Turn the ignition switch to LOCK (0).

8. Remove the A/C compressor clutch relay from the auxiliary under-hood relay box, and test it (see page 22-76).

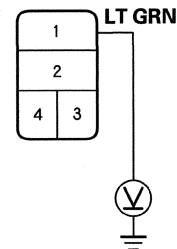
Is the relay OK?

YES—Go to step 9.

NO—Replace the A/C compressor clutch relay.■

9. Measure the voltage between A/C compressor clutch relay 4P socket terminal No. 1 and body ground.

A/C COMPRESSOR CLUTCH RELAY 4P SOCKET



Terminal side of female terminals

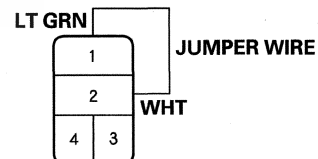
Is there battery voltage?

YES—Go to step 10.

NO—Repair an open in the wire between the No. 43 (7.5 A) fuse in the under-dash fuse/relay box and the A/C compressor clutch relay.■

10. Connect A/C compressor clutch relay 4P socket terminals No. 1 and No. 2 with a jumper wire.

A/C COMPRESSOR CLUTCH RELAY 4P SOCKET



Terminal side of female terminals

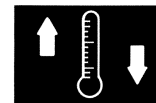
Does the A/C compressor clutch click?

YES—Go to step 11.

NO—Go to step 21.

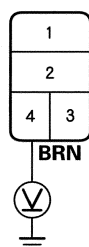
11. Disconnect the jumper wire.

12. Turn the ignition switch to ON (II).



13. Measure the voltage between A/C compressor clutch relay 4P socket terminal No. 4 and body ground.

A/C COMPRESSOR CLUTCH RELAY 4P SOCKET



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 14.

NO—Repair an open in the wire between the No. 10 (7.5 A) fuse in the under-dash fuse/relay box and the A/C compressor clutch relay. ■

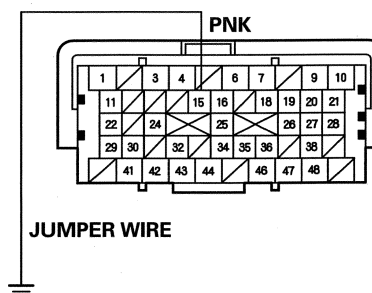
14. Turn the ignition switch to LOCK (0).
15. Reinstall the A/C compressor clutch relay.
16. Make sure the A/C switch is OFF.
17. Jump the SCS line with the HDS.

NOTE: This step must be done to protect the engine control module/powertrain control module (ECM/PCM) from damage.

18. Disconnect ECM/PCM connector A (49P).

19. Connect the ECM/PCM connector A15 to body ground with a jumper wire.

ECM/PCM CONNECTOR A (49P)



Terminal side of female terminals

20. Turn the ignition switch to ON (II).

Does the A/C compressor clutch click?

YES—Check for loose wires or poor connections at ECM/PCM connector A (49P). If the connections are good, substitute a known-good ECM/PCM (see page 11-7), and recheck. If the symptom/indication goes away, replace the original ECM/PCM (see page 11-215). ■

NO—Repair an open in the wire between the A/C compressor clutch relay and the ECM/PCM. ■

21. Disconnect the jumper wire.
22. Disconnect the A/C compressor clutch 3P connector.

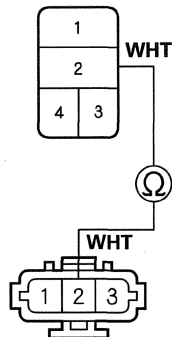
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Heating/Air Conditioning

A/C Compressor Clutch Circuit Troubleshooting (cont'd)

23. Check for continuity between A/C compressor clutch relay 4P socket terminal No. 2 and A/C compressor clutch 3P connector terminal No. 2.

A/C COMPRESSOR CLUTCH RELAY 4P SOCKET
Terminal side of female terminals



A/C COMPRESSOR CLUTCH 3P CONNECTOR
Terminal side of male terminals

Is there continuity?

YES—Check the A/C compressor clutch clearance, the thermal protector circuit, and the A/C compressor clutch field coil (see page 21-43). ■

NO—Repair an open in the wire between the A/C compressor clutch relay and the A/C compressor clutch. ■

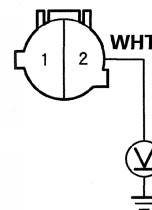
A/C Pressure Switch Circuit Troubleshooting

NOTE:

- Do not use this troubleshooting procedure if any of the following items are operative; the A/C condenser fan, the radiator fan, the A/C compressor, or if the heater is inoperative. Refer to the symptom troubleshooting index.
- Check the A/C high-side pressure.
- Before doing any symptom troubleshooting, check for powertrain DTCs (see page 11-3).

1. Disconnect the A/C pressure switch 2P connector.
2. Turn the ignition switch to ON (II).
3. Measure the voltage between A/C pressure switch 2P connector terminal No. 2 and body ground.

A/C PRESSURE SWITCH 2P CONNECTOR



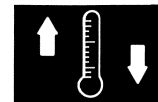
Wire side of female terminals

Is there battery voltage?

YES—Go to step 4.

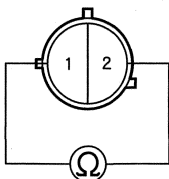
NO—Go to step 20.

4. Turn the ignition switch to LOCK (0).



5. Check for continuity between A/C pressure switch terminals No. 1 and No. 2.

A/C PRESSURE SWITCH



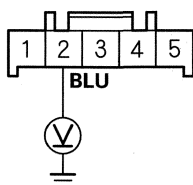
Is there continuity?

YES—Go to step 6.

NO—Replace the A/C pressure switch. ■

6. Reconnect the A/C pressure switch 2P connector.
7. Disconnect the A/C switch 5P connector.
8. Turn the ignition switch to ON (II).
9. Measure the voltage between A/C switch 5P connector terminal No. 2 and body ground.

A/C SWITCH 5P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Go to step 10.

NO—Repair an open in the wire between the A/C pressure switch and the A/C switch. ■

10. Turn the ignition switch to LOCK (0).

11. Test the A/C switch (see page 21-42).

Is the A/C switch OK?

YES—Go to step 12.

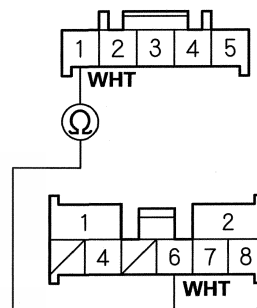
NO—Replace the A/C switch (see page 21-57). ■

12. Disconnect the heater fan switch 8P connector.

13. Check for continuity between A/C switch 5P connector terminal No. 1 and heater fan switch 8P connector terminal No. 6.

A/C SWITCH 5P CONNECTOR

Wire side of female terminals



HEATER FAN SWITCH 8P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Go to step 14.

NO—Repair an open in the wire between the A/C switch and the heater fan switch. ■

14. Test the heater fan switch (see page 21-11).

Is the heater fan switch OK?

YES—Go to step 15.

NO—Replace the heater fan switch (see page 21-14). ■

15. Remove the evaporator temperature sensor (see page 21-67) and test it (see page 21-43).

Is the evaporator temperature sensor OK?

YES—Go to step 16.

NO—Replace the evaporator temperature sensor (see page 21-67). ■

16. Jump the SCS line with the HDS.

NOTE: This step must be done to protect engine control module/powertrain control module (ECM/PCM) from damage.

17. Disconnect ECM/PCM connector A (49P).

(cont'd)

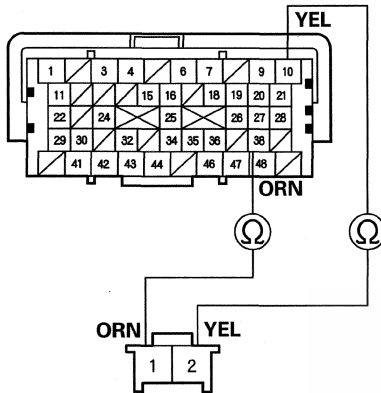
Heating/Air Conditioning

A/C Pressure Switch Circuit Troubleshooting (cont'd)

18. Check for continuity between the following terminals of ECM/PCM connector A (49P) and the evaporator temperature sensor 2P connector.

49P: 2P:
A10 No. 2
A38 No. 1

ECM/PCM CONNECTOR A (49P)
Terminal side of female terminals



EVAPORATOR TEMPERATURE SENSOR 2P CONNECTOR
Wire side of female terminals

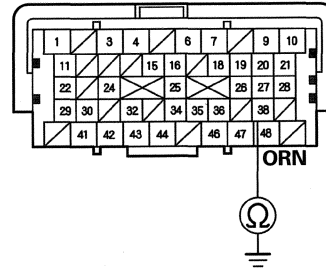
Is there continuity?

YES—Go to step 19.

NO—Repair an open in the wire(s) between the ECM/PCM and the evaporator temperature sensor. ■

19. Check for continuity between ECM/PCM connector A38 and body ground.

ECM/PCM CONNECTOR A (49P)



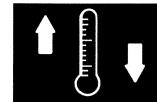
Terminal side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the ECM/PCM and the evaporator temperature sensor. ■

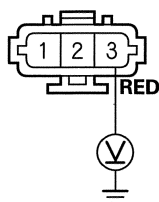
NO—Check for loose wires or poor connections at ECM/PCM connector A (49P), the evaporator temperature sensor 2P connector, the A/C pressure switch 2P connector, the A/C switch 5P connector, and at the heater fan switch 8P connector. If the connections are good, substitute a known-good ECM/PCM (see page 11-7), and recheck. If the symptom/indication goes away, replace the original ECM/PCM (see page 11-215). ■

20. Turn the ignition switch to LOCK (0).
21. Reconnect the A/C pressure switch 2P connector.
22. Disconnect the A/C compressor clutch 3P connector.
23. Turn the ignition switch to ON (II).



24. Measure the voltage between A/C compressor clutch 3P connector terminal No. 3 and body ground.

A/C COMPRESSOR CLUTCH 3P CONNECTOR



Terminal side of male terminals

Is there battery voltage?

YES—Go to step 25.

NO—Go to step 27.

25. Turn the ignition switch to LOCK (0).
26. Test the A/C compressor thermal protector (see page 21-43).

Is the A/C compressor thermal protector OK?

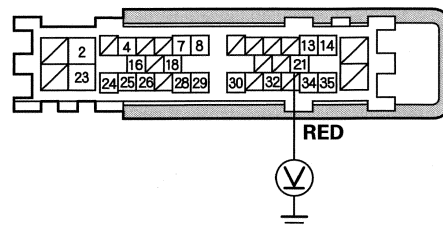
YES—Repair an open in the wire between the A/C compressor clutch and the A/C pressure switch. ■

NO—Replace the A/C compressor thermal protector (see page 21-62). ■

27. Turn the ignition switch to LOCK (0).
28. Reconnect the A/C pressure switch 3P connector.
29. Make sure the A/C switch is OFF.
30. Turn the ignition switch to ON (II).

31. Measure the voltage between under-dash fuse/relay box connector A (36P) terminal No. 21 and body ground with the under-dash fuse/relay box connectors connected.

UNDER-DASH FUSE/RELAY BOX CONNECTOR A (36P)



Wire side of female terminals

Is there battery voltage?

YES—Repair an open in the wire between the A/C compressor and the MICU. ■

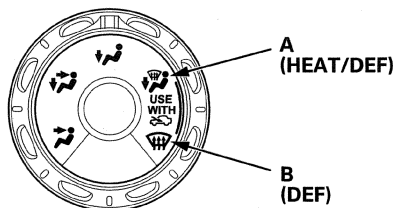
NO—Check for loose wires or poor connections at the under-dash fuse/relay box. If the connections are OK, substitute a known-good MICU and recheck. If the symptom goes away, replace the original MICU. ■

Heating/Air Conditioning

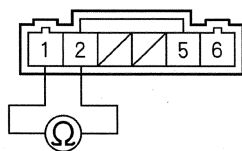
Mode Control Switch Test

- 1. Remove the heater-A/C control panel (see page 21-57).
- 2. Check for continuity between heater-A/C control panel 6P connector terminals No. 1 and No. 2, while rotating the mode control dial from (A) and (B).

MODE CONTROL DIAL



HEATER-A/C CONTROL PANEL 6P CONNECTOR



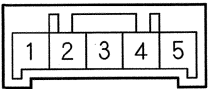
- 3. If there is no continuity, replace the mode control switch (see page 21-14).

A/C Switch Test

- 1. Remove the A/C switch (see page 21-57).
- 2. Check for continuity between the terminals in each switch position according to the table.

Terminal Position	1	2	3	4	5
ON	○	○	○	○	○
OFF	○	○	○	○	○

A/C SWITCH



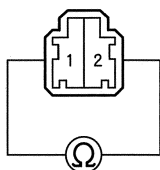
- 3. If the continuity is not as specified, replace the bulbs or the switch.



Evaporator Temperature Sensor Test

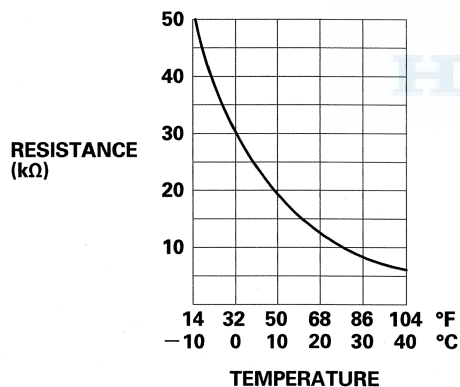
1. Remove the evaporator core and the evaporator temperature sensor (see page 21-67).
2. Dip the sensor in ice water, and measure the resistance between terminals No.1 and No.2.

EVAPORATOR TEMPERATURE SENSOR



Terminal side of male terminals

3. Pour warm water on the sensor, and check for a change in resistance.
4. Compare the resistance readings with the specifications shown in the graph; the resistance should be within the specifications.

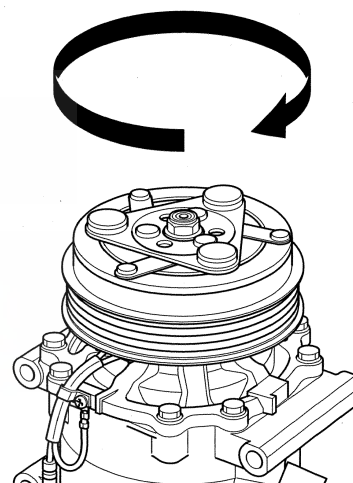


5. If the resistance is not as specified, replace the evaporator temperature sensor (see page 21-67).

A/C Compressor Clutch Check

1. Check the armature plate for discoloration, peeling, or other damage. If there is damage, replace the clutch set (see page 21-61).
2. Check the rotor pulley bearing play and drag by rotating the rotor pulley by hand. Also check for grease leakage from the bearing. Replace the clutch set with a new one if it is noisy, or has excessive play/drag, or has bearing grease contamination on the clutch faces (see page 21-61).

NOTE: The rotor pulley and the armature plate are mated at the factory by a burnishing operation. Always replace the pulley and the plate as a set. Replacing only one part of the clutch set will cause clutch slippage.



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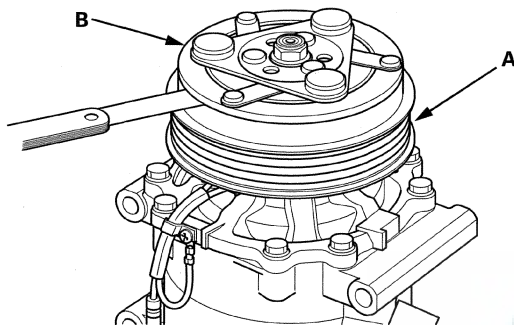
Heating/Air Conditioning

A/C Compressor Clutch Check (cont'd)

3. Measure the clearance between the rotor pulley (A) and the armature plate (B) all the way around. If the clearance is not within specified limits, remove the armature plate (see page 21-61) and add or remove shims as needed to increase or decrease clearance.

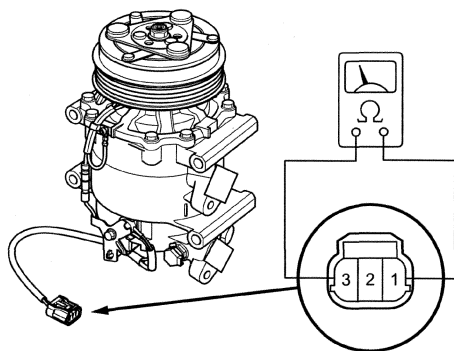
Clearance: 0.35—0.65 mm (0.014—0.025 in)

NOTE: The shims are available in four thicknesses: 0.1 mm, 0.2 mm, 0.4 mm, and 0.5 mm.



4. Check for continuity between A/C compressor clutch connector terminals No. 1 and No. 3. If there is no continuity, replace the thermal protector (see page 21-62).

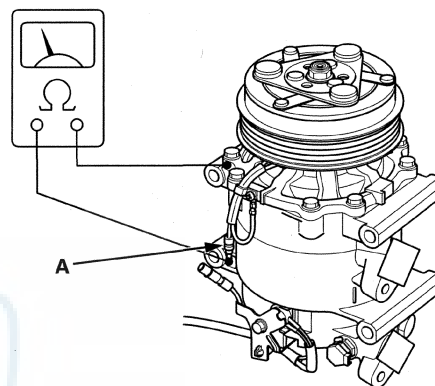
NOTE: The thermal protector will have no continuity above about 252 to 262 °F (122 to 128 °C). When the temperature drops below about 241 to 219 °F (116 to 104 °C), the thermal protector will have continuity.



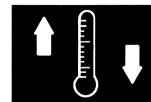
5. Disconnect the field coil connector (A). Measure the resistance of the field coil. If the resistance is not within specifications, replace the field coil (see page 21-61).

Field Coil Resistance: 3.15—3.45 Ω 68°F (20°C)
(‘09-10 models)

Field Coil Resistance: 3.35—3.65 Ω 68°F (20°C)
(‘11-12 model)



6. Remove the armature plate (see page 21-61), and inspect the armature plate and pulley friction surfaces for wear. If there is excessive wear, roughness, or scoring, replace the clutch set.
7. Inspect the friction surfaces and the A/C compressor shaft hub for excess oil. If excess oil is present, and it is not from the engine or power steering system, then the A/C compressor shaft seal is leaking. Replace the A/C compressor (see page 21-60).



Refrigerant Leak Check

Special Tools Required

- Leak Detector YGK-H-10PM*
- Leak Detector HLD-100*
- Leak Detector TIFZX-1*
- OPTIMAX Jr. A/C Leak Detection Kit TRP124893*

*These tools are available through the Honda Tool and Equipment Program; call 888-424-6857

⚠ CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.
- Do not operate the leak detector near flammable vapors. Its sensor operates at high temperatures, and could ignite the vapors, resulting in personal injury and/or damage to the equipment.

NOTE:

- If an accidental system discharge occurs, ventilate the work area before resuming service.
- Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.
- Check the system for leaks using an R-134a refrigerant leak detector with an accuracy of 14 g (0.5 oz) per year or better.

Leak Detector Usage Tips (Refer to the Operator's Manual for complete operating instructions)

- Position the vehicle in a wind-free work area. This will aid in detecting small leaks.
- When using the leak detector for the first time, allow it to warm up for 2 minutes with the probe in a clean atmosphere. This lets the temperature sensor in the detector stabilize.
- The calibration check should be done in the "Search 2" mode. Once that is done, the other check modes do not need calibrating.
- When leak checking through the HVAC module drain hose, avoid drawing water into the probe. Water can damage the internal pump and sensor.
- Avoid creasing the flexible probe extension. Creases can restrict air flow and give false readings.
- Because the detector recalibrates itself for ambient gases, it may be necessary to move the detector away from the leak to clear the sensor. Once the sensor has cleared, recheck the suspected leak.
- When removing the clear probe tip, be careful not to lose the flow ball.
- R-134a is heavier than air; always check below and to the sides of all potential leak sources.
- Halogen leak detectors are sensitive to chemicals: windshield washing solutions, solvents/cleaners, and some vehicle adhesives. Keep these chemicals out of the area when doing leak detection.

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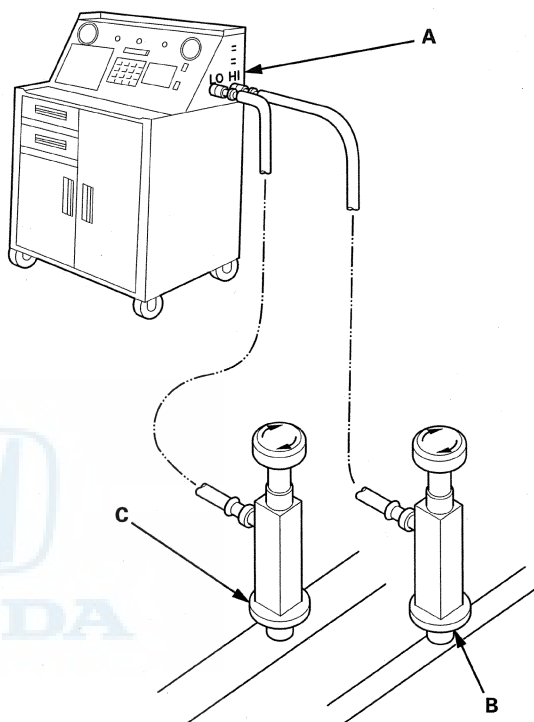
Heating/Air Conditioning

Refrigerant Leak Check (cont'd)

Fluorescent Dye Usage Tips

- Use only Tracer-Stick single dose fluorescent dye capsules from Tracerline®. Other dyes contain solvents that may contaminate the refrigerant oil, leading to component failure.
- Adding excessive amounts of dye can damage the A/C compressor.
- PAG oil is water-soluble, so condensation on the evaporator core or the refrigerant lines may wash the PAG oil and fluorescent dye away from the actual leak. Condensation may also carry dye through the HVAC module drain.
- After checking and repairing leaks, thoroughly clean any residual dye from the areas where leaks were found. Use GLO-AWAY dye cleaner, from Tracerline®, and hot water to remove the dye (follow the instructions on the bottle). Residual dye stains can cause misdiagnosis of any future A/C system leaks.
- If any refrigerant dye contacts an exterior paint surface, remove it by doing this:
 - Carefully wash the affected surfaces to remove any dirt, and to prevent paint scratching.
 - Mix water and isopropyl alcohol in a 50/50 mixture. Soak a soft 100 % cotton towel with the water/alcohol mixture, and place the cloth on the affected areas to remove the dye.
 - After removing the dye with the water/alcohol-soaked cloth, carefully wash the affected areas, and check that there is no remaining dye.

1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.

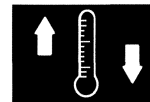


2. Recover refrigerant from the A/C system (see page 21-69), and evacuate the system (see page 21-70). If the system achieves a vacuum of approximately 93.3 kPa (700 mmHg, 27.55 inHg) in 15 minutes, and holds the vacuum for 15 minutes, then the system does not have a leak at this time. If the system cannot achieve or hold a vacuum, continue the refrigerant leak check.
3. Open the high pressure valve to charge the system to the specified capacity, then shut off the valve, and disconnect the charging station fittings.

Select the appropriate units of measure for your refrigerant charging station.

Refrigerant Capacity:

370 to 420g
13.1 to 14.8 oz
0.37 to 0.42 kg
0.82 to 0.93 lbs



4. With the engine OFF, use a halogen leak detector first to detect the leak source. Follow a continuous path in order to ensure that you will not miss any possible leaks. Test the following areas of the system for leaks:

Possible Leak Area	Diagnostic Procedure with the Leak Detector	Notes
Service ports	<ul style="list-style-type: none">• Check the service ports with the detector.• If the detector “sniffs” a leak, use fluorescent dye to confirm it.	When capping the service ports, ensure that the seals on the port caps are in place, and that the caps are tight. The caps are used as the final seals in the system.
A/C condenser	If the detector “sniffs” a leak, use fluorescent dye to confirm it.	<ul style="list-style-type: none">• Check for joints or connections coated with oily dust.• Check for damaged and corroded areas.• Check all fittings, couplings, brazed/welded areas and areas around attachment points.• Move the probe slowly (1 inch/second or less), and keep it within 1/4 inch of the component being checked. This maximizes the chance of detecting a leak.• If you detect a leak, blow compressed air over the area, then recheck for leaks. For large leaks, cleaning the area with compressed air may help you pinpoint the leak source.
Evaporator	<ul style="list-style-type: none">• Check at the evaporator drain hose• Check at the passenger's side vent and turn the blower on low speed	
A/C lines (low pressure side)	<ul style="list-style-type: none">• Wiggle the rubber hoses when checking crimped metal ends.• If the detector “sniffs” a leak, use fluorescent dye to confirm it.	<ul style="list-style-type: none">• Check all fittings, couplings, pressure switches, brazed/welded areas, and areas around attachment points on A/C lines and components.• Check for damaged and corroded areas.• Move the probe slowly (1 inch/second or less), and keep it within 1/4 inch of the component being checked. This maximizes the chance of detecting a leak.

5. Close the quick coupler valves, then disconnect the quick couplers from the vehicle service ports.
6. Attach the universal connect set, from the Optimax Jr. Leak Detection Kit, to the service valve fitting. Close the control valve (the black knob on the connect set).
7. Attach the charging station low pressure hose quick coupler to the service valve fitting, and open the quick coupler valve. Evacuate the connect set using the charging station vacuum pump, then close the quick coupler valve.
8. Detach the universal connect set, and install a Tracer-Stick® dye capsule between the connect set and the service valve fitting (see the manufacturer's instructions for more detail).
9. Attach the quick coupler on the universal connect set to the low pressure service port on the vehicle. Open the charging station low pressure hose quick coupler valve, but do not open the control valve.
10. Start the engine, and set the A/C system to maximum cooling. Open the control valve to let refrigerant and the dye enter the A/C system through the low pressure service port. Close the control valve when the Tracer-Stick® dye capsule is empty.

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Heating/Air Conditioning

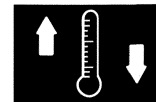
Refrigerant Leak Check (cont'd)

11. Run the engine and A/C system for 15 minutes to thoroughly circulate the dye. Then shut the engine off, and inspect the following areas of the system for leaks.

NOTE:

- Check for leaks in a dark work area, and use the UV light and the special glasses from the leak check kit. Other UV lights may not work well with the Tracer-Stick® dye.
- Small leaks may take up to 1 week of vehicle operation (with normal A/C use) to become visible.

Possible Leak Area	Diagnostic Procedure with Fluorescent Dye
Service ports	If a leak is found, replace the cap/o-ring seal or A/C line as needed.
A/C lines	<ul style="list-style-type: none">• Use a permanent marker pen to circle the leak area.• If a leak is found, remove and replace the A/C line (see page 21-65).
A/C condenser	<ul style="list-style-type: none">• If a leak is found, remove the A/C condenser (see page 21-58).• Determine whether leak is in the condenser or the receiver/dryer.• Use a permanent marker pen to circle the leak area.• Replace either the receiver/dryer (see page 21-59), or the A/C condenser (see page 21-58), depending upon which is leaking.
A/C compressor	<ul style="list-style-type: none">• Check for leaks at all of the A/C compressor joints, the clutch center, the A/C compressor front housing bolts, and the scroll bolts on the back of the A/C compressor.• If a leak is found, use a permanent marker pen to circle the leak area.• If the A/C compressor relief valve appears to be leaking, determine whether the leak is coming from the relief valve, or the joint between the A/C compressor casing and the valve.<ul style="list-style-type: none">– If the leak is from the relief valve, diagnose and repair the cause of excessive A/C system pressure, then replace the compressor relief valve (see page 21-63).– If the leak is from the casing/valve joint, replace the compressor relief valve (see page 21-63).• If the leak is coming from the suction hose and/or discharge hose fittings on the A/C compressor, clean the A/C fittings, and replace the suction/discharge fitting O-rings.• For all other A/C compressor leaks, remove and replace the A/C compressor (see page 21-60).
Evaporator	<ul style="list-style-type: none">• Start checking for evaporator leaks by illuminating the evaporator drain tube area.• If a leak is found, remove the evaporator core (see page 21-67).• Determine whether leak is from the evaporator or the expansion valve.• Use a permanent marker pen to circle the leak area.• Replace the expansion valve (see page 21-66), or the evaporator core (see page 21-67), depending upon which is leaking.



A/C System Noise Check

⚠ CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

The A/C system noise check will help you determine the source of abnormal A/C system noise.

NOTE:

- If an accidental system discharge occurs, ventilate the work area before resuming service.
 - Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.
 - Identify the conditions when the noise occurs. The weather, the vehicle speed, the vehicle being in gear or in neutral, the engine temperature, or other conditions may be factors in determining the noise source.
 - Do the A/C system inspection (see page 21-23), and correct any problems found prior to diagnosing abnormal noises.
 - Abnormal A/C noises can be misleading. For example, a sound similar to a failed bearing may be caused by loose fasteners, loose mounting brackets, or a faulty A/C compressor clutch assembly.
1. Inspect the air inlet grille in the cowl cover for debris. If debris is present, remove it.
 2. Sit inside the vehicle, close the doors and windows, and turn the ignition switch to ON (II), but do not start the engine. Cycle the HVAC system through all blower speeds and all air distribution modes to determine where and when the noise occurs.

3. Operate the blower at each speed with the engine and A/C off, and check for unusual noises and excessive vibration. If noise and/or vibration are present, do the following checks:

- 1. If the noise or vibration occurs only in a specific mode or setting, then check these items:
 - Operation of the mode control cable, door, and linkage
 - Operation of the air mix control cable, door, and linkage
 - Operation and adjustment of the recirculation control cable, door, and linkage
- 2. If there is a squeaking or chirping noise, but no unusual vibration, replace the blower motor (see page 21-16).
- 3. Remove the blower unit (see page 21-15), and check for foreign material (leaves or twigs, for example) on the blower motor and the fan. If foreign material is present, remove it, and recheck for noise. If you do not find any foreign material, remove the blower motor (see page 21-16), and check these items:
 - Check if the fan blades are cracked or broken
 - Make sure the fan retainer is tight
 - Inspect the fan alignment on the blower motor shaft

Replace the blower motor if any problems are present.

4. Set up the vehicle for the running A/C checks:
 - Select a quiet area for testing
 - Apply the parking brake
 - Shift the vehicle to P or N (A/T), or to Neutral (M/T)
 - Start the engine
 - Set the temperature control dial to Max Cool
 - Set the mode control switch to Vent
 - Set the fan control dial to minimum (but not OFF)
 - Turn the A/C switch ON

Switch the A/C compressor on and off several times to clearly identify the sound during A/C compressor operation. Listen to the noise while the A/C compressor clutch is engaged and disengaged. Probe the A/C system with a stethoscope to pinpoint the noise.

NOTE: If the noise does not change when the A/C compressor clutch engages or disengages, the noise may be caused by an engine-related component. Probe the engine area with a stethoscope to pinpoint the noise.

(cont'd)

Heating/Air Conditioning

A/C System Noise Check (cont'd)

5. Turn the ignition switch to LOCK (0), and check the drive belt for excessive wear, oil contamination, improper routing (see page 4-29), or a faulty belt tensioner (see page 4-30). Correct any problems found. Start the engine, run the A/C system, and check if the noise is coming from the drive belt, the belt tensioner or any of the pulleys. Repair or replace any faulty components.
6. Listen for noises coming from the A/C lines, the A/C hoses, the condenser, the evaporator, the receiver/dryer, or the expansion valve, and check these items:
 - Noises caused by A/C components touching other components or the body. Reroute or insulate the A/C component(s) as needed, and recheck for noise.
 - Loose, damaged, or excessively worn A/C components or mounting hardware. Repair or replace the faulty component(s) of hardware, and recheck for noise.
 - A moaning noise from the A/C suction line. If there is a moaning noise, check the system refrigerant charge (see page 21-71). If the refrigerant charge is OK, replace the receiver/dryer (see page 21-59).
7. Check the operation of the A/C compressor clutch:
 - Make sure the A/C compressor clutch engages without slipping. If the clutch does not engage, troubleshoot the A/C compressor clutch circuit (see page 21-36). If the A/C compressor clutch slips, replace the compressor clutch assembly (see page 21-61).
 - Make sure the A/C compressor clutch disengages. If the clutch does not disengage, do the A/C compressor clutch circuit troubleshooting (see page 21-36). If the clutch is OK, do the A/C compressor clutch check (see page 21-43), and see if the clutch is mechanically jammed. If there are no electrical or mechanical problems with the A/C compressor clutch, replace the A/C compressor (see page 21-60).
 - Make sure the A/C compressor clutch cycles normally. If the A/C compressor clutch is cycling rapidly, the A/C system is probably low on refrigerant due to a leak. Do the refrigerant leak check (see page 21-45). If the refrigerant charge is OK, and there are no leaks, troubleshoot the A/C compressor clutch circuit (see page 21-36).
8. Listen with a stethoscope for noises coming from the A/C compressor, and check these items:
 - The noise changes when the A/C compressor clutch disengages. If the noise does not change when the A/C compressor disengages, the noise may be caused by an engine-related component. Probe the engine area with a stethoscope to pinpoint the noise.
 - The A/C system operating pressures are normal. If the system pressures are abnormal, troubleshoot the problem using the pressure test table in the A/C system test (see page 21-51). Correct the pressure-related problem(s), and recheck for noise.
 - The A/C compressor hose connections, mounting brackets, and fasteners are in good condition. If any of these components are loose, damaged, or excessively worn, repair or replace the faulty component(s), and recheck for noise. If these components are in good condition, and the noise is still present, replace the A/C compressor (see page 21-60).



A/C System Test

Special Tools Required

- Throttle Pedal Depressor Tool B240B, commercially available
- Big Digit Hygro-Thermometer PYR445703, commercially available

Performance Test

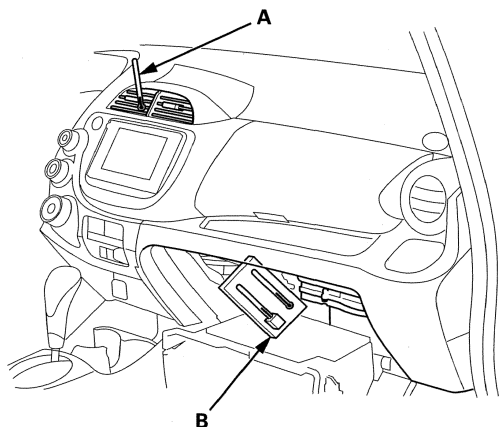
⚠ CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

The performance test will help determine if the A/C system is operating within specifications.

NOTE:

- If accidental system discharge occurs, ventilate the work area before resuming service.
 - Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.
1. Do the A/C system inspection (see page 21-23), and correct any problems found.
 2. Connect an R-134a refrigerant recovery/recycling/charging station to the high-pressure service port and the low-pressure service port, following the equipment manufacturer's instructions.
 3. Determine the relative humidity and air temperature.
 4. Open the glove box. Release the glove box stop on each side, then let the glove box hang down (see page 20-101).
 5. Insert a thermometer (A) in the center vent.



6. Place an thermometer (B) near the blower unit's recirculation inlet duct.

7. Test conditions:

- Move the vehicle out of direct sunlight and let it cool down to the surrounding (ambient) temperature. If necessary, wash the vehicle to cool it down more quickly.
- The blower intake temperature must be at least 68 ° F (20 ° C).
- Open the hood.
- Open the front doors.
- Start the engine. Set the temperature control dial to Max Cool, the mode control switch to Vent, and the recirculation control knob to Recirculate.
- Turn the A/C switch ON and the fan switch to Max.
- Run the engine at 1,500 rpm.
- No driver or passengers in the vehicle.

8. Inspect the A/C components for the following conditions:

- A/C compressor clutch not engaged
- Abnormal frost areas
- Unusual noises

If you observe any of these conditions, refer to the symptom troubleshooting index.

9. After running the air conditioning for 10 minutes under the above test conditions, read the delivery temperature from the thermometer in the center vent, the intake temperature near the blower unit, and the discharge (high) and suction (low) system pressures on the A/C gauges.

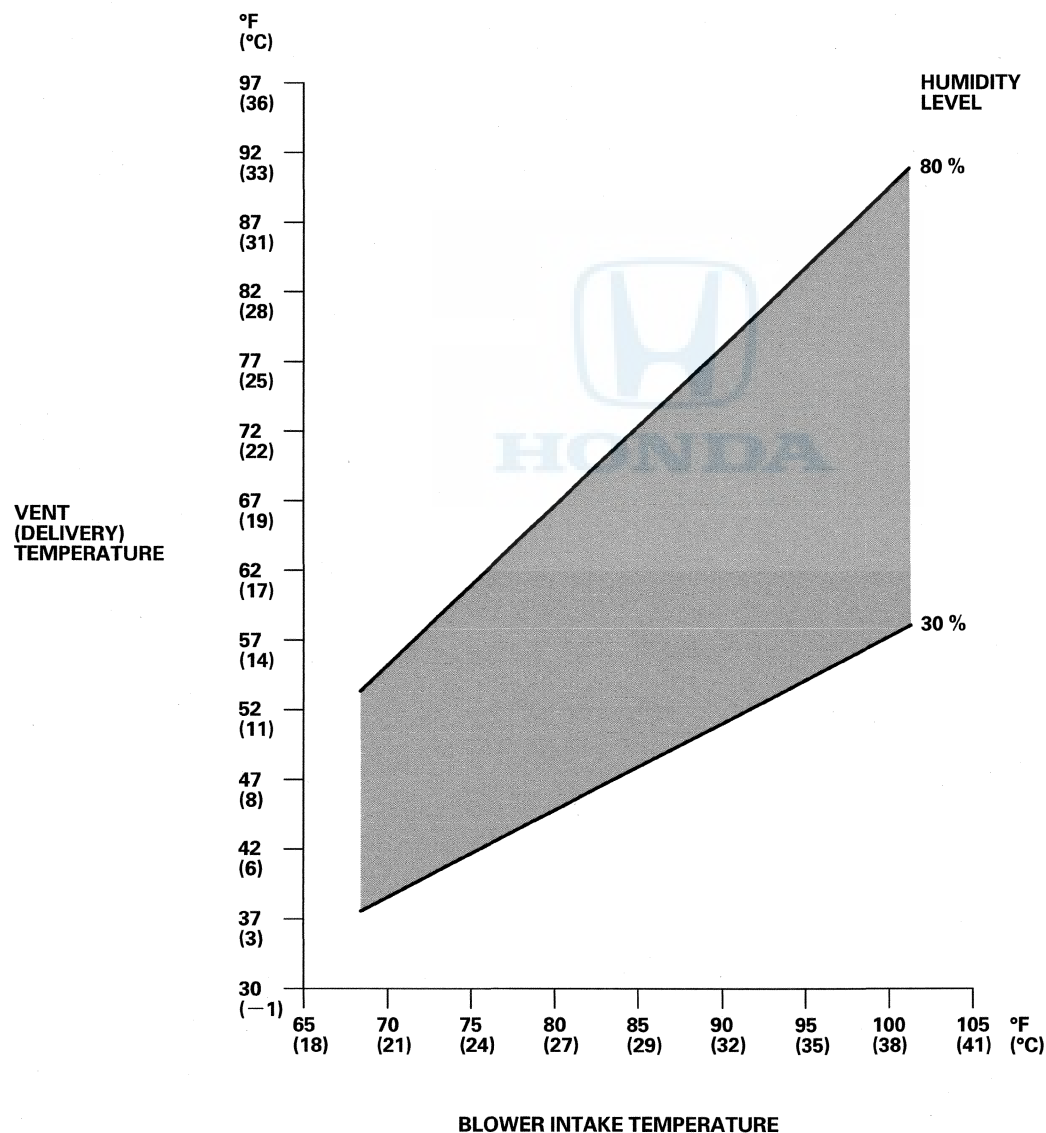
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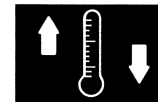
Heating/Air Conditioning

A/C System Test (cont'd)

10. To complete the vent (delivery)/blower intake temperature chart:
- Mark the vent (delivery) temperature on the vertical line.
 - Mark the blower intake temperature on the bottom line.
 - Draw a vertical line from the blower intake temperature mark.
 - Draw a horizontal line from the vent (delivery) temperature mark until it intersects the vertical line.
- NOTE: The vent temperature and the blower intake temperature should intersect in the shaded area. Any measurements outside the line may indicate the need for further inspection.

Blower Intake Temperature vs. Vent (Delivery) Temperature



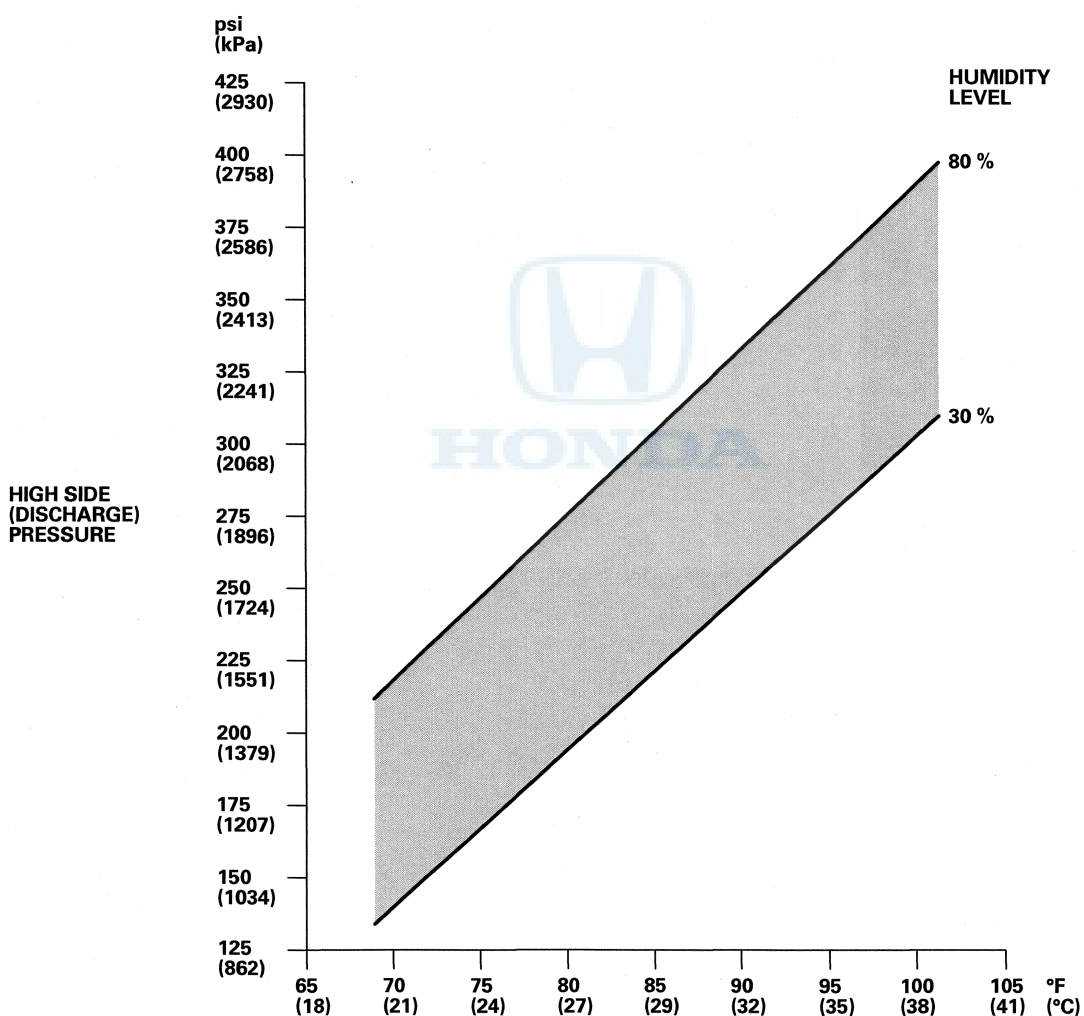


11. To complete the high side (discharge) pressure/blower intake temperature chart:

- Mark the high side (discharge) pressure temperature on the vertical line.
- Mark the blower intake temperature on the bottom line.
- Draw a vertical line from the blower intake temperature mark.
- Draw a horizontal line from the high side (discharge) pressure mark until it intersects the vertical line.

NOTE: The high side pressure and the blower intake temperature should intersect in the shaded area. Any measurements outside the line may indicate the need for further inspection.

Blower Intake Temperature vs. High Side (Discharge) Pressure



(cont'd)

Heating/Air Conditioning

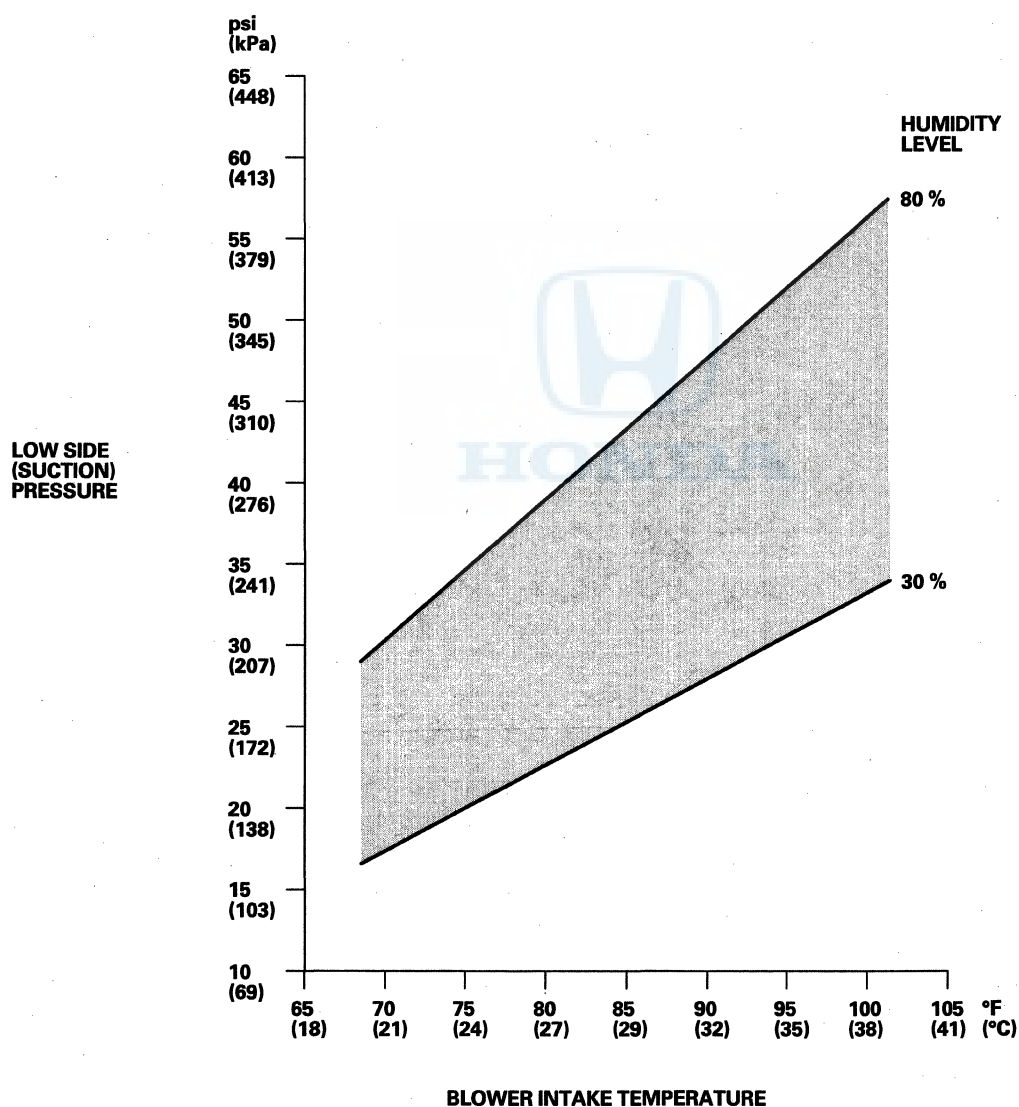
A/C System Test (cont'd)

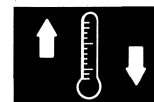
12. To complete the low side (suction) pressure/blower intake temperature chart:

- Mark the low side (suction) pressure along the vertical line.
- Mark the blower intake temperature along the bottom line.
- Draw a vertical line from the blower intake temperature mark.
- Draw a horizontal line from the low side (suction) pressure mark until it intersects the vertical line.

NOTE: The low side pressure and the blower intake temperature should intersect in the shaded area. Any measurements outside the line may indicate the need for further inspection.

Blower Intake Temperature vs. Low Side (Suction) Pressure





Pressure Test

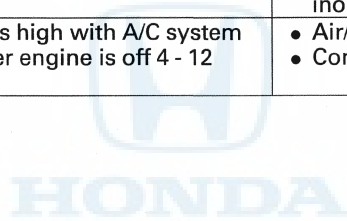
Test results	Related symptoms	Probable cause
Driver and passenger's side A/C vent temperatures may vary by approx. 52 °F (11 °C) or more.	Suction pressure may be low.	<ul style="list-style-type: none"> • Low refrigerant charge. • Expansion valve not opening sufficiently
Discharge pressure abnormally high.	<ul style="list-style-type: none"> • Discharge pressure reduced when A/C condenser cooled with water spray. • With doors open, fresh air selected and radiator and A/C condenser fan run, temperature drop across A/C condenser inlet to outlet is less than about 41 °F (5 °C). 	Significant refrigerant overcharge.
	Restricted/weak airflow through A/C condenser.	<ul style="list-style-type: none"> • Dirty A/C condenser or damaged fins. • Debris between A/C condenser and radiator. • One or more cooling fans malfunctioning.
Discharge pressure abnormally low.	<ul style="list-style-type: none"> • Suction and discharge pressures equalize rapidly after stopping A/C compressor. • Suction pressure higher than normal. 	Faulty A/C compressor discharge valve or seal.
Suction pressure abnormally low.	Weak or insufficient airflow across evaporator.	Restricted blower intake or pollen filter.
	<ul style="list-style-type: none"> • Suction pressure varies from near normal to a vacuum, as moisture freezes in expansion valve orifice. • With doors open, fresh air selected and radiator and A/C condenser fan run on high speed, temperature drop across A/C condenser inlet to outlet is less than about 41 °F (5 °C). 	<ul style="list-style-type: none"> • Moisture in the system. • Faulty expansion valve.
	<ul style="list-style-type: none"> • Reduced airflow from vents. • Vent temperature is very low. 	<ul style="list-style-type: none"> • Condensation freezing on evaporator. • Faulty evaporator temp sensor. • Faulty expansion valve or compressor relay.
Suction pressure abnormally high.	<ul style="list-style-type: none"> • Lack of slight suction pressure variation at 1,500 RPM when "Recirculated" airflow is switched to "Fresh Air" . • Discharge pressure near normal. 	Expansion valve stuck open or open too long.
Suction and discharge pressures abnormally high.	<ul style="list-style-type: none"> • Sheet of paper does not stick to front of A/C condenser surface with cooling fans on. • With doors open, fresh air selected and radiator and A/C condenser fan run, temperature drop across A/C condenser inlet to outlet is less than about 41 °F (5 °C). 	One (or both) cooling fan motor inoperative or wires reversed.
	<ul style="list-style-type: none"> • Compressor clutch remains engaged during off cycle. • Pressure relief valve may open. 	<ul style="list-style-type: none"> • Insufficient compressor clutch clearance. • Compressor relay or circuit problem. • Excessive air in system.

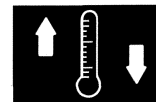
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Heating/Air Conditioning

A/C System Test (cont'd)

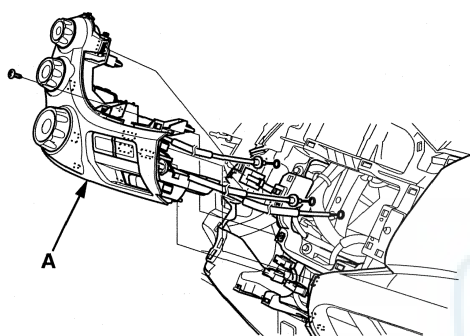
Test results	Related symptoms	Probable cause
Suction and discharge pressures abnormally low.	Suction line from expansion valve to A/C compressor is not cold.	Excessively low refrigerant charge.
	Lack of slight suction pressure variation at 1,500 RPM when "Recirculated" airflow is switched to "Fresh Air" .	Expansion valve clogged with debris/desiccant, stuck closed, or not opening sufficiently.
	More than 50 - 61 °F (10 - 16 °C) temperature drop across A/C condenser inlet to outlet pipes.	Blocked or restricted A/C condenser internal passages or lines/components restricting refrigerant flow.
	Significant temperature difference along high or low side A/C lines or components. NOTE: Some restrictions may not show up until 3,000 RPM.	Restriction in A/C suction or discharge lines or components (check temperatures to isolate).
Suction pressure high and discharge pressure low.	<ul style="list-style-type: none"> Excessive A/C compressor noise. Pressures equalize quickly and noise after A/C compressor turns off. 	A/C compressor internal damage (Check for A/C system debris contamination).
Suction and discharge pressures normal (or near normal).	Vent temperature too high.	<ul style="list-style-type: none"> Slightly low refrigerant charge. Excessive refrigerant oil in system. Air mix door sticking, misadjusted or inoperative.
	Static pressures high with A/C system equalized. (After engine is off 4 - 12 hours).	<ul style="list-style-type: none"> Air/non-condensable gasses in system. Contaminated or incorrect refrigerant.





Heater-A/C Control Panel Removal/Installation

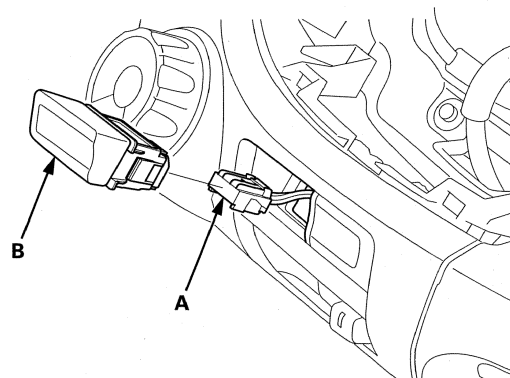
1. Remove the center panel:
 - With navigation system (see page 23-154)
 - Without navigation system (see page 23-67)
2. Remove the control cables from the blower/heater unit (see page 21-12).
3. Pull the right portion out of the instrument panel (see page 20-96).
4. Remove the screw, and pull the heater-A/C control panel (A) out to access the electrical connectors.



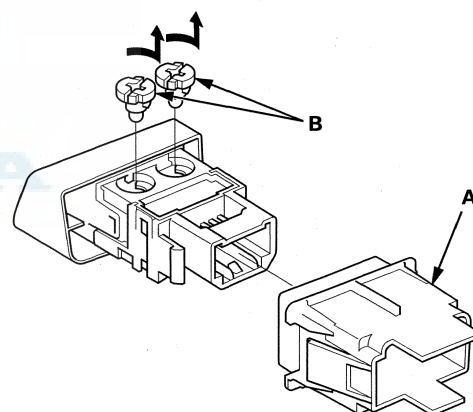
5. Disconnect the connectors, and remove the heater-A/C control panel along with the control cables.
6. Install the control panel in the reverse order of removal. After installation, operate the controls to make sure they work properly.

A/C Switch Replacement

1. Remove the heater-A/C control panel (see page 21-57).
2. Disconnect the 5P connector (A), and push the A/C switch (B) out from behind the heater control panel.



3. Remove the holder (A) and the bulbs (B).

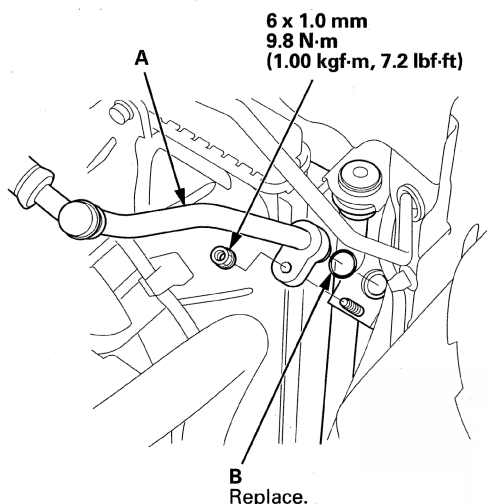


4. Install the A/C switch in the reverse order of removal.

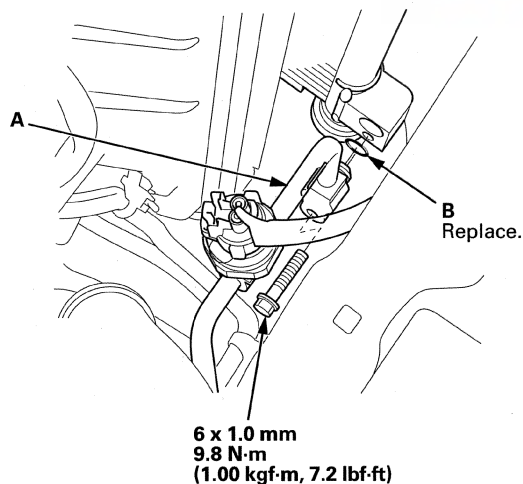
Heating/Air Conditioning

A/C Condenser Replacement

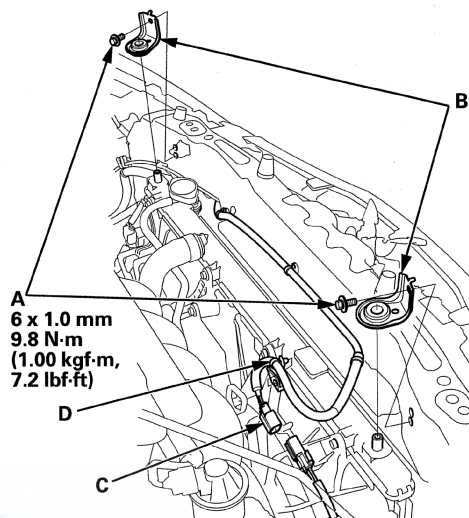
1. Recover the refrigerant with a recovery/recycling/charging station (see page 21-69).
2. Remove the nut, then disconnect the discharge hose (A) from the A/C condenser. Remove the O-ring (B), from the discharge hose.



3. Remove the bolt, then disconnect the receiver line (A) from the A/C condenser. Remove the O-ring (B), from the receiver line.



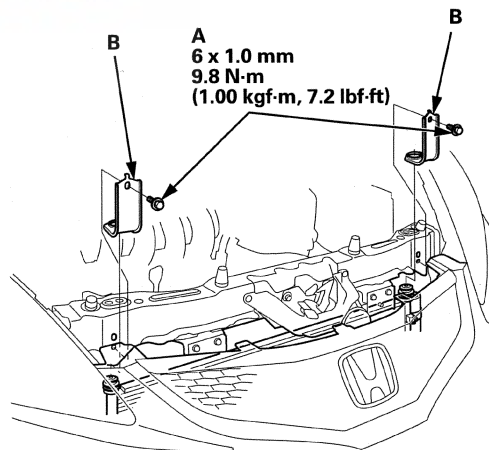
4. Remove the bolts (A) and the radiator upper mount brackets (B).



5. Disconnect the fan motor connector (C), then remove the harness clamp (D).

6. Remove the front grille cover (see page 20-166).

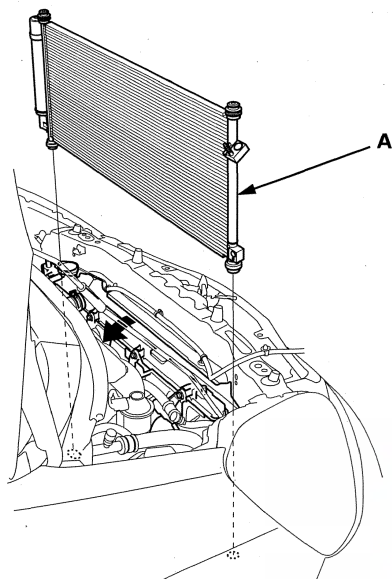
7. Remove the bolts (A) and the condenser upper mount brackets (B).





8. Remove the A/C condenser (A) by lifting it up.

NOTE: Be careful not to damage the radiator or condenser fins when removing the A/C condenser.



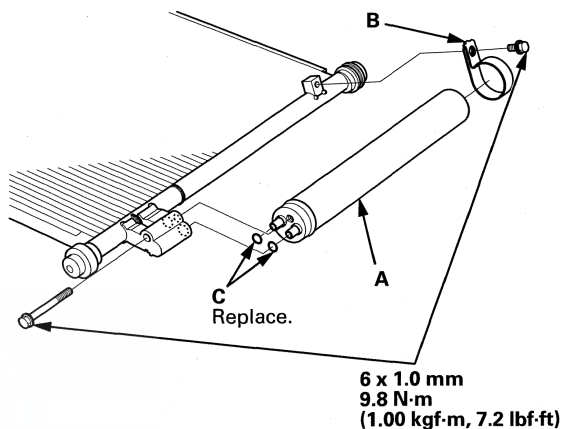
9. Install the A/C condenser in the reverse order of removal, and note these items:

- If you're installing a new A/C condenser, add refrigerant oil (SP-10) (see page 21-64).
- Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil (SP-10) contacts the paint, wash it off immediately.
- Be careful not to damage the radiator or the A/C condenser fins when installing the A/C condenser.
- Charge the system (see page 21-71).

Receiver/Dryer Desiccant Replacement

NOTE: Install the receiver/dryer as quickly as possible to prevent the system from absorbing moisture from the air.

1. Remove the A/C condenser (see page 21-58).
2. Remove the bolts from the A/C condenser, then remove the receiver/dryer (A), the bracket (B), and the O-rings (C).



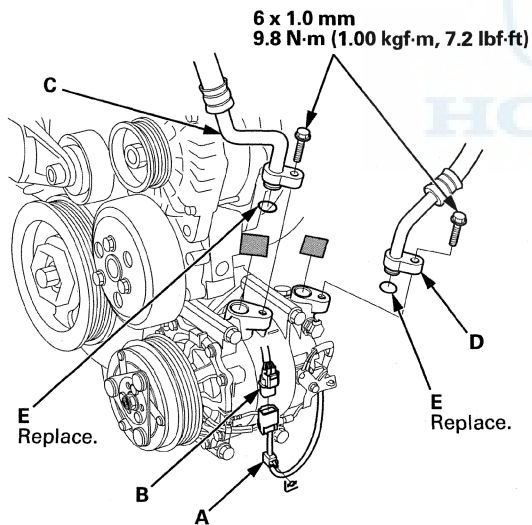
3. Install the receiver/dryer in the reverse order of removal. Replace the O-rings with new ones, and apply a thin coat of refrigerant oil (SP-10) before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.

Heating/Air Conditioning

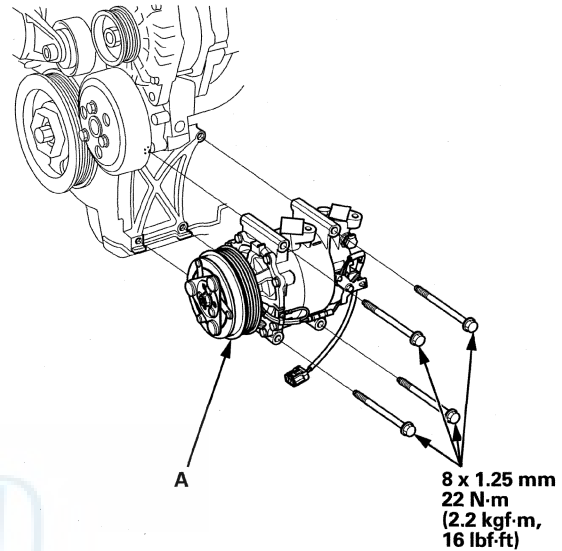
A/C Compressor Replacement

NOTE: Do not install an A/C compressor into a system unless you are completely sure that the system is free of contamination. Installing the A/C compressor into a contaminated system can result in premature A/C compressor failure.

1. If the A/C compressor is marginally operable, run the engine at idle speed, and let the air conditioning work for a few minutes, then shut the engine off.
2. Recover the refrigerant with a recovery/recycling/charging station (see page 21-69).
3. Remove the splash shield (see page 20-180).
4. Remove the drive belt (see page 4-29).
5. Remove the compressor clutch harness clump (A) from the condenser fan shroud, then disconnect the compressor clutch connector (B). Remove the bolts, then disconnect the suction line (C) and the discharge line (D) from the A/C compressor, and remove the O-rings (E). Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.

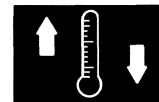


6. Remove the mounting bolts and the A/C compressor (A). Be careful not to damage the radiator fins when removing the A/C compressor.



7. Install the A/C compressor in the reverse order of removal, and note these items:

- Inspect the A/C lines for any signs of contamination.
- Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
- Use refrigerant oil (SP-10) for HFC-134a SANDEN A/C compressors only.
- To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill refrigerant oil on the vehicle; it may damage the paint; if refrigerant oil contacts the paint, wash it off immediately.
- Charge the system (see page 21-71).



A/C Compressor Clutch Overhaul

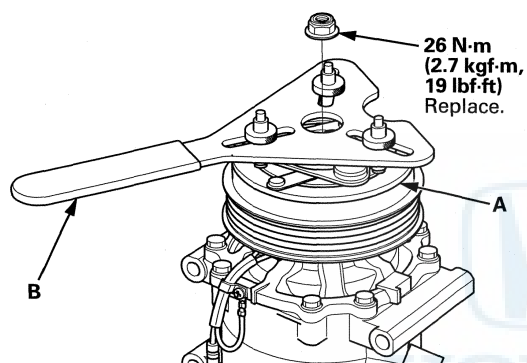
Special Tools Required

A/C Compressor Kit 07AAF-000A150

NOTE:

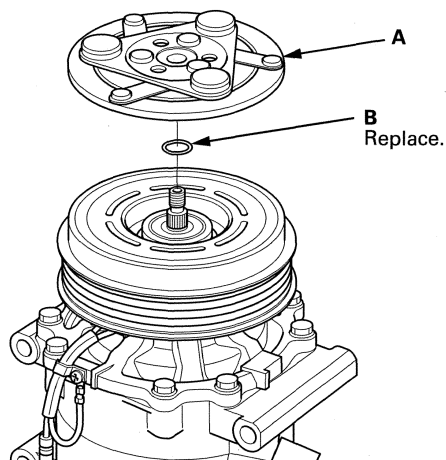
- Do not use a hammer to remove the snap rings. Using a hammer damages the A/C compressor.
- Do not hammer or pry on the pulley to remove it. If the pulley is difficult to remove, use a commercially available pulley removing tool. Make sure the jaws of the pulling tool engage the back face of the pulley, not the pulley grooves.

1. Remove the center nut while holding the armature plate (A) with the A/C clutch holder (B).

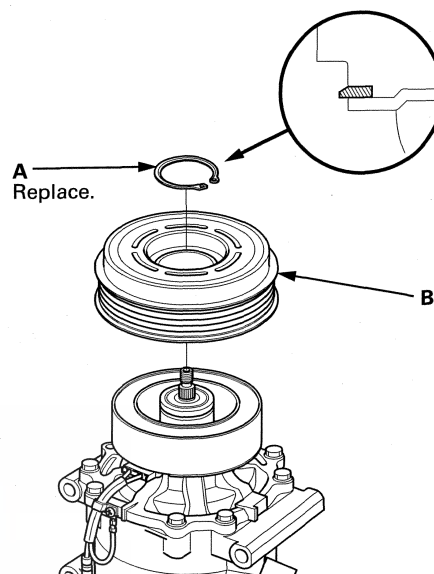


2. Remove the armature plate (A) and the shim(s) (B), taking care not to lose the shim(s). If the clutch needs adjustment, increase or decrease the number and thickness of shims as necessary, then reinstall the armature plate, and recheck its clearance (see page 21-43).

NOTE: The shims are available in four thicknesses: 0.1 mm, 0.2 mm, 0.4 mm, and 0.5 mm.



3. If you are replacing the field coil, remove the snap ring (A) with snap ring pliers, then remove the rotor pulley (B). Be careful not to damage the rotor pulley or the A/C compressor.

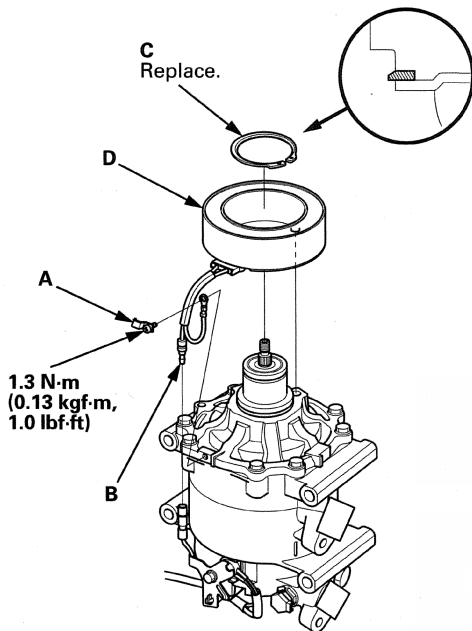


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Heating/Air Conditioning

A/C Compressor Clutch Overhaul (cont'd)

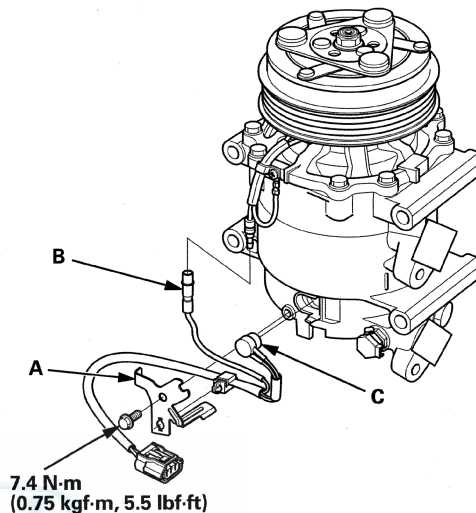
4. Remove the bolt and the holder (A), then disconnect the field coil connector (B). Remove the snap ring (C) with snap ring pliers, then remove the field coil (D). Be careful not to damage the field coil or the A/C compressor.



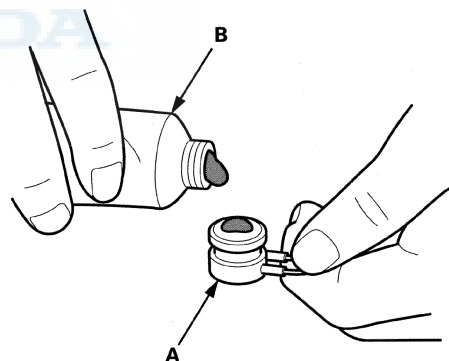
5. Reassemble the clutch in the reverse order of disassembly, and note these items:
- When replacing the field coil, check that the new coil has the correct resistance (see page 21-43).
 - Install the field coil with the wire side facing down, and align the boss on the field coil with the hole in the A/C compressor.
 - Clean the rotor pulley and the A/C compressor friction surfaces with contact cleaner or other non-petroleum solvent.
 - Install new snap rings, note the installation direction, and make sure they are fully seated in the grooves.
 - Make sure that the rotor pulley turns smoothly after it's reassembled.
 - Route and clamp the wires properly to prevent damage by the rotor pulley.
6. After reinstallation, cycle the A/C clutch approximately 20 times by running the engine at 1,500–2,000 RPM and setting the A/C switch to ON. This procedure seats the clutch friction surfaces and increases clutch torque capacity.

A/C Compressor Thermal Protector Replacement

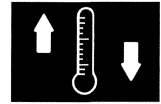
1. Remove the bolt and the holder (A). Disconnect the field coil connector (B), then remove the thermal protector (C).



2. Replace the thermal protector (A) with a new one, and apply silicone sealant (B) to the bottom of the thermal protector.



3. Install the thermal protector in the reverse order of removal.

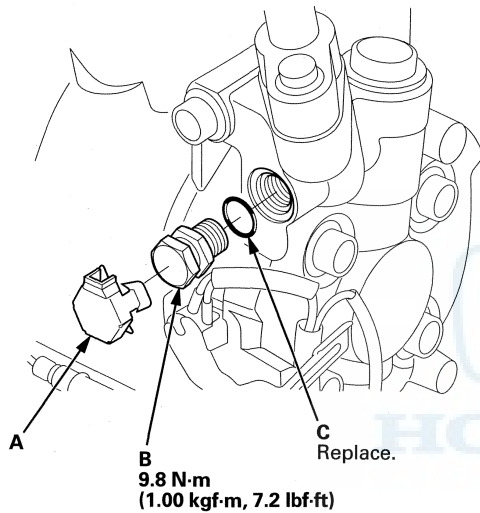


A/C Compressor Relief Valve Replacement

NOTE: If the A/C compressor relief valve has opened, diagnose and correct the cause of the excessive A/C refrigerant pressure, then replace the relief valve.

'09-10 models

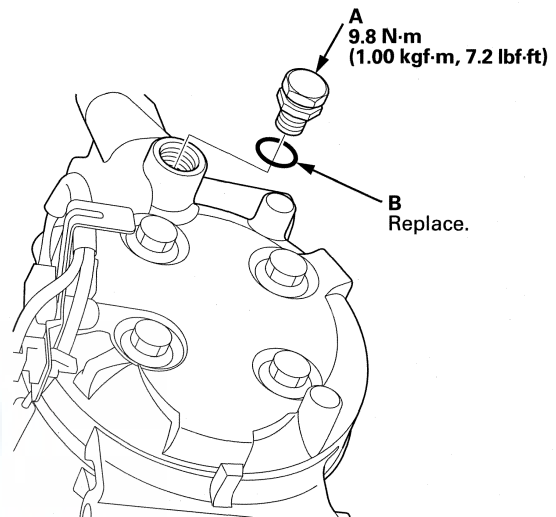
1. Recover the refrigerant with a recovery/recycling/charging station (see page 21-69).
2. Remove the relief valve cover (A), the relief valve (B), and the O-ring (C). Plug the opening to keep foreign matter from entering the system and the A/C compressor oil from running out.



3. Clean the mating surfaces.
4. Replace the O-ring with a new one at the relief valve, and apply a thin coat of refrigerant oil before installing it.
5. Remove the plug, and install and tighten the relief valve.
6. Charge the system (see page 21-71).

'11-12 model

1. Recover the refrigerant with a recovery/recycling/charging station (see page 21-69).
2. Remove the relief valve (A) and the O-ring (B). Plug the opening to keep foreign matter from entering the system and the A/C compressor oil from running out.



3. Clean the mating surfaces.
4. Replace the O-ring with a new one at the relief valve, and apply a thin coat of refrigerant oil before installing it.
5. Remove the plug, and install and tighten the relief valve.
6. Charge the system (see page 21-71).

Heating/Air Conditioning

A/C Refrigerant Oil Replacement

Special Tools Required

Oil Injector Tool Robinair ROB16256, commercially available

*This tool is available through the Honda Tool and Equipment Program; call 888-424-6857

Recommended PAG oil: SP-10

- P/N 38897-P13-A01AH: 120 mL (4 fl-oz)

It is important to have the correct amount of refrigerant oil in the A/C system to ensure proper lubrication of the A/C compressor. Too little oil damages the A/C compressor; too much oil reduces the cooling capacity of the system, and can produce high vent temperatures.

- To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint; if it gets on the paint, wash it off immediately.

Add the recommended refrigerant oil in the amount listed if you replace any of the following parts:

A/C condenser

(including

receiver/dryer) 25 mL (5/6 fl-oz)

Evaporator 35 mL (1 1/6 fl-oz)

Line or hose 10 mL (1/3 fl-oz)

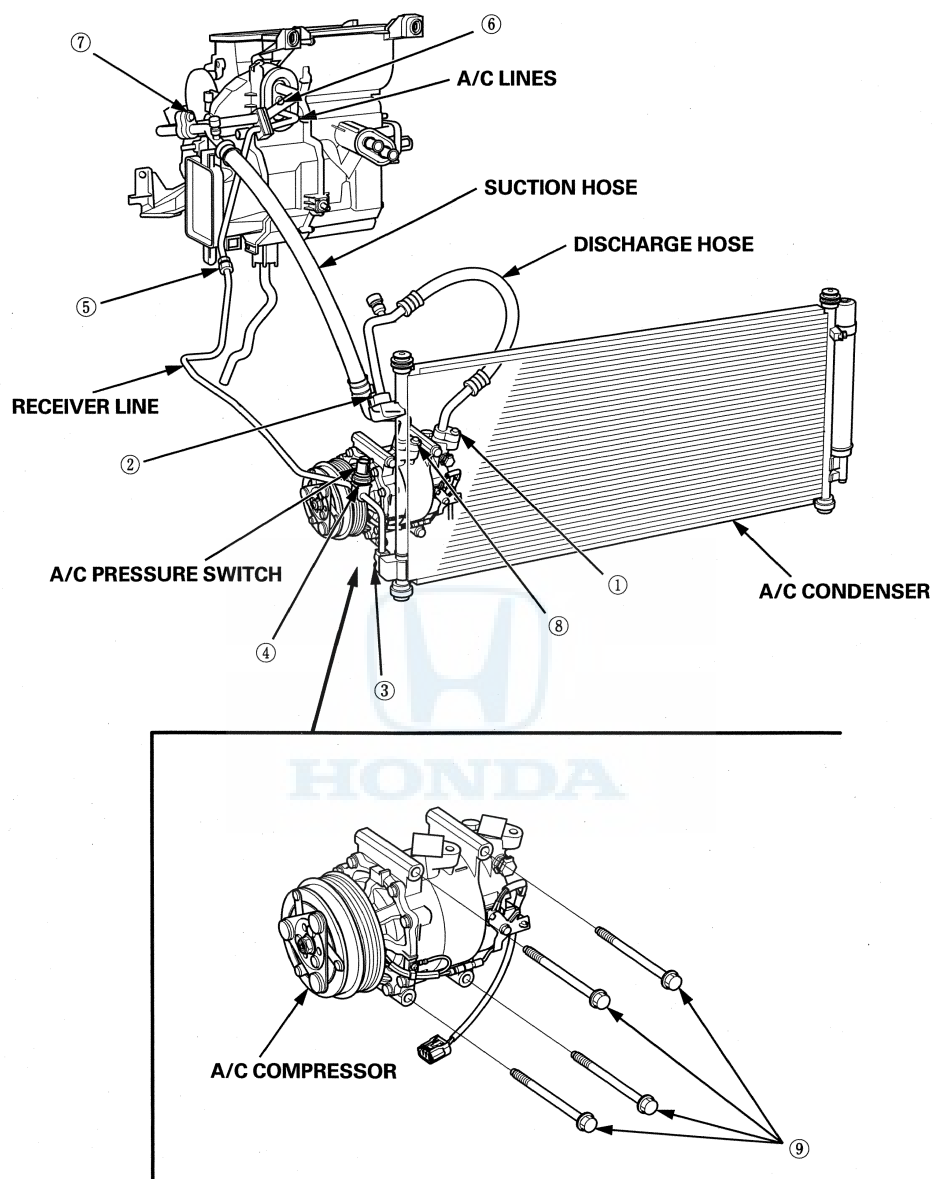
Receiver/dryer 10 mL (1/3 fl-oz)

Leakage repair 25 mL (5/6 fl-oz)

A/C compressor Oil drainage is unnecessary at the time of compressor replacement.



A/C Line Replacement

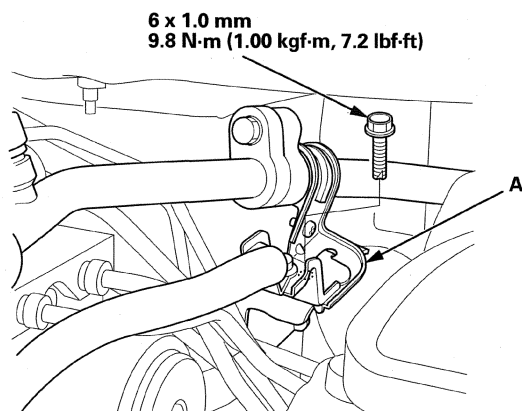


- ① Discharge hose to the A/C compressor (6 x 1.0 mm): 9.8 N·m (1.00 kgf·m, 7.2 lbf·ft)
- ② Discharge hose to the A/C condenser (6 x 1.0 mm): 9.8 N·m (1.00 kgf·m, 7.2 lbf·ft)
- ③ Receiver line to the A/C condenser (6 x 1.0 mm): 9.8 N·m (1.00 kgf·m, 7.2 lbf·ft)
- ④ A/C pressure switch to the receiver line (11 x 1.0 mm): 11 N·m (1.1 kgf·m, 8 lbf·ft)
- ⑤ Receiver line to the A/C line (16 x 1.5 mm): 14 N·m (1.4 kgf·m, 10 lbf·ft)
- ⑥ A/C lines to the evaporator (6 x 1.0 mm): 9.8 N·m (1.00 kgf·m, 7.2 lbf·ft)
- ⑦ A/C line to the suction hose (6 x 1.0 mm): 9.8 N·m (1.00 kgf·m, 7.2 lbf·ft)
- ⑧ Suction hose to the A/C compressor (6 x 1.0 mm): 9.8 N·m (1.00 kgf·m, 7.2 lbf·ft)
- ⑨ A/C compressor to the engine block (8 x 1.25 mm): 22 N·m (2.2 kgf·m, 16 lbf·ft)

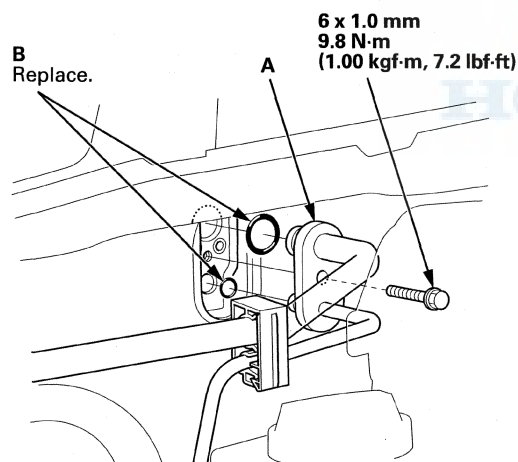
Heating/Air Conditioning

Expansion Valve Replacement

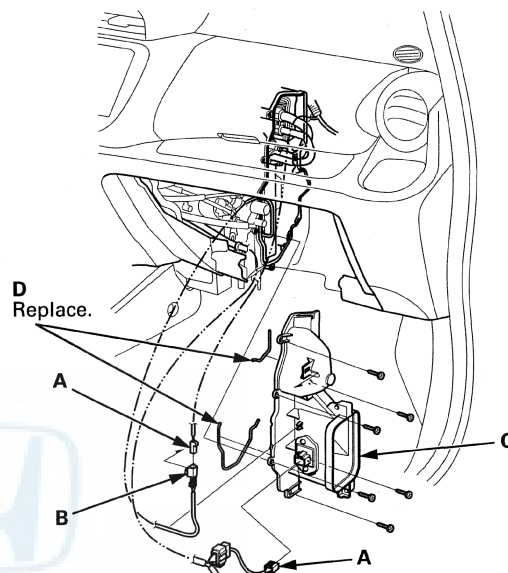
1. Recover the refrigerant with a recovery/recycling/charging station (see page 21-69).
2. Remove the bolt from the A/C line clamp (A).



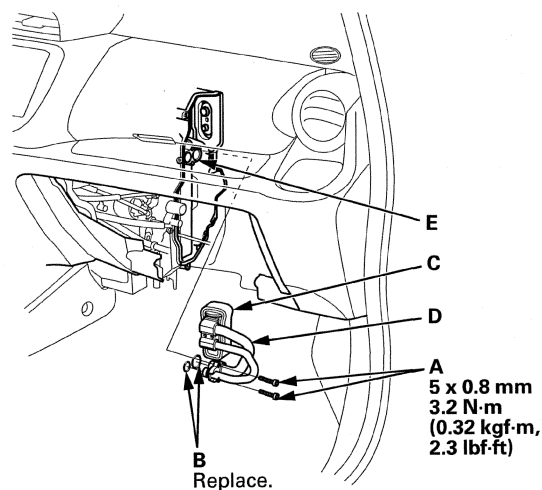
3. Remove the blower unit (see page 21-15).
4. Remove the bolt, then disconnect the A/C line (A) from the evaporator core and remove the O-rings (B).

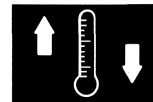


5. Disconnect the connectors (A) from the evaporator temperature sensor and the blower resistor, then remove the connector clip (B). Remove the self-tapping screws, the expansion valve cover (C), and the seals (D).



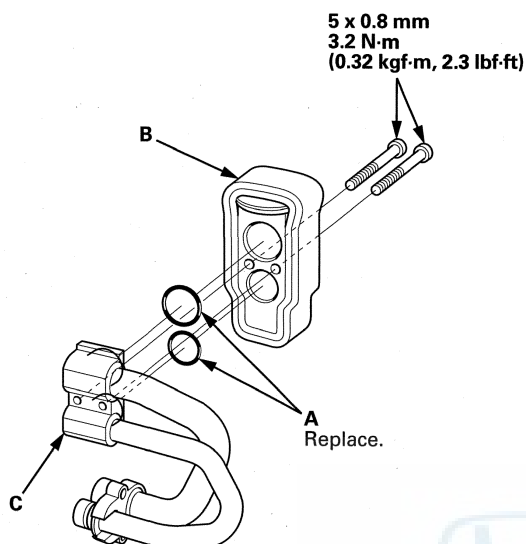
6. Remove the bolts (A), the O-rings (B), the expansion valve (C) and the inlet and outlet lines (D) from the evaporator core (E). Be careful not to bend the lines.





Evaporator Core Replacement

7. Remove the bolts, O-rings (A) and the expansion valve (B) from the inlet and outlet lines (C).

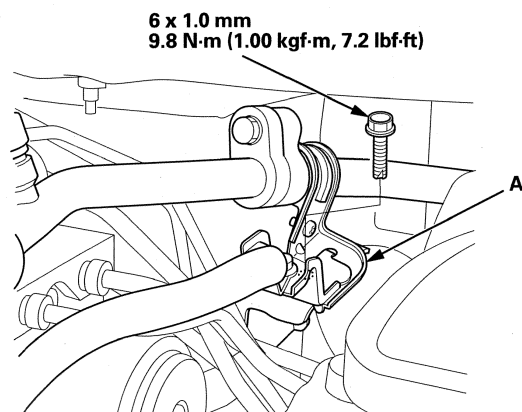


8. Install the expansion valve in the reverse order of removal, and note these items:

- Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
- Make sure that there is no air leakage.
- Charge the system (see page 21-71).

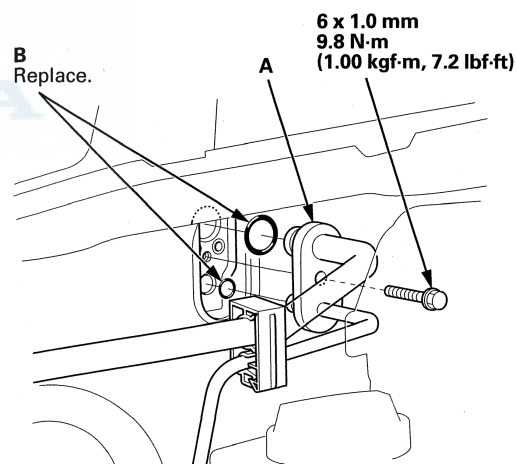
1. Recover the refrigerant with a recovery/recycling/charging station (see page 21-69).

2. Remove the bolt from the A/C line clamp (A).



3. Remove the blower unit (see page 21-15).

4. Remove the bolt, then disconnect the A/C line (A) from the evaporator core and remove the O-rings (B).

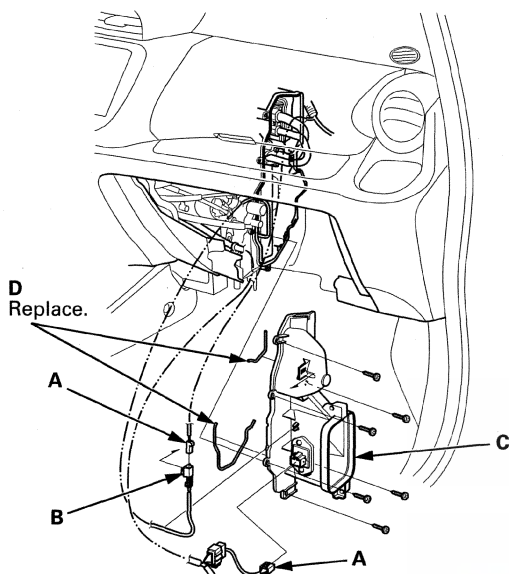


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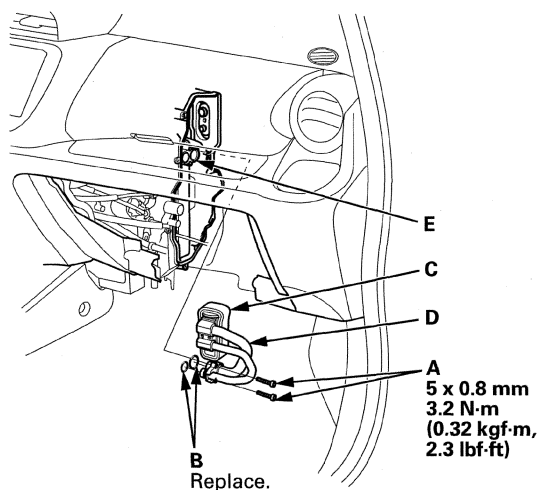
Heating/Air Conditioning

Evaporator Core Replacement (cont'd)

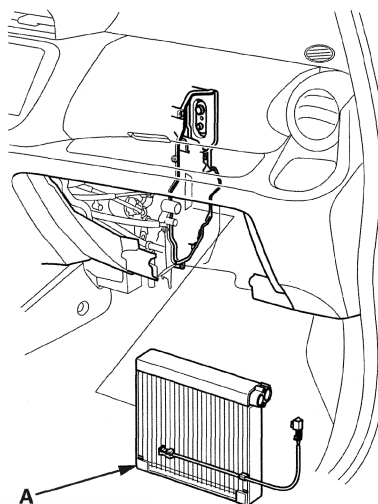
5. Disconnect the connectors (A) from the evaporator temperature sensor and the blower resistor, then remove the connector clip (B). Remove the self-tapping screws, the expansion valve cover (C), and the seals (D).



6. Remove the bolts (A), the O-rings (B), the expansion valve (C) and the inlet and outlet lines (D) from the evaporator core (E). Be careful not to bend the lines.

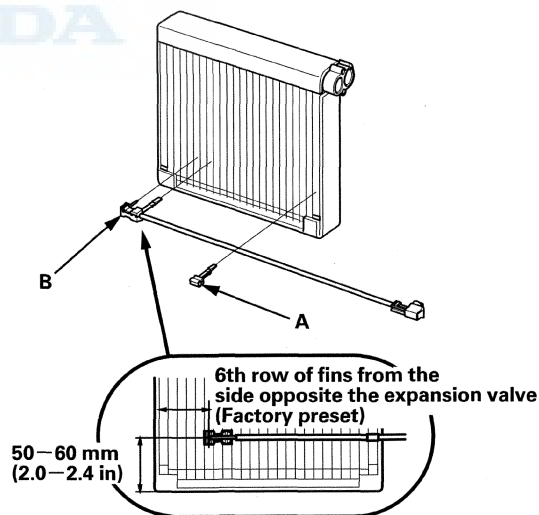


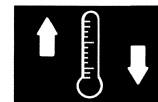
7. Carefully pull out the evaporator core (A).



8. Remove the clip (A) and the evaporator temperature sensor (B).

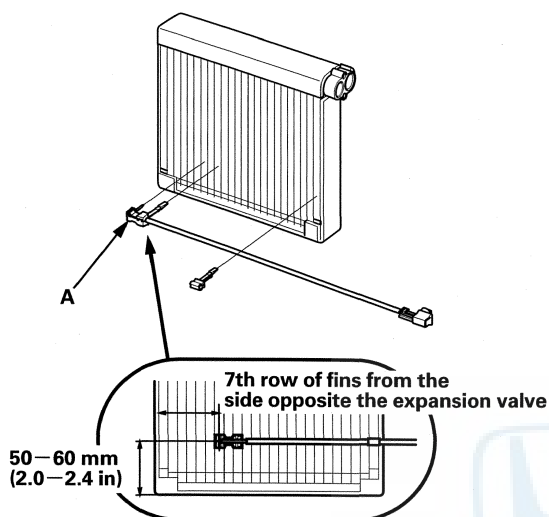
NOTE: At the factory, the evaporator temperature sensor is installed at the 6th row of fins from the side opposite of the expansion valve.





Refrigerant Recovery

9. Reinstall the evaporator temperature sensor (A). If the evaporator is new, install the sensor on the 6th row of fins, counting from the side opposite the expansion valve. If you are reinstalling the old evaporator, install the sensor on the 7th row of fins.



10. Install the evaporator core in the reverse order of removal, and note these items:

- If you're installing a new evaporator core, add refrigerant oil (SP-10) (see page 21-64).
- Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the correct O-rings for HFC-134a (R-134a) to avoid leakage.
- Immediately after using the oil, reinstall the cap on the container, and seal it to avoid moisture absorption.
- Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
- Make sure that there is no air leakage.
- Charge the system (see page 21-71).

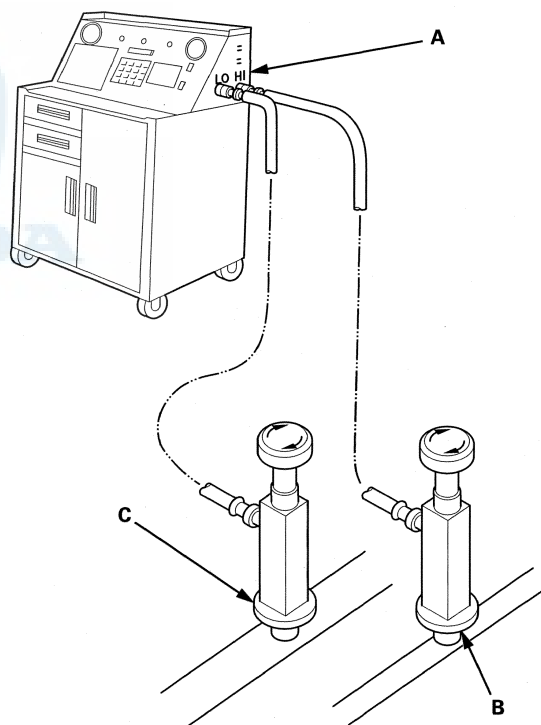
CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

NOTE:

- If accidental system discharge occurs, ventilate the work area before resuming service.
- Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.



2. Measure the amount of refrigerant oil removed from the A/C system after the recovery process is completed. Be sure to put the same amount of new refrigerant oil back into the A/C system before charging.

Heating/Air Conditioning

System Evacuation

Special Tools Required

Compact Electronic Vacuum Gauge Robinair ROB14777, commercially available

*This tool is available through the Honda Tool and Equipment Program; call 888-424-6857

CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

NOTE:

- If accidental system discharge occurs, ventilate the work area before resuming service.
- Do not allow moisture to contaminate the A/C system oil. Moisture in the oil is difficult to remove, and it can damage the A/C compressor.
- Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.
- Using a thermistor vacuum gauge may decrease the required evacuation time because you can measure actual removal level with this tool.

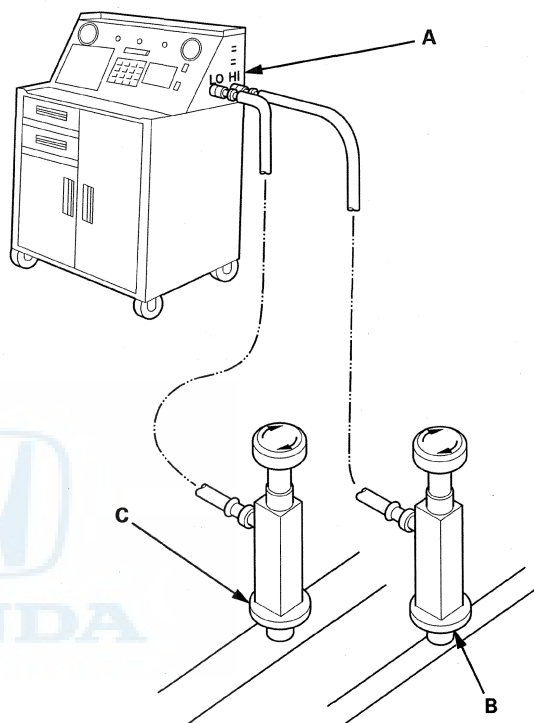
A more efficient way to measure moisture removal is with a special tool called a thermistor vacuum gauge, measuring vacuum levels in microns.

Connect the tool according to the manufacturers instructions, and allow the vacuum pump to run until the gauge reads 500 microns.

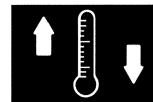
Shut off and isolate the vacuum pump, then observe the gauge reading:

- If the vacuum level remains stable for at least 3 minutes, all moisture in the system has been removed.
 - A slow increase in the micron reading means there is still moisture boiling out of the system. Restart the vacuum pump and continue evacuating.
 - A quick increase of micron levels indicates a leak is present in the system or your service equipment. Determine the cause and correct the leak before continuing.
1. When an A/C system has been opened to the atmosphere, such as during installation or repair, it must be evacuated using an R-134a refrigerant recovery/recycling/charging station. If the system has been open for several days, the receiver/dryer should be replaced, refrigerant oil should be drained and replaced with new oil, and the system should be evacuated for several hours.

2. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.



3. Evacuate the system. The vacuum pump should run for a minimum of 30 minutes to eliminate all moisture from the system. When the suction gauge reads -93.3 kPa (-700 mmHg , -27.55 inHg) for at least 30 minutes, close all valves, and turn off the vacuum pump.
4. If the suction gauge does not reach approximately -93.3 kPa (-700 mmHg , -27.55 inHg) in 15 minutes, there is probably a large leak in the system. Partially charge the system, and check for leaks (see page 21-45).



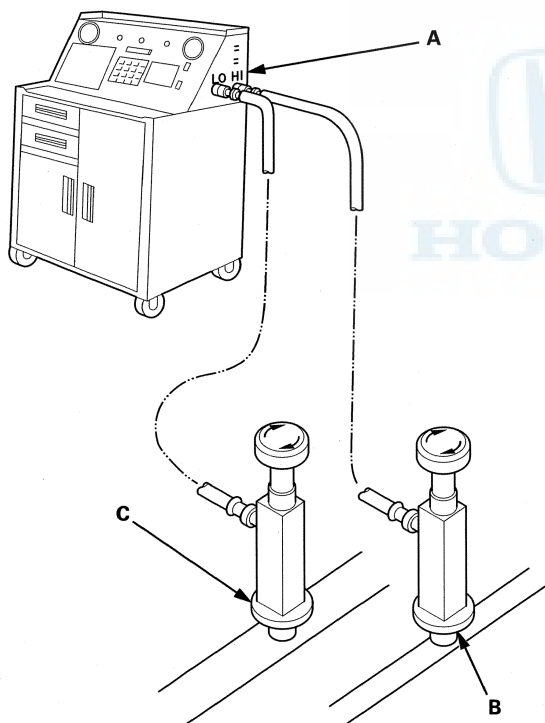
System Charging

⚠ CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe refrigerant or vapor.

NOTE:

- If accidental system discharge occurs, ventilate the work area before resuming service.
 - Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.
1. Connect an R-134a refrigerant recovery/recycling/charging station (A) to the high-pressure service port (B) and the low-pressure service port (C), as shown, following the equipment manufacturer's instructions.



2. Recover the refrigerant in the A/C system (see page 21-69).
3. Evacuate the system (see page 21-70). If the system cannot reach a vacuum of -93.3 kPa (700 mmHg, 27.55 inHg) in 15 minutes, or cannot hold a vacuum for at least 15 minutes, there is probably a large leak. Do the refrigerant leak check (see page 21-45), and repair any leaks before charging the system.
4. Add the same amount of new refrigerant oil to the system that was removed during recovery. Use only SP-10 refrigerant oil.
5. Charge the system with the specified amount of R-134a refrigerant. Do not overcharge the system; the A/C compressor will be damaged.

Select the appropriate units of measure for your refrigerant charging station.

Refrigerant Capacity:
370 to 420g
13.1 to 14.8 oz
0.37 to 0.42 kg
0.82 to 0.93 lbs
6. Check for refrigerant leaks (see page 21-45).
7. Check for system performance (see page 21-51).

SUPPLEMENTAL RESTRAINT SYSTEM (SRS) (If body electrical maintenance is required)

The Fit SRS includes a driver's airbag in the steering wheel hub, a front passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags, side airbags, side curtain airbags, and/or seat belt tensioners.
- Do not bump or impact the SRS unit, front impact sensors, or side impact sensors, especially when the ignition switch is in ON (II), or for at least 3 minutes after the ignition switch is turned to LOCK (0); otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, center console, dashboard, dashboard under cover, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.



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Body Electrical

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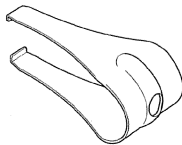
* Immobilizer-Keyless Control Unit
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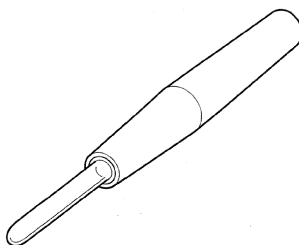
Body Electrical

Special Tools

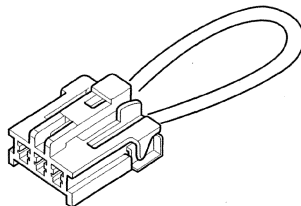
Ref.No.	Tool Number	Description	Qty
①	07AAC-000A1A0 or 07AAC-000A2A1	Relay Puller	1
②	07TAZ-001020A	Back Probe Adapter	1
③	07WAZ-001010A	MPCS (MCIS) Service Connector	1



①



②



③





General Troubleshooting Information

Tips and Precautions

Special Tools Required

Back Probe Adapter, 17 mm 07TAZ-001020A

Before Troubleshooting

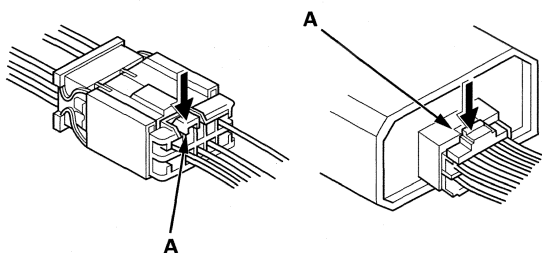
1. Check applicable fuses in the appropriate fuse/relay box.
2. Check the battery for damage, state of charge, and clean and tight connections.

NOTICE

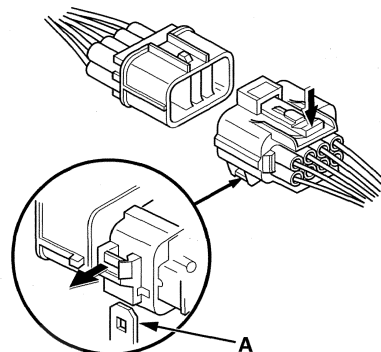
- Do not quick-charge a battery unless the battery ground cable has been disconnected, otherwise you will damage the alternator diodes.
- Do not attempt to crank the engine with the battery ground cable loosely connected or you will severely damage the wiring.

Handling Connectors

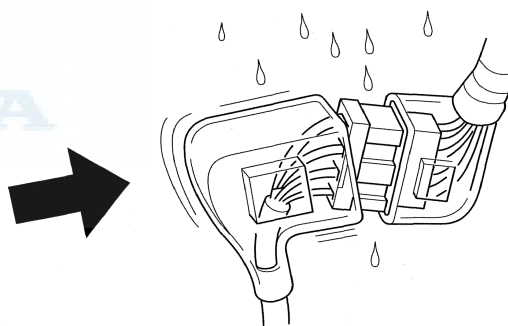
- Make sure the connectors are clean and have no loose wire terminals.
- Make sure multiple cavity connectors are packed with dielectric grease (except waterproof connectors).
- All connectors have push-down release type locks (A).



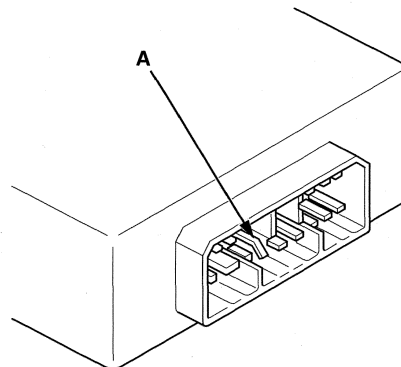
- Some connectors have a clip on their side used to attach them to a mount bracket on the body or on another component. This clip has a pull type lock.
- Some mounted connectors cannot be disconnected unless you first release the lock and remove the connector from its mount bracket (A).



- Never try to disconnect connectors by pulling on their wires; pull on the connector halves instead.
- Always reinstall plastic covers.



- Before connecting connectors, make sure the terminals (A) are in place and not bent.

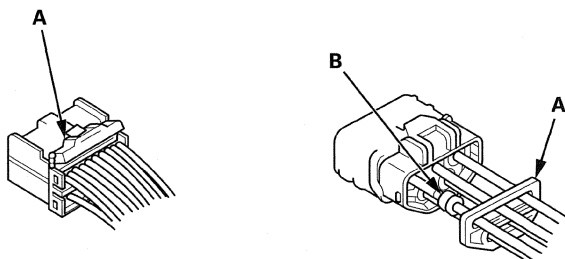


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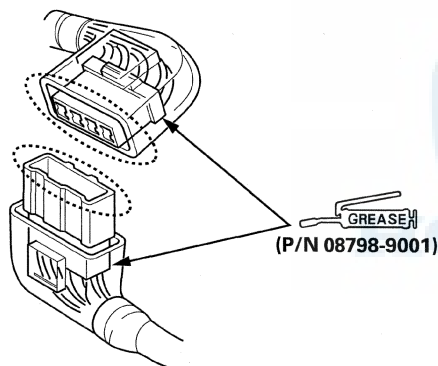
Body Electrical

General Troubleshooting Information (cont'd)

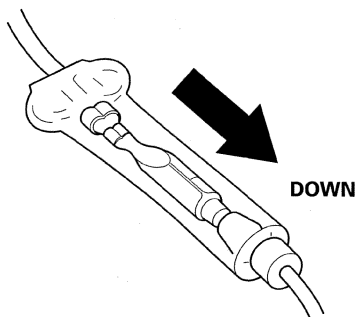
- Check for loose retainers (A) and rubber seals (B).



- The backs of some connectors are packed with dielectric grease. Add grease if necessary. If the grease is contaminated, replace it.

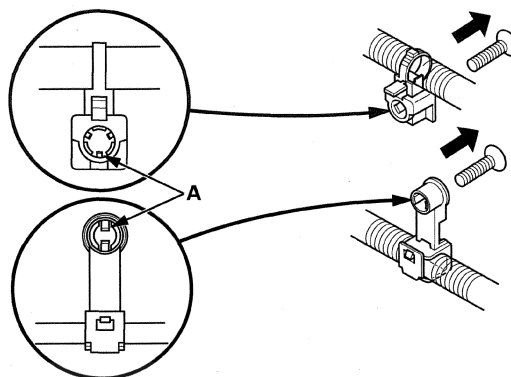


- Insert the connector all the way and make sure it is securely locked.
- Position wires so that the open end of the cover faces down.

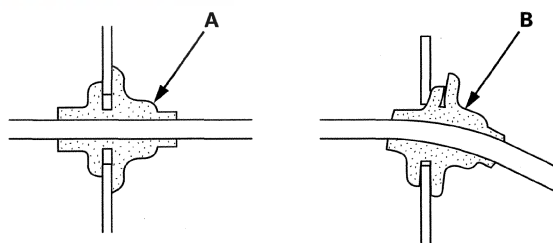


Handling Wires and Harnesses

- Secure wires and wire harnesses to the frame with their respective wire ties at the designated locations.
- Remove clips carefully; don't damage their locks (A).



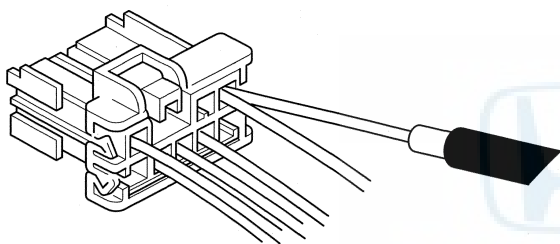
- After installing harness clips, make sure the harness doesn't interfere with any moving parts.
- Keep wire harnesses away from exhaust components and other hot parts, from sharp edges of brackets and holes, and from exposed screws and bolts.
- Seat grommets in their grooves properly (A). Do not leave grommets distorted (B).



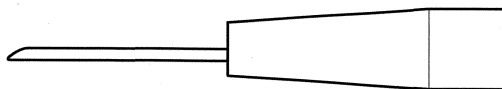


Testing and Repairs

- Do not use wires or harnesses with broken insulation. Replace them or repair them by wrapping the break with electrical tape or shrink tubing.
- Never attempt to modify, splice, or repair SRS wiring. If there is an open or damage to the SRS wiring or terminals, replace the harness.
- After installing parts, make sure that no wires are pinched under them.
- When using electrical test equipment, follow the manufacturer's instructions and those described in this manual.
- If possible, insert the probe of the tester from the wire side (except waterproof connectors).



- Use back probe adaptor 07TAZ-001020A.



- Refer to the instructions in the Honda Terminal Kit for identification and replacement of connector terminals.

Five-Step Troubleshooting

1. Verify The Complaint:

Turn on all the components in the problem circuit to verify the customer complaint. Note the symptoms. Do not begin disassembly or testing until you have narrowed down the problem area.

2. Analyze The Schematic:

Look up the schematic for the problem circuit. Determine how the circuit is supposed to work by tracing the current paths from the power feed through the circuit components to ground. If several circuits fail at the same time, the fuse or a ground is a likely cause.

Based on the symptoms and your understanding of the circuit operation, identify one or more possible causes of the problem.

3. Isolate The Problem By Testing The Circuit:

Make circuit tests to check the diagnosis you made in step 2. Keep in mind that a logical, simple procedure is the key to efficient troubleshooting. Test for the most likely cause of failure first. Try to make tests at points that are easily accessible.

4. Fix The Problem:

Once the specific problem is identified, make the repair. Be sure to use proper tools and safe procedures.

5. Make Sure The Circuit Works:

Turn on all components in the repaired circuit in all modes to make sure you've fixed the entire problem. If the problem was a blown fuse, be sure to test all of the circuits on the fuse. Make sure no new problems turn up and the original problem does not recur.

(cont'd)

Body Electrical

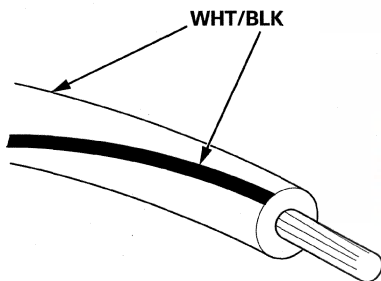
General Troubleshooting Information (cont'd)

Wire Color Codes

The following abbreviations are used to identify wire colors in the circuit schematics:

WHT	White
YEL	Yellow
BLK	Black
BLU	Blue
GRN	Green
RED	Red
ORN	Orange
PNK	Pink
BRN	Brown
GRY	Gray
PUR	Purple
TAN	Tan
LT BLU	Light Blue
LT GRN	Light Green

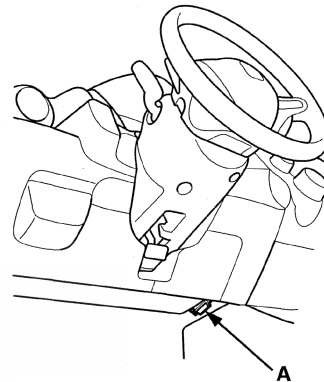
The wire insulation has one color or one color with another color stripe. The second color is the stripe.



How to Check for DTCs with the Honda Diagnostic System (HDS)

NOTE: For specific operations, refer to the user's manual that came with the Honda Diagnostic System (HDS). Make sure the HDS is loaded with the latest software.

1. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.

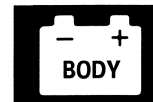


2. Turn the ignition switch ON (II).
3. Make sure the HDS communicates with the vehicle. If it doesn't, troubleshoot the DLC circuit (see page 11-193).
4. Enter to BODY ELECTRICAL, then select the desired SYSTEM MENU.
5. Check for DTCs with the HDS.

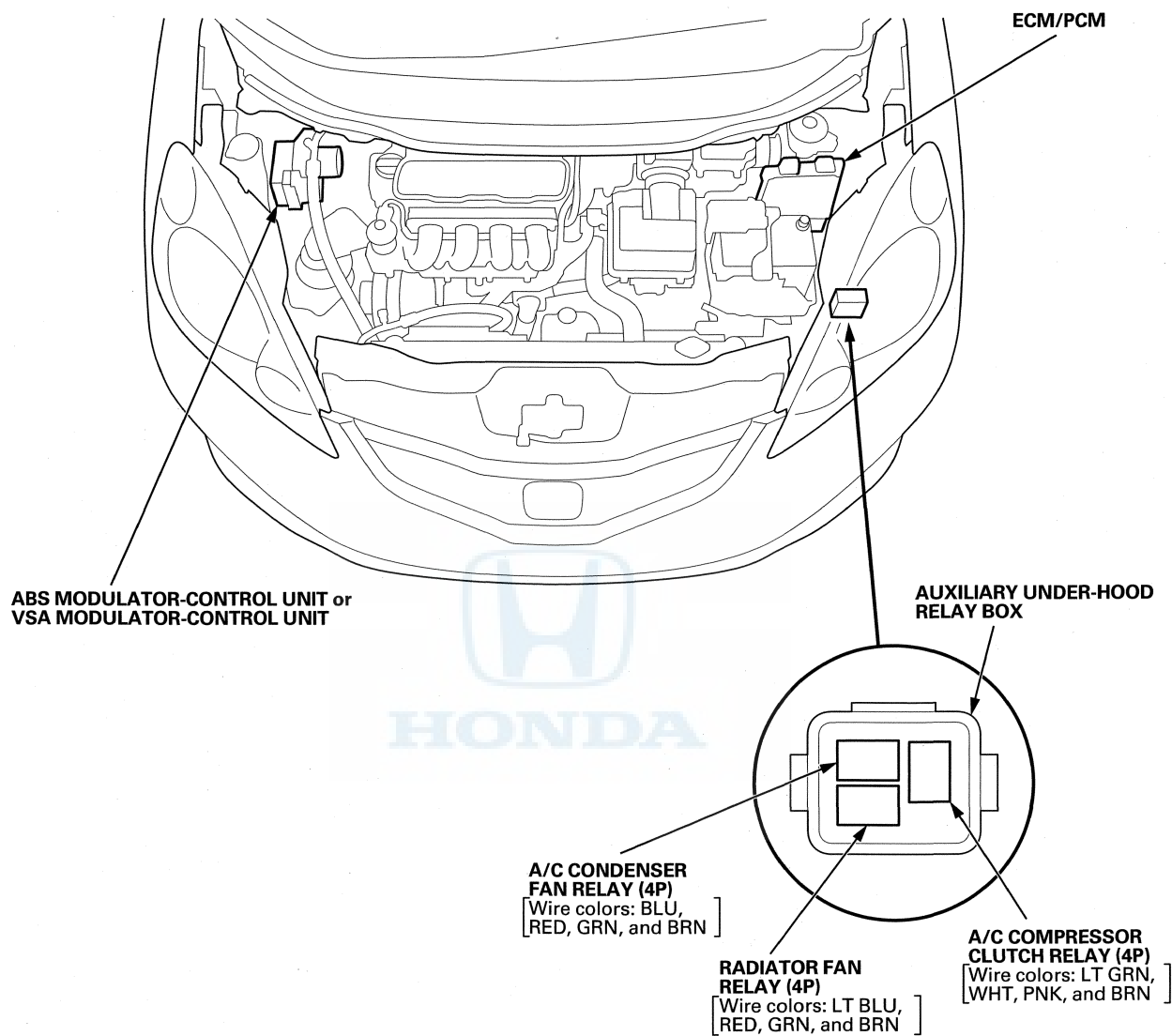
NOTE: If the DTCs do not pertain to the selected menu, select the All DTC Check icon to view all Body Electrical DTCs.

6. If any DTCs are indicated, note them, and go to the indicated DTCs troubleshooting.

Relay and Control Unit Locations

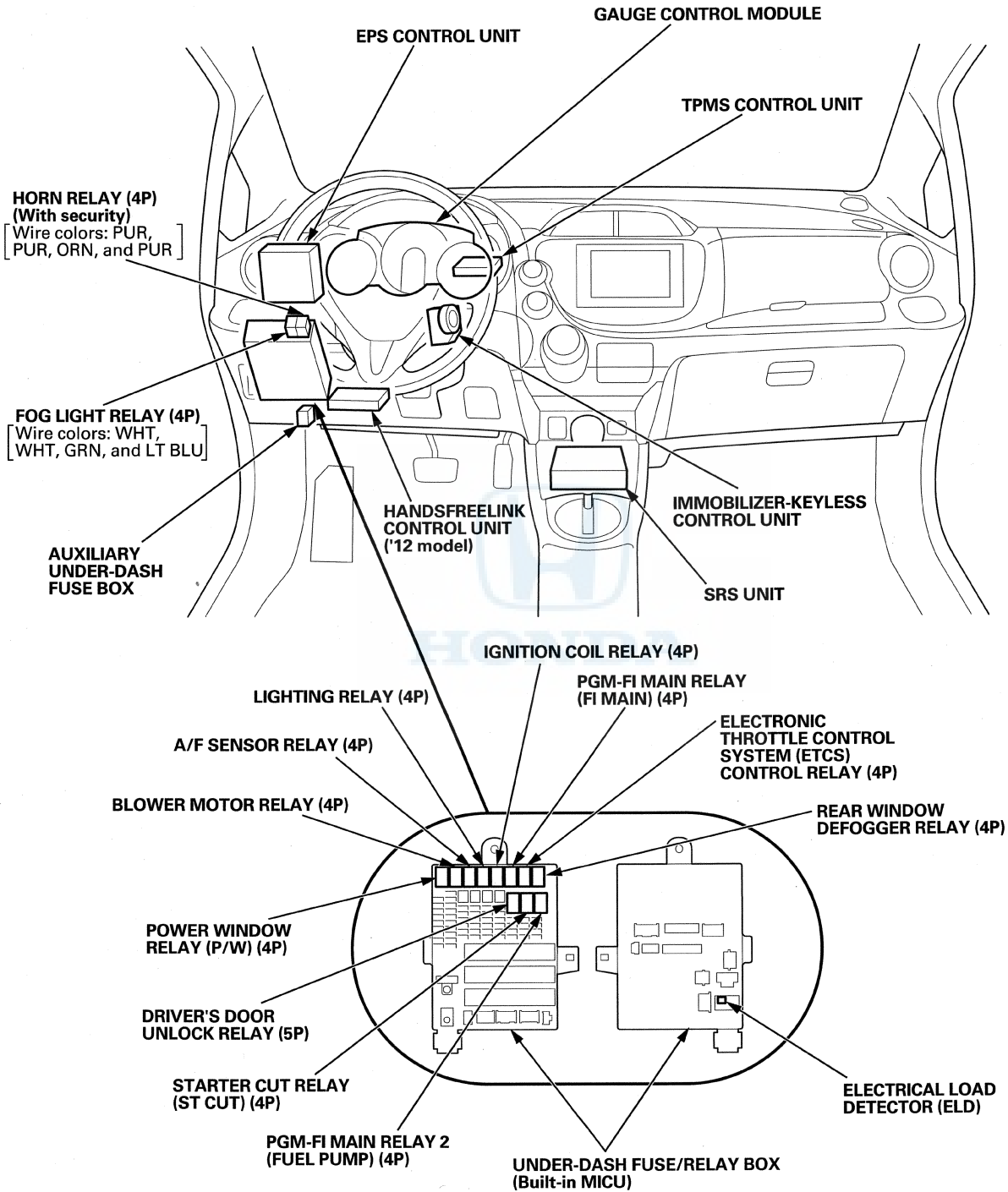


Engine Compartment



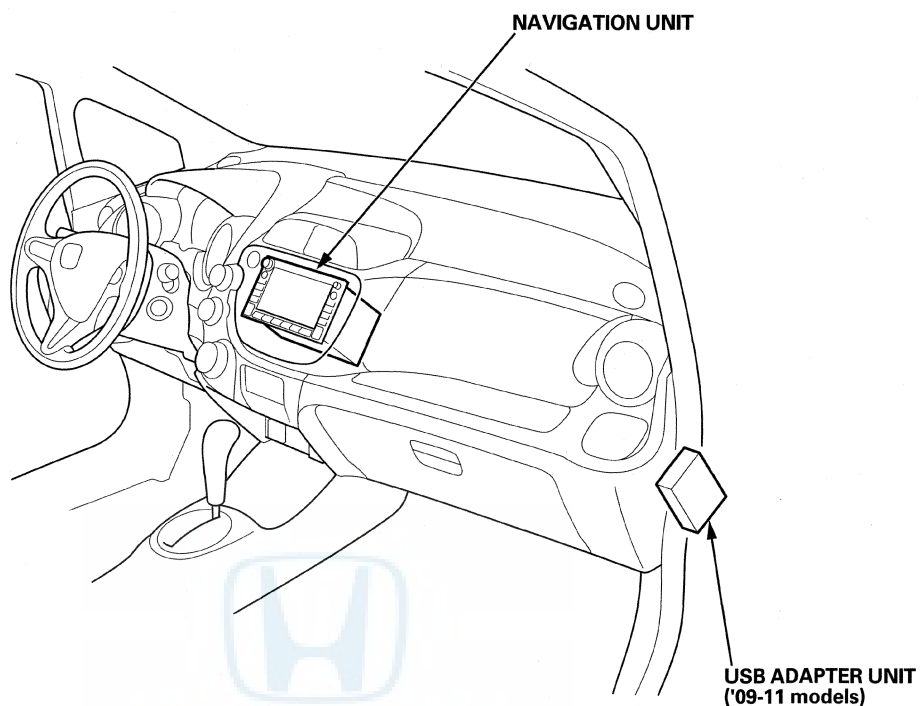
Relay and Control Unit Locations

Dashboard

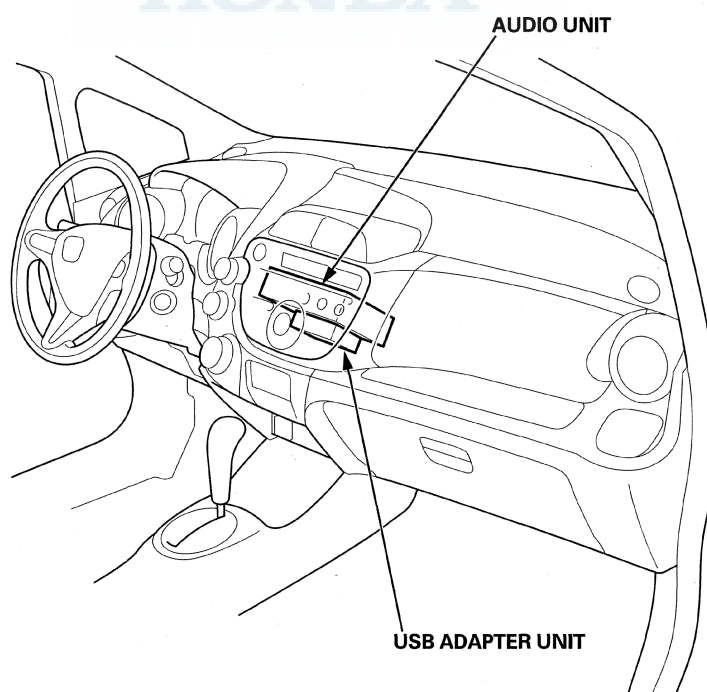




With Navigation



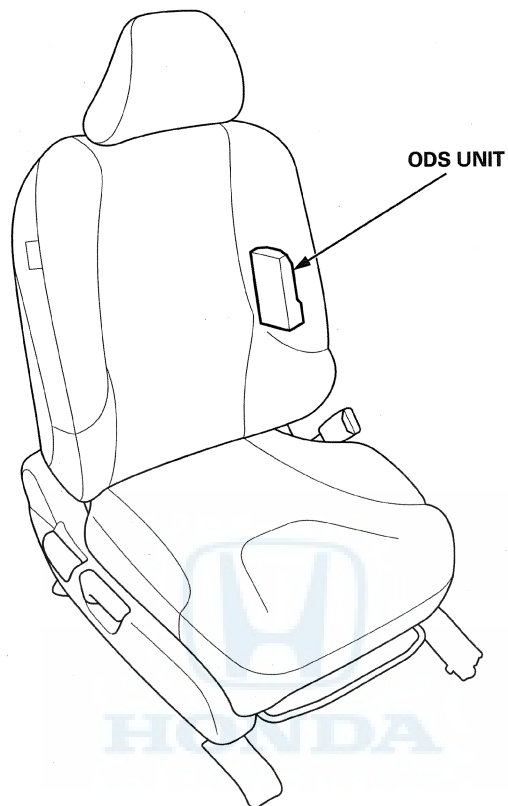
Without Navigation



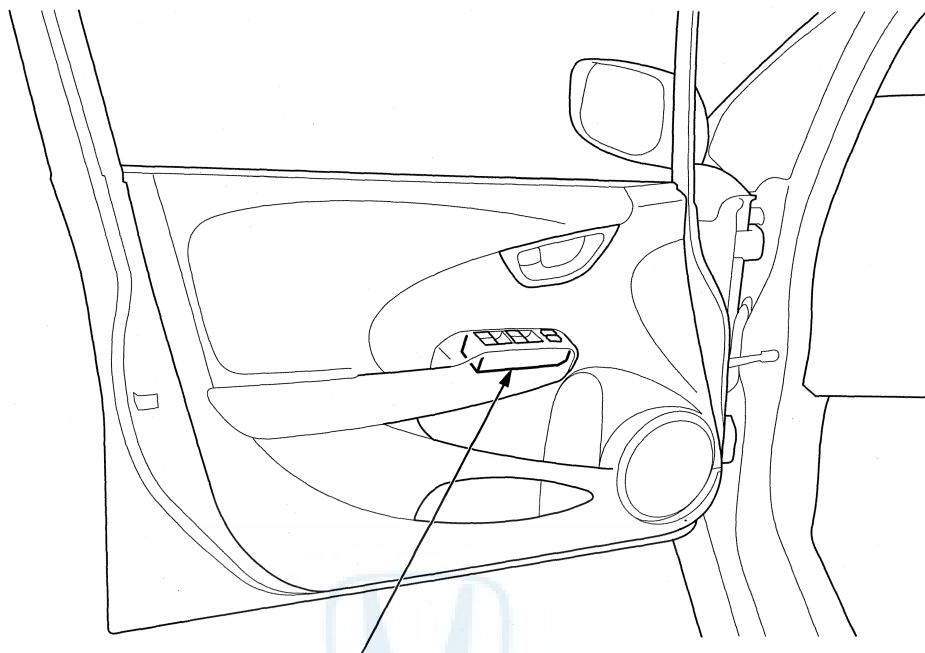
Relay and Control Unit Locations

Seat

Front Passenger's



Door



POWER WINDOW MASTER SWITCH
(Has a built-in control unit)

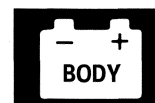


Connectors and Harnesses

Connector Index

Identification numbers have been assigned to in-line connectors, junction connectors, terminals, and thermal joints. The number is preceded by the letter "C" for connectors "G" for ground terminals or "T" for non-ground terminals.

Harness	Location			
	Engine Compartment	Dashboard	Others (Floor, Door, Tailgate, and Roof)	Notes
Battery ground cable	(-), G1			Connector to Harness (see page 22-14)
Blower resistor subharness		C501		With navigation: (see page 22-32) Without navigation: (see page 22-34)
Cable reel subharness		G551*		Connector to Harness (see page 22-53)
CKP sensor subharness	C102			M/T: (see page 22-16) A/T: (see page 22-18)
Dashboard wire harness (View of driver's side)		C301, C302, C601, C751, C801 G501		Connector to Harness (see page 22-30)
Dashboard wire harness (View of middle)		C501, C502, C503, C504, C505, C506, C507 G502		With navigation: (see page 22-32) Without navigation: (see page 22-34)
Dashboard wire harness (View of passenger's side)		C201, C202, C761 G503	G504	With navigation: (see page 22-36) Without navigation: (see page 22-38)
Driver's door wire harness		C751	C752	Connector to Harness (see page 22-46)
Driver's seat position sensor harness			C604	Connector to Harness (see page 22-51)
Engine ground cable	T6, G2			Connector to Harness (see page 22-14)
Engine wire harness (M/T)	C101, C102, C103, C104, S1, S3, T2, T101 G101			Connector to Harness (see page 22-16)
Engine wire harness (A/T) (Engine section)	C101, C102, C103, C104, S1, S2, S3, T2, T101 G101			Connector to Harness (see page 22-18)
Engine wire harness (A/T) (Transmission section)	C105, C106			Connector to Harness (see page 22-20)
Floor wire harness (Left branch)		C303, C601	C602, C604, C701, C752, C771 G601, G602	Connector to Harness (see page 22-40)
Floor wire harness (Right branch)			C603, C781 G603, G604	Connector to Harness (see page 22-42)
Fuel tank subharness			C602	Connector to Harness (see page 22-52)
Front passenger's door wire harness		C761		Connector to Harness (see page 22-47)



Harness	Location			
	Engine Compartment	Dashboard	Others (Floor, Door, Tailgate, and Roof)	Notes
Left engine compartment wire harness (Engine compartment branch)	C101, T3, T4, T5 G301			Connector to Harness (see page 22-26)
Left engine compartment wire harness (Dashboard branch)		C203, C204, C301, C302, C303 T9, G401		Connector to Harness (see page 22-28)
Left rear door wire harness			C771	Connector to Harness (see page 22-48)
ODS unit harness			C603	Connector to Harness (see page 22-50)
Right engine compartment wire harness (Engine compartment branch)	G201, G202			Connector to Harness (see page 22-22)
Right engine compartment wire harness (Dashboard branch)		C201, C202, C203, C204, C205 G203, G204		Connector to Harness (see page 22-24)
Right rear door wire harness			C781	Connector to Harness (see page 22-49)
Roof wire harness		C801		Connector to Harness (see page 22-45)
Shift solenoid wire harness	C105			Connector to Harness (see page 22-20)
Starter cable	T1, T102			Connector to Harness (see page 22-14)
Tailgate wire harness			C701	Connector to Harness (see page 22-44)
Transmission ground cable	T7, G3			Connector to Harness (see page 22-14)
Transmission range switch subharness	C106			Connector to Harness (see page 22-20)
USB harness (Without navigation)				Connector to Harness (see page 22-38)

*: '12 model

Connectors and Harnesses

Connector to Harness Index

Starter Cable

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
T1	3		On the battery	Battery terminal fuse box	
T102	2		Middle of engine compartment	Starter solenoid	

Battery Ground Cable

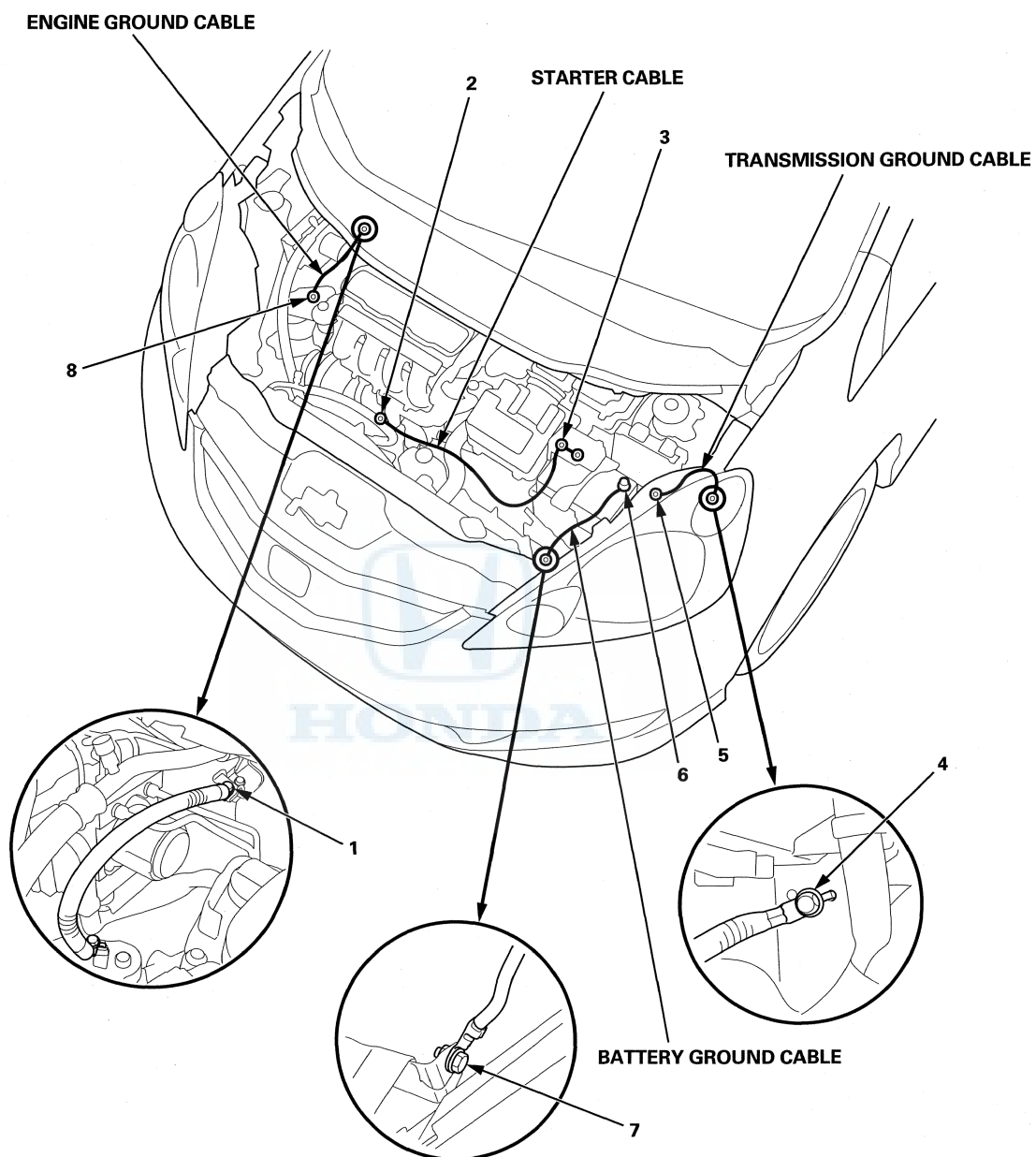
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
(-)	6		Left side of engine compartment	Battery negative terminal	
G1	7		Left side of engine compartment	Body ground, via battery ground cable	

Engine Ground Cable

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
T6	8		Right side of engine compartment	Engine	
G2	1		Right side of engine compartment	Body ground, via engine ground cable	

Transmission Ground Cable

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
T7	5		Left side of engine compartment	Transmission housing	
G3	4		Left side of engine compartment	Body ground, via transmission ground cable	



(cont'd)

Connectors and Harnesses

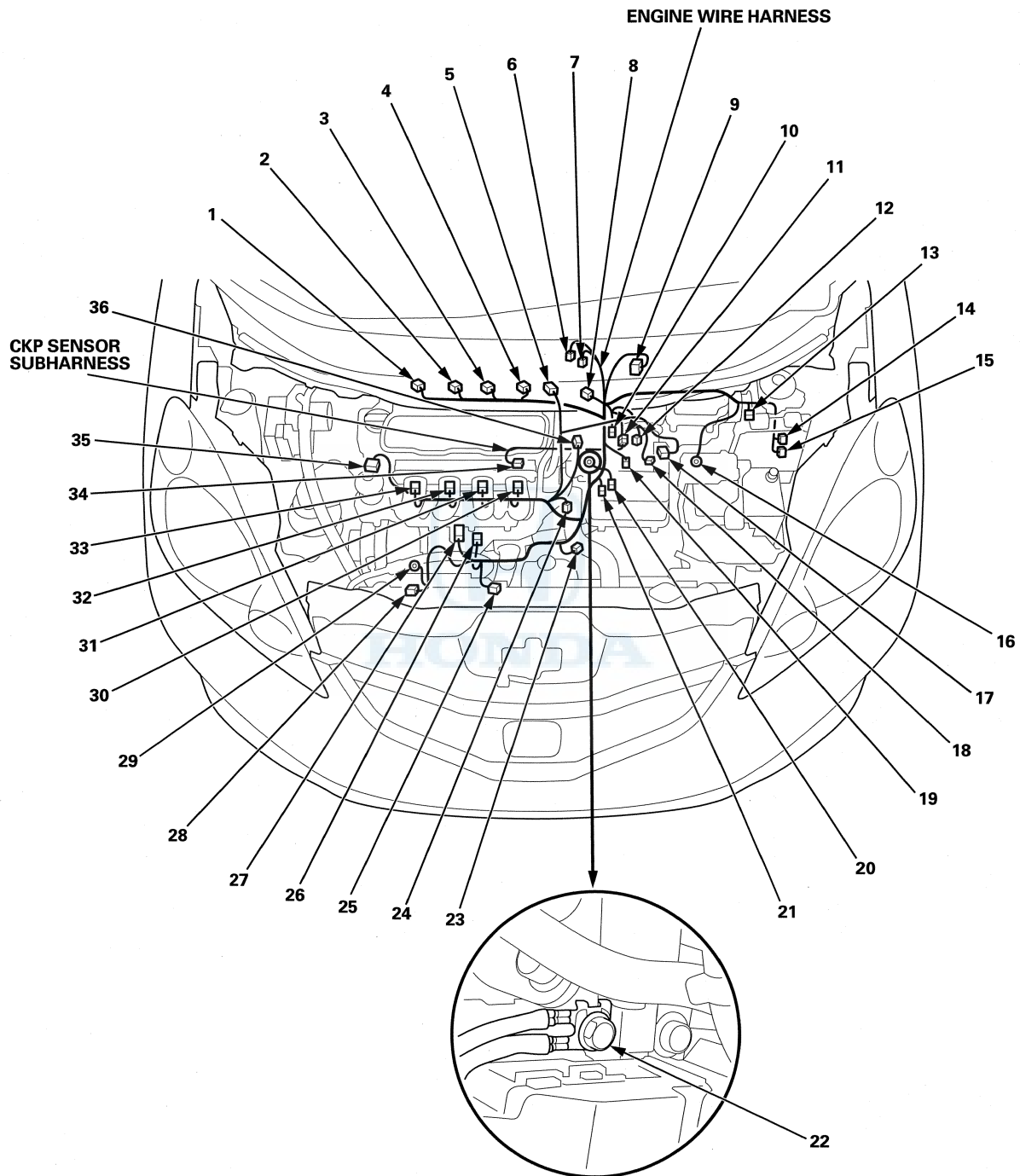
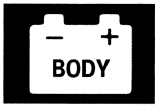
Connector to Harness Index (cont'd)

Engine Wire Harness (M/T)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Air fuel ratio (A/F) sensor	6	4	Exhaust manifold		
Alternator	28	4	Front of engine		
Back-up light switch	12	2	Transmission housing		
Camshaft position (CMP) sensor	10	3	Middle of engine compartment		
ECM connector B	14	49	Left side of engine compartment		
ECM connector C	15	49	Left side of engine compartment		
EGR valve/position sensor	35	5	Middle of engine compartment		
Engine coolant temperature (ECT) sensor 1	8	2	Middle of engine compartment		
EVAP canister purge valve	36	2	Middle of engine compartment		
Ignition coil No. 1	1	3	Middle of engine compartment		
Ignition coil No. 2	2	3	Middle of engine compartment		
Ignition coil No. 3	3	3	Middle of engine compartment		
Ignition coil No. 4	4	3	Middle of engine compartment		
Injector No. 1	33	2	Middle of engine compartment		
Injector No. 2	32	2	Middle of engine compartment		
Injector No. 3	31	2	Middle of engine compartment		
Injector No. 4	30	2	Middle of engine compartment		
Knock sensor	27	1	Front of engine		
Manifold absolute pressure (MAP) sensor	5	3	Middle of engine compartment		
Mass air flow (MAF) sensor/Intake air temperature (IAT) sensor	17	5	Middle of engine compartment		
Oil pressure switch	26	1	Front of engine		
Output shaft (countershaft) speed sensor	18	3	Transmission housing		
Rocker arm oil control solenoid	24	2	Middle of engine compartment		
Secondary HO2S	7	4	Exhaust manifold		
Starter solenoid	25	1	Front of engine		
Throttle position sensor/Throttle actuator	9	6	Middle of engine compartment		
Rocker arm oil pressure switch	23	2	Middle of engine compartment		
C101	13	13	Left side of engine compartment	Left engine compartment wire harness	
C102	11	3	Middle of engine compartment	CKP sensor subharness	
C103 (Junction connector)	20	24	Middle of engine compartment		
C104 (Junction connector)	21	12	Middle of engine compartment		
S1 (Terminal joint)	19		Middle of engine compartment		
T2	16		Left side of engine compartment	Battery terminal fuse box (see page 22-54)	
T101	29		Middle of engine compartment	Alternator +B terminal	
G101	22		Middle of engine compartment	Body ground, via engine wire harness	

CKP Sensor Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Crankshaft position (CKP) sensor	34	3	Under the engine		
C102	11	3	Middle of engine compartment		



(cont'd)

Connectors and Harnesses

Connector to Harness Index (cont'd)

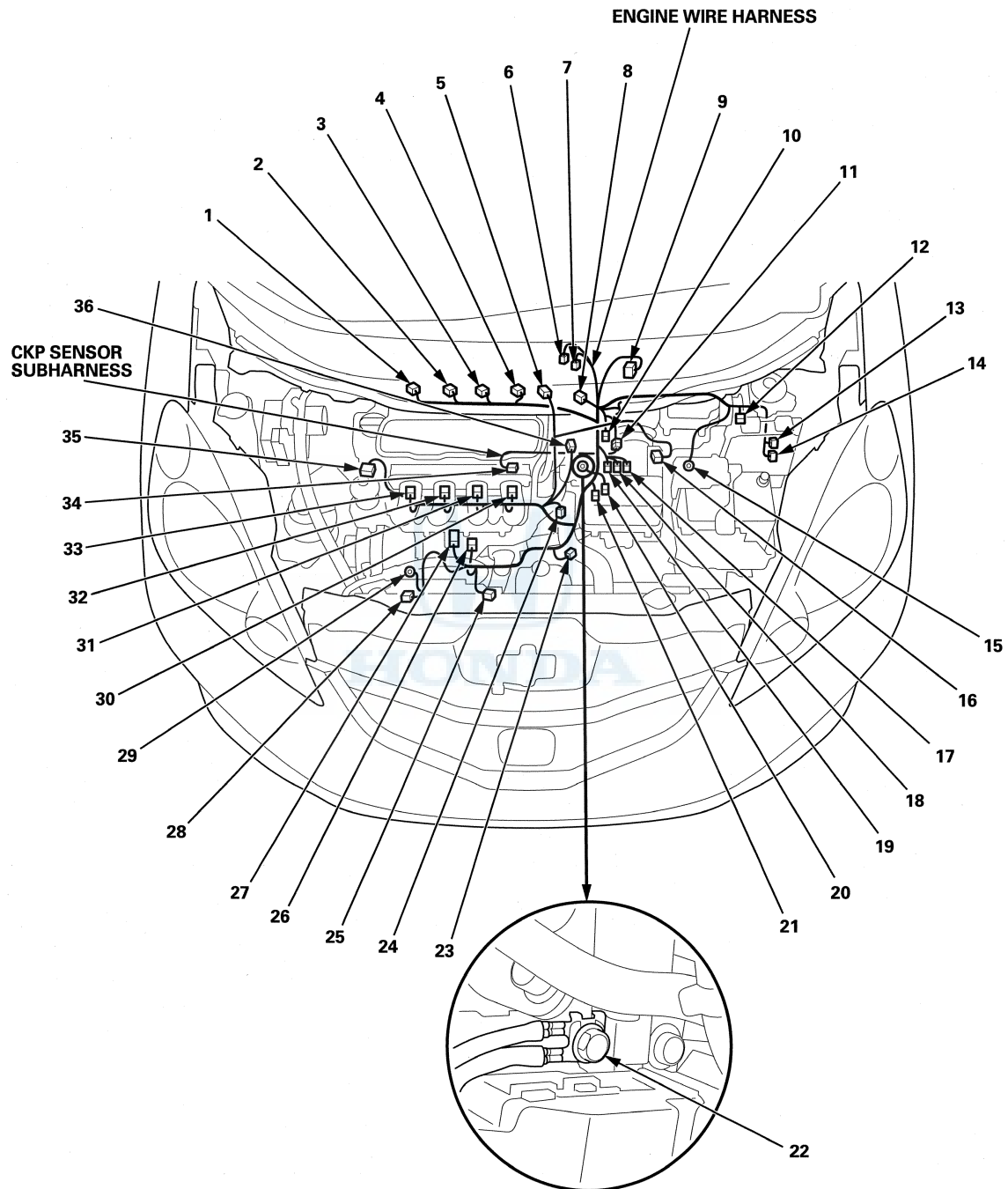
Engine Wire Harness (A/T) (Engine section)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Air fuel ratio (A/F) sensor	6	4	Exhaust manifold		
Alternator	28	4	Middle of engine compartment		
Camshaft position (CMP) sensor	10	3	Middle of engine compartment		
EGR valve/position sensor	35	5	Middle of engine compartment		
Engine coolant temperature (ECT) sensor 1	8	2	Middle of engine compartment		
EVAP canister purge valve	36	2	Middle of engine compartment		
Ignition coil No. 1	1	3	Middle of engine compartment		
Ignition coil No. 2	2	3	Middle of engine compartment		
Ignition coil No. 3	3	3	Middle of engine compartment		
Ignition coil No. 4	4	3	Middle of engine compartment		
Injector No. 1	33	2	Middle of engine compartment		
Injector No. 2	32	2	Middle of engine compartment		
Injector No. 3	31	2	Middle of engine compartment		
Injector No. 4	30	2	Middle of engine compartment		
Knock sensor	27	1	Front of engine		
Manifold absolute pressure (MAP) sensor	5	3	Middle of engine compartment		
Mass air flow (MAF) sensor/Intake air temperature (IAT) sensor	16	5	Middle of engine compartment		
Oil pressure switch	26	1	Front of engine		
PCM connector B	13	49	Left side of engine compartment		
PCM connector C	14	49	Left side of engine compartment		
Rocker arm oil control solenoid	24	2	Middle of engine compartment		
Secondary HO2S	7	4	Exhaust manifold		
Starter solenoid	25	1	Front of engine		
Throttle position sensor/Throttle actuator	9	6	Middle of engine compartment		
Rocker arm oil pressure switch	23	2	Middle of engine compartment		
C101	12	13	Left side of engine compartment	Left engine compartment wire harness	
C102	11	3	Middle of engine compartment	CKP sensor subharness	
C103 (Junction connector)	20	24	Middle of engine compartment		
C104 (Junction connector)	21	24	Middle of engine compartment		
S1 (Terminal joint)	17		Middle of engine compartment		
S2 (Terminal joint)	18		Middle of engine compartment		
S3 (Terminal joint)	19		Middle of engine compartment		
T2	15		Left side of engine compartment	Battery terminal fuse box (see page 22-54)	*
T101	29		Middle of engine compartment	Alternator +B terminal	
G101	22		Middle of engine compartment	Body ground, via engine wire harness	

CKP Sensor Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Crankshaft position (CKP) sensor	34	3	Under the engine		
C102	11	3	Middle of engine compartment		

*: '11-12 models



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Connectors and Harnesses

Connector to Harness Index (cont'd)

Engine Wire Harness (A/T) (Transmission section)

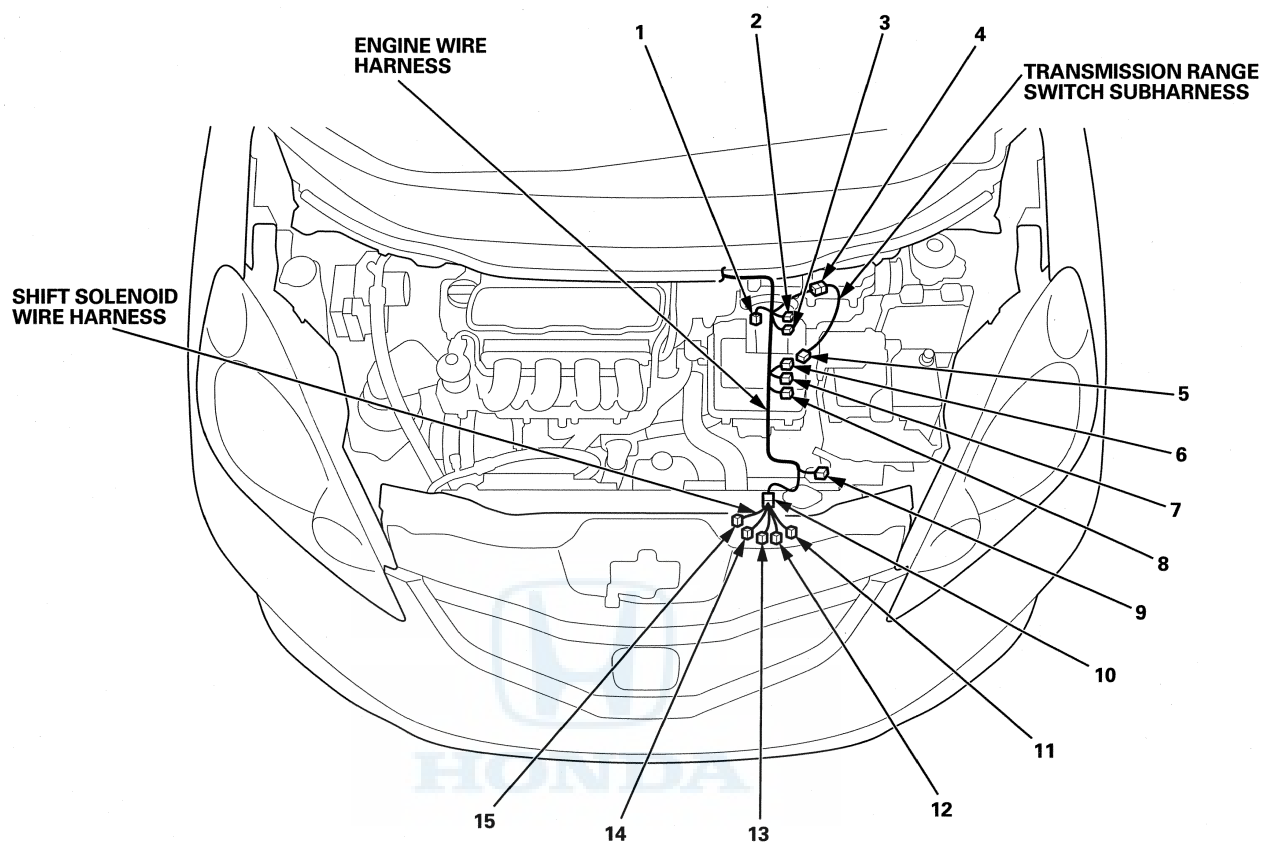
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/T clutch pressure control solenoid valve A	6	2	Transmission housing		
A/T clutch pressure control solenoid valve B	8	2	Transmission housing		
A/T clutch pressure control solenoid valve C	7	2	Transmission housing		
Input shaft (mainshaft) speed sensor	2	3	Transmission housing		
Output shaft (countershaft) speed sensor	3	3	Transmission housing		
2nd clutch pressure switch	1	1	Transmission housing		
3rd clutch pressure switch	9	1	Transmission housing		
C105	10	8	On the transmission range housing	Shift solenoid wire harness	
C106	4	10	On the transmission range housing	Transmission range switch subharness	

Shift Solenoid Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
ATF temperature sensor	11	2	In the transmission		
Shift solenoid valve A	12	1	In the transmission		
Shift solenoid valve B	13	1	In the transmission		
Shift solenoid valve C	14	1	In the transmission		
Shift solenoid valve D	15	1	In the transmission		
C105	10	8	On the transmission range housing		

Transmission Range Switch Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Transmission range switch	5	10	Side of transmission housing		
C106	4	10	On the transmission range housing		



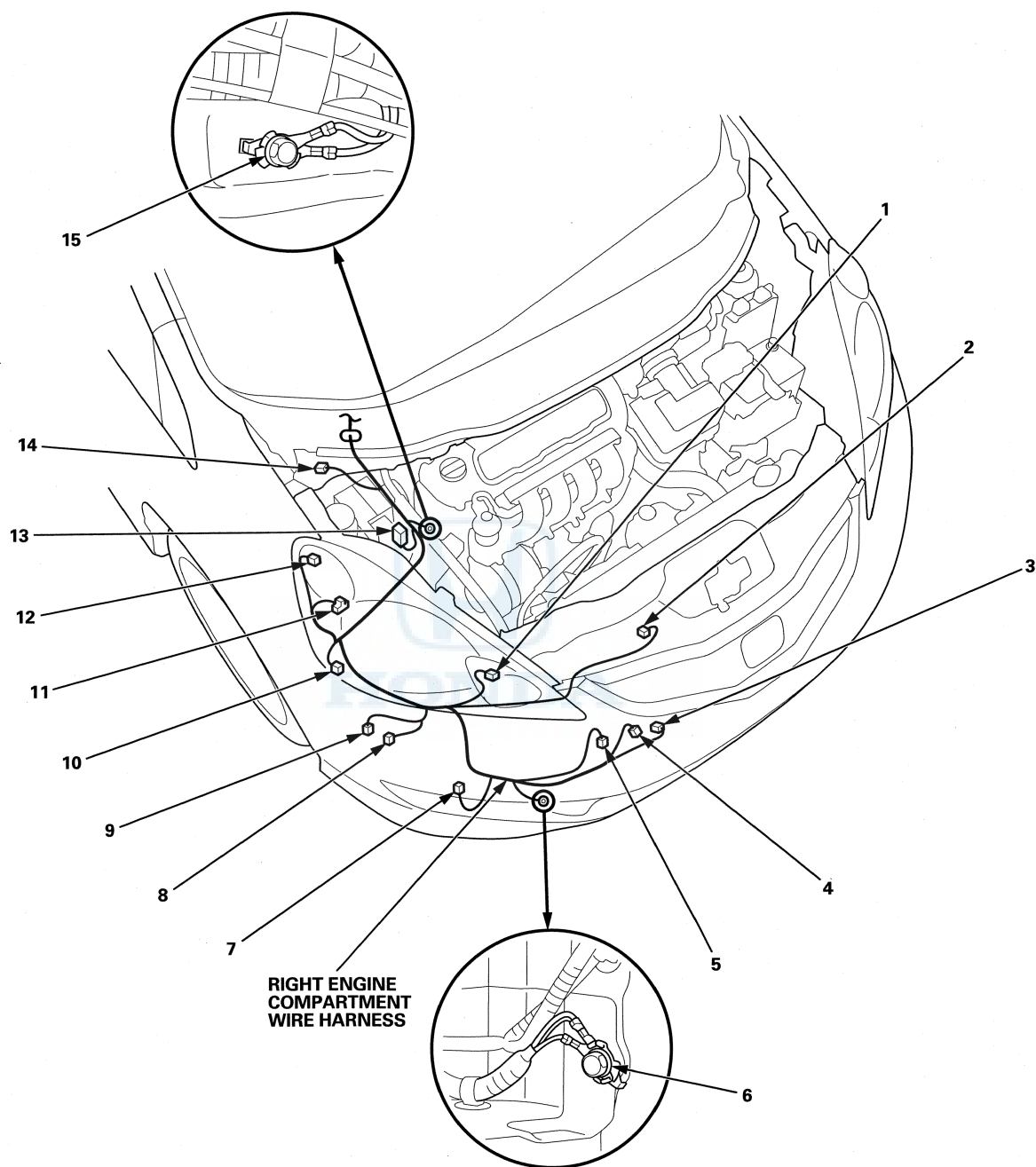
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Connectors and Harnesses

Connector to Harness Index (cont'd)

Right Engine Compartment Wire Harness (Engine compartment branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
ABS modulator-control unit	13	16	Right side of engine compartment		With ABS
A/C compressor clutch	4	3	Right front of engine compartment		With A/C
A/C pressure switch	5	2	Right front of engine compartment		With A/C
Engine coolant temperature (ETC) sensor 2	3	2	Right front of engine compartment		
Optional connector (for fog light)	10	1	Right front of engine compartment		
Right fog light	7	2	Behind right side of front bumper		
Right front impact sensor	2	2	Behind right side of front grille		
Right front parking/side marker light	1	2	Behind right headlight		
Right front turn signal light	12	2	Behind right headlight		
Right front wheel speed sensor	14	2	Right side of engine compartment		
Right headlight	11	3	Behind right headlight		
VSA modulator-control unit	13	22	Right side of engine compartment		With VSA
Washer fluid level switch	8	2	Behind right side of front bumper		Canada models
Window washer motor	9	2	Behind right side of front bumper		
G201	6		Right front of engine compartment	Body ground, via right engine compartment wire harness	
G202	15		Right side of engine compartment	Body ground, via right engine compartment wire harness	



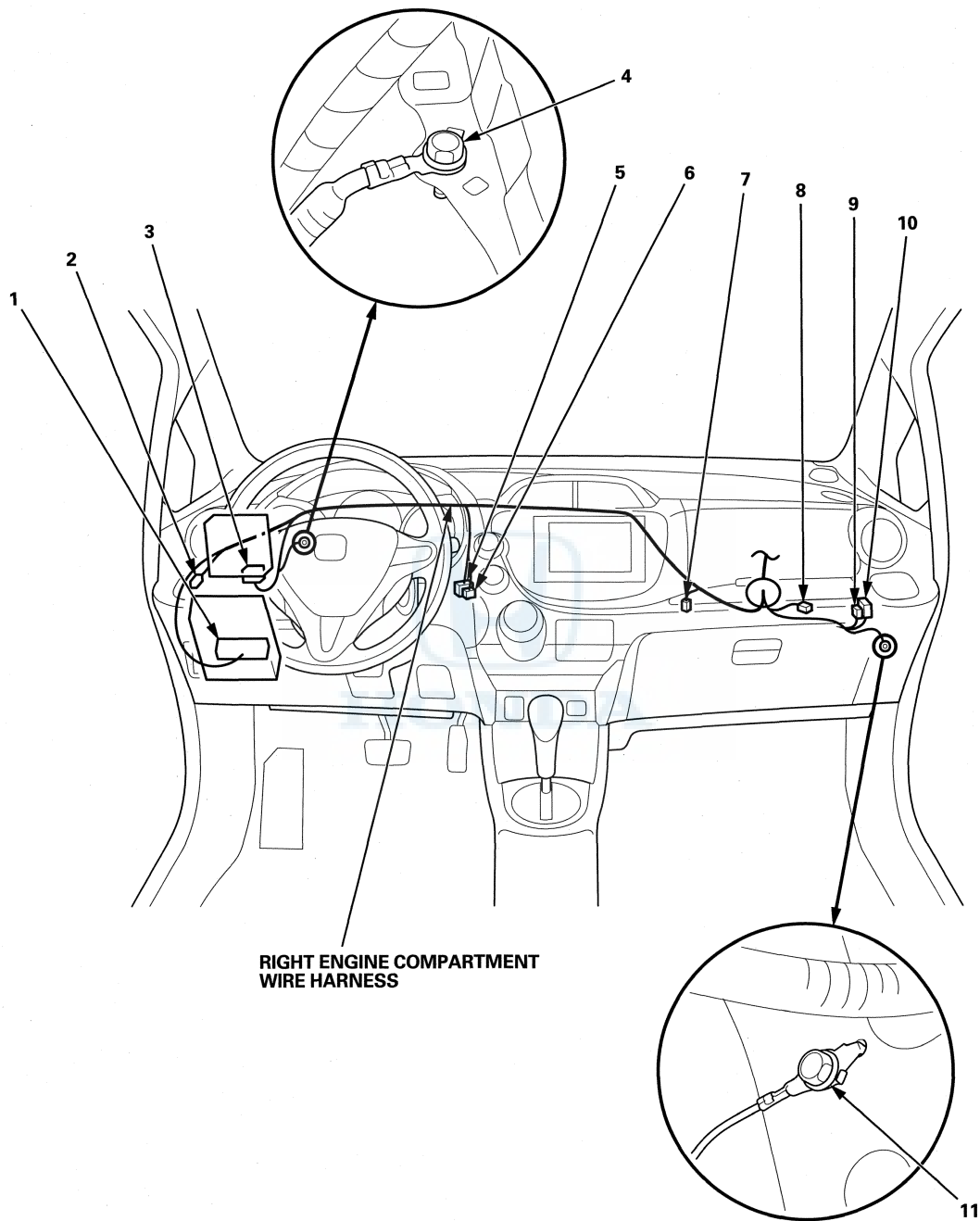
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Connectors and Harnesses

Connector to Harness Index (cont'd)

Right Engine Compartment Wire Harness (Dashboard branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
EPS control unit connector A	3	11	Under left side of dash		
Evaporator temperature sensor	7	2	Under right side of dash		
Optional connector (for fog light)	2	2	Under left side of dash		
Under-dash fuse/relay box connector A (see page 22-55)	1	36	Under left side of dash		
C201	10	13	Under right side of dash	Dashboard wire harness	
C202	9	4	Under right side of dash	Dashboard wire harness	
C203	5	13	Under left side of dash	Left engine compartment wire harness	
C204	6	2	Under left side of dash	Left engine compartment wire harness	
C205 (Junction connector)	8	12	Under right side of dash		
G203 (for EPS)	4		Under left side of dash	Body ground, via right engine compartment wire harness	
G204 (for fog light)	11		Under right side of dash	Body ground, via right engine compartment wire harness	



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Connectors and Harnesses

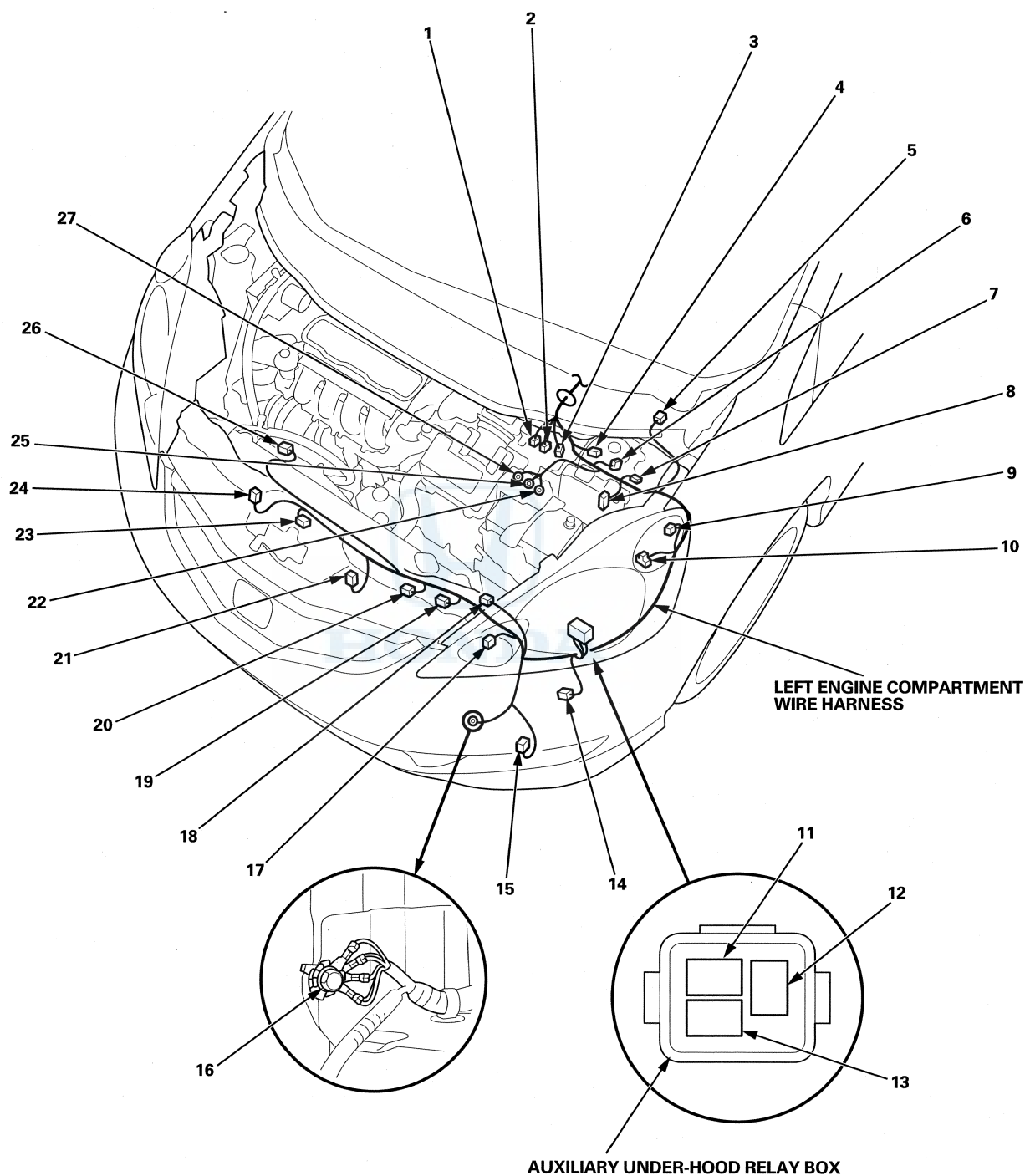
Connector to Harness Index (cont'd)

Left Engine Compartment Wire Harness (Engine compartment branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/C compressor clutch relay	12	4	Left side of engine compartment	In auxiliary under-hood relay box	With A/C
A/C condenser fan motor	26	2	Front of engine compartment		With A/C
A/C condenser fan relay	11	4	Left side of engine compartment	In auxiliary under-hood relay box	With A/C
Brake fluid level switch	6	2	Left side of engine compartment		
EPS motor	3	3	Left side of engine compartment		
ECM connector A	8	49	Left side of engine compartment		M/T
Hood switch	23	2	Front of engine compartment		Security
Horn	21	1	Front of engine compartment		*1
Horn	24	1	Front of engine compartment		*2
Left fog light	15	2	Behind left side of front bumper		
Left front impact sensor	20	2	Behind left side of front grille		
Left front wheel speed sensor	4	2	Left side of engine compartment		
Left front parking/side marker light	17	2	Behind left headlight		
Left front turn signal light	9	2	Behind left headlight		
Left headlight	10	3	Behind left headlight		
Motor angle sensor	1	8	Left side of engine compartment		
Optional connector (for engine starter)	18	2	Left front of engine compartment		
PCM connector A	8	49	Left side of engine compartment		A/T
Radiator fan motor	19	2	Front of engine compartment		
Radiator fan relay	13	4	Left side of engine compartment	In auxiliary under-hood relay box	
Security horn	14	1	Left side of engine compartment		Security
Torque sensor	2	6	Left side of engine compartment		
Windshield wiper motor	5	5	Left side of engine compartment		
C101	7	13	Left side of engine compartment	Engine wire harness A/T M/T	
T3	27		On the battery	Battery terminal fuse box (see page 22-54)	
T4	25		On the battery	Battery terminal fuse box (see page 22-54)	
T5	22		On the battery	Battery terminal fuse box (see page 22-54)	
G301	16		Left side of engine compartment	Body ground, via left engine compartment wire harness	

*1: '09-11 models

*2: '12 model



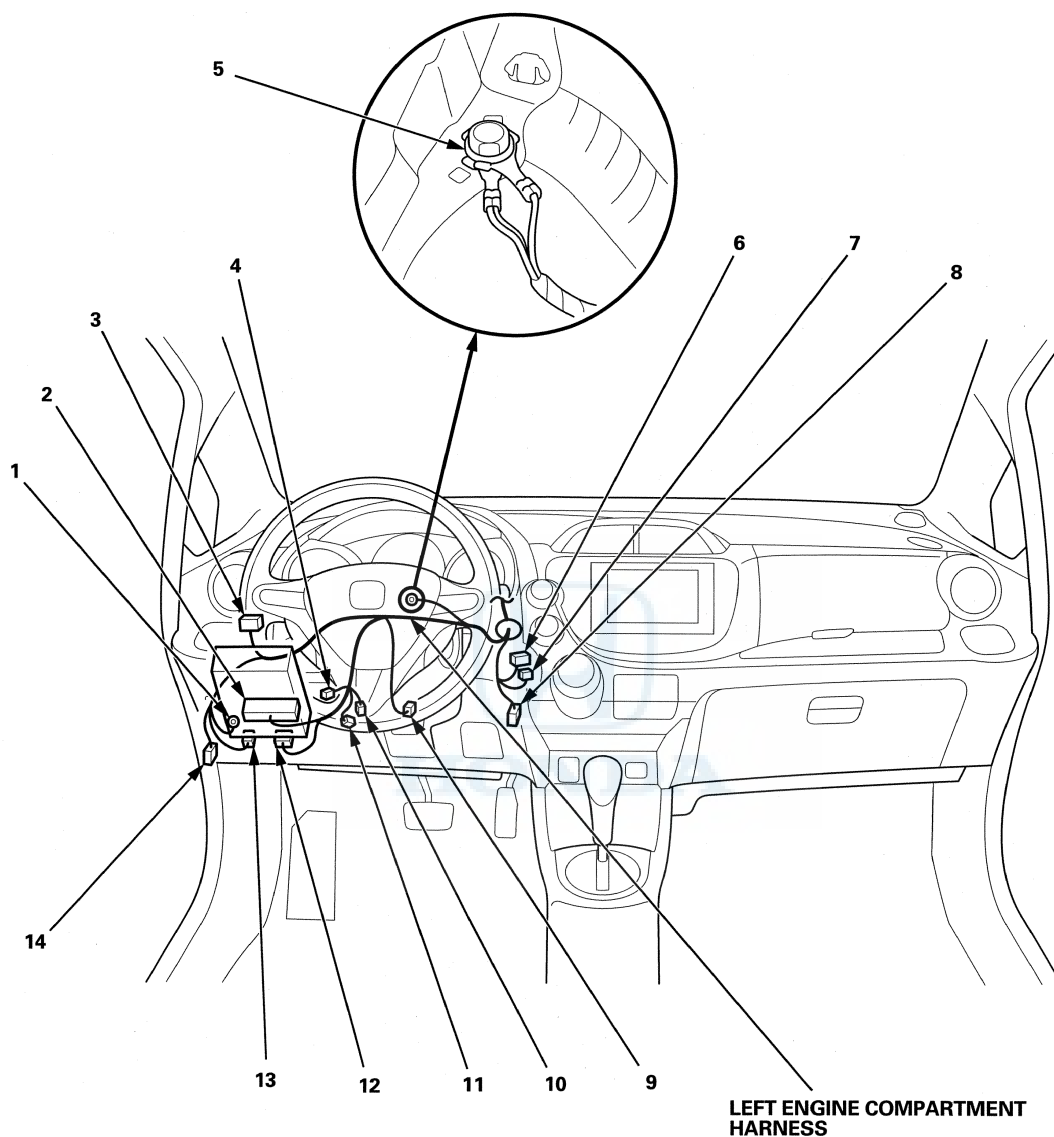
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Connectors and Harnesses

Connector to Harness Index (cont'd)

Left Engine Compartment Wire Harness (Dashboard branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Accelerator pedal position sensor	8	6	Under left side of dash		
Brake pedal position switch	9	4	Under left side of dash		
Clutch interlock switch (for starter)	10	2	Under left side of dash		M/T
Clutch pedal position switch (for cruise)	11	2	Under left side of dash		M/T
EPS control unit connector B	3	16	Under left side of dash		
Optional connector (for engine starter)	4	2	Under left side of dash		
Under-dash fuse/relay box connector B (see page 22-55)	2	36	Under left side of dash		
C203	6	13	Under left side of dash	Right engine compartment wire harness	
C204	7	2	Under left side of dash	Right engine compartment wire harness	
C301	12	13	Under left side of dash	Dashboard wire harness	
C302	13	4	Under left side of dash	Dashboard wire harness	
C303	14	6	Under left side of dash	Floor wire harness	
T9	1		Under left side of dash	Under-dash fuse/relay box (see page 22-55)	
G401	5		Under left side of dash	Body ground, via left engine compartment wire harness	



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Connectors and Harnesses

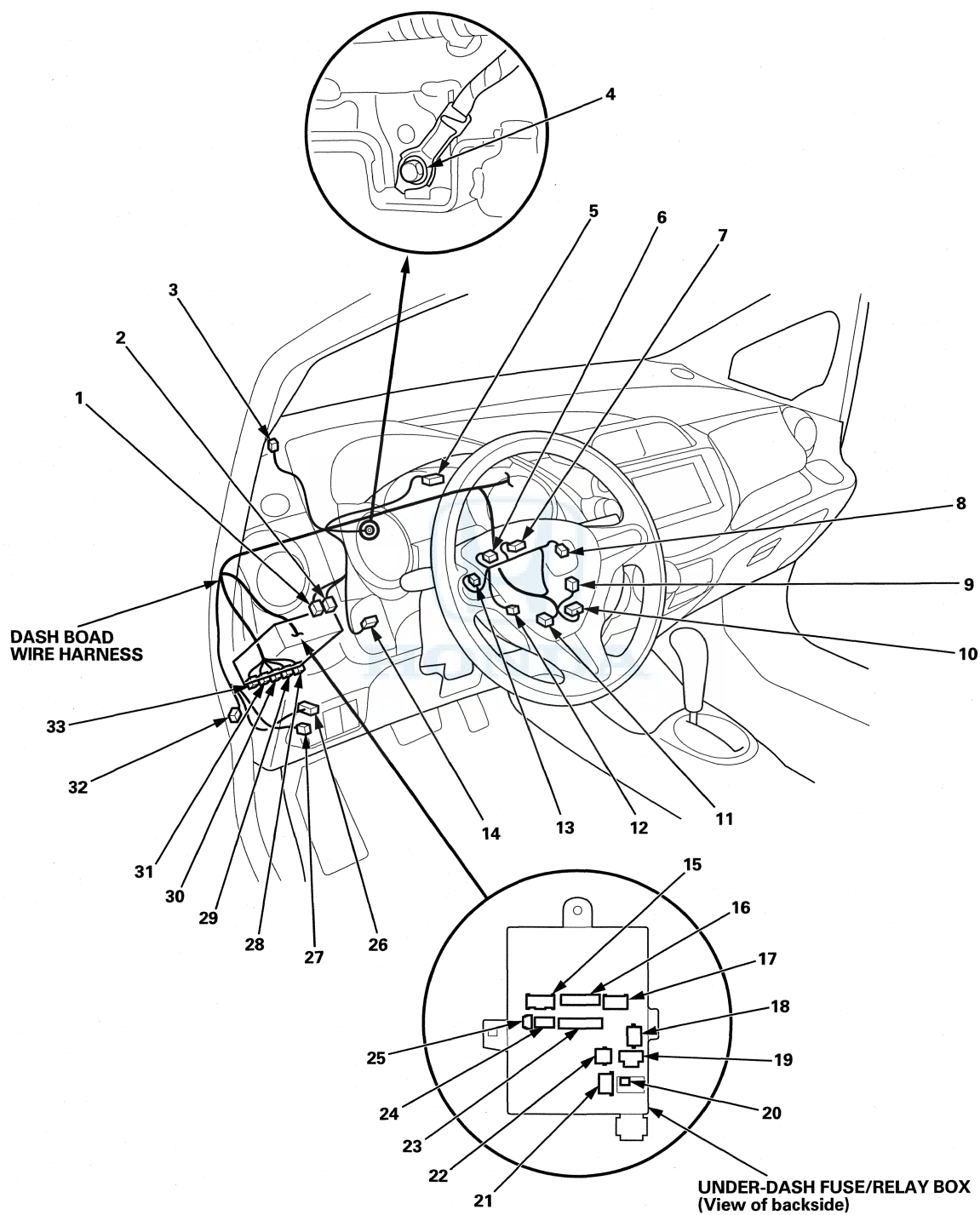
Connector to Harness Index (cont'd)

Dashboard Wire Harness (View of driver's side)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Auxiliary under-dash fuse box	28		Under left side of dash	Auxiliary under-dash relay box	
Cable reel connector A	6	20	In steering column		
Combination light switch	13	12	In steering column		
Driver's airbag inflator	7	4	In steering column		
Fog light relay	2	4	Under left side of dash		
Gauge control module	5	32	Behind gauge		
HandsFreeLink control unit	26	32	Under left side of dash		*1
HandsFreeLink control unit	26	28	Under left side of dash		*2
Ignition key switch	10	6	In steering column		
Ignition switch	11	7	In steering column		
Immobilizer-keyless control unit	9	7	In steering column	Auxiliary under-dash relay box	
Left tweeter	3	2	Left side of dash		With tweeter
Power mirror switch	14	13	Left side of dash		
Horn relay	1	4	Under left side of dash		Security
Steering angle sensor	12	5	In steering column		With VSA
Under-dash fuse/relay box connector K (see page 22-55)	15	10	Under left side of dash		
Under-dash fuse/relay box connector M (see page 22-55)	16	34	Under left side of dash		
Under-dash fuse/relay box connector N (see page 22-55)	17	8	Under left side of dash		
Under-dash fuse/relay box connector P (see page 22-55)	25	4	Under left side of dash		
Under-dash fuse/relay box connector Q (see page 22-55)	24	16	Under left side of dash		
Under-dash fuse/relay box connector R (see page 22-55)	23	28	Under left side of dash	ELD	
Under-dash fuse/relay box connector S (see page 22-55)	18	3	Under left side of dash		
Under-dash fuse/relay box connector T (see page 22-55)	19	2	Under left side of dash		
Under-dash fuse/relay box connector W (see page 22-55)	22	1	Under left side of dash		
Under-dash fuse/relay box connector X (see page 22-55)	21	3	Under left side of dash		
Under-dash fuse/relay box connector Y (see page 22-55)	20	3	Under left side of dash		
VSA OFF switch	27	5	Left side of dash		With VSA
Wiper/washer switch	8	8	In steering column		
C301	29	13	Under left side of dash		Left engine compartment wire harness
C302	33	4	Under left side of dash		Left engine compartment wire harness
C601	31	12	Under left side of dash	Floor wire harness Driver's door wire harness Roof wire harness	
C751	32	13	Under left side of dash		
C801	30	4	Under left side of dash		
G501	4		Under left side of dash		Body ground, via dashboard wire harness

*1: '12 model with navigation

*2: '12 model without navigation



(cont'd)

Connectors and Harnesses

Connector to Harness Index (cont'd)

Dashboard Wire Harness (View of middle section) (With Navigation)

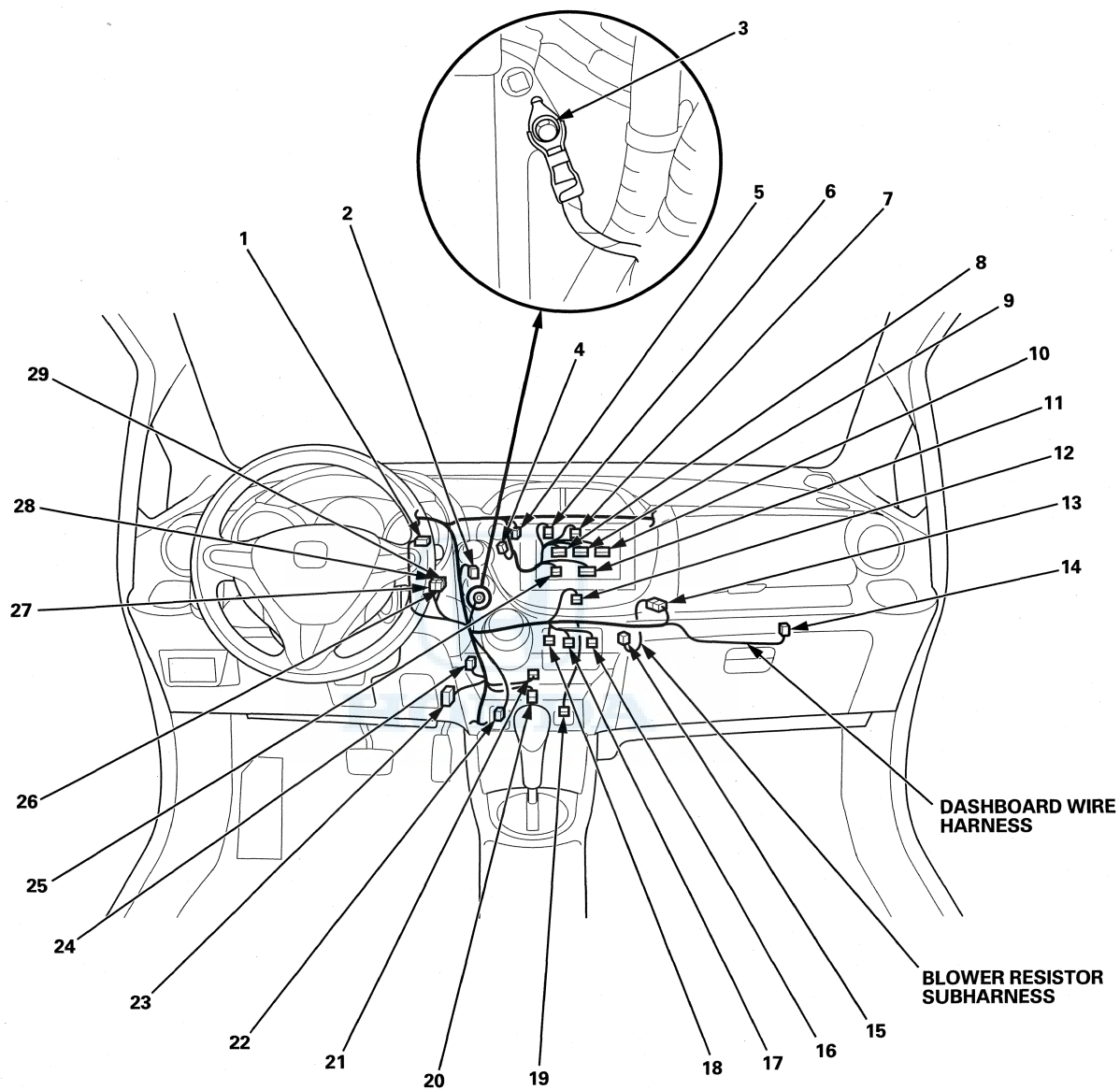
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/C switch	17	5	Middle of dash	Blower resistor subharness	*2
Accessory power socket	22	2	Middle of dash		
Auxiliary jack	19	5	Middle of dash		
Blower motor	14	2	Under right side of dash		
Console box light	20	2	Middle of dash		
Data link connector	23	16	Under left side of dash		
Hazard warning switch	4	5	Middle of dash		
Heater control panel	18	6	Middle of dash		
Heater fan switch	2	8	Middle of dash		
Navigation unit connector A	25	24	Middle of dash		*1
Navigation unit connector A	8	24	Middle of dash		*2
Navigation unit connector B	8	24	Middle of dash		*1
Navigation unit connector B	9	16	Middle of dash		*2
Navigation unit connector C	7	8	Middle of dash		*1
Navigation unit connector C	10	14	Middle of dash		*2
Navigation unit connector D	6	12	Middle of dash		*1
Navigation unit connector D	11	20	Middle of dash		*2
Navigation unit connector E	11	14	Middle of dash		*1
Passenger's airbag cutoff indicator	12	4	Middle of dash		
Rear window defogger switch	16	5	Middle of dash		
TPMS control unit	1	20	Under middle of dash		
Yaw rate acceleration sensor	21	5	Under middle of dash		
C501	13	8	Under right side of dash		
C502 (Junction connector)	26	12	Under middle of dash		
C503 (Junction connector)	27	12	Under middle of dash		
C504 (Junction connector)	29	12	Under middle of dash		
C505 (Junction connector)	28	12	Under middle of dash		
C506 (Junction connector)	5	12	Under middle of dash		
C507 (Junction connector)	24	12	Under middle of dash		
G502	3		Under middle of dash	Body ground, via dashboard wire harness	

*1: '09-11 models

*2: '12 model

Blower Resistor Subharness (With Navigation)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Blower resistor	15	4	Under right side of dash	Dashboard wire harness	
C501	13	8	Under right side of dash		



(cont'd)

Connectors and Harnesses

Connector to Harness Index (cont'd)

Dashboard Wire Harness (View of middle section) (Without Navigation)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/C switch	13	5	Middle of dash	Blower resistor subharness	*1 *2 *3 *2 USA models With VSA
Accessory power socket	17	2	Middle of dash		
Audio unit connector	6	24	Middle of dash		
Audio unit connector A	6	24	Middle of dash		
Audio unit connector B	7	12	Middle of dash		
Blower motor	10	2	Under right side of dash		
Console box light	15	2	Middle of dash		
Data link connector	19	16	Under left side of dash		
Hazard warning switch	5	5	Middle of dash		
Heater control panel	14	6	Middle of dash		
Heater fan switch	2	8	Middle of dash		
Passenger's airbag cutoff indicator	8	4	Middle of dash		
Rear window defogger switch	12	5	Middle of dash		
TPMS control unit	1	20	Under middle of dash		
Yaw rate acceleration sensor	16	15	Under middle of dash		
C501	9	8	Under right side of dash		With tweeter With VSA
C502 (Junction connector)	20	12	Under middle of dash		
C503 (Junction connector)	21	12	Under middle of dash		
C504 (Junction connector)	23	12	Under middle of dash		
C505 (Junction connector)	22	12	Under middle of dash		
C506 (Junction connector)	4	12	Middle of dash		
C507 (Junction connector)	18	12	Under middle of dash		
G502	3		Under middle of dash	Body ground, via dashboard wire harness	

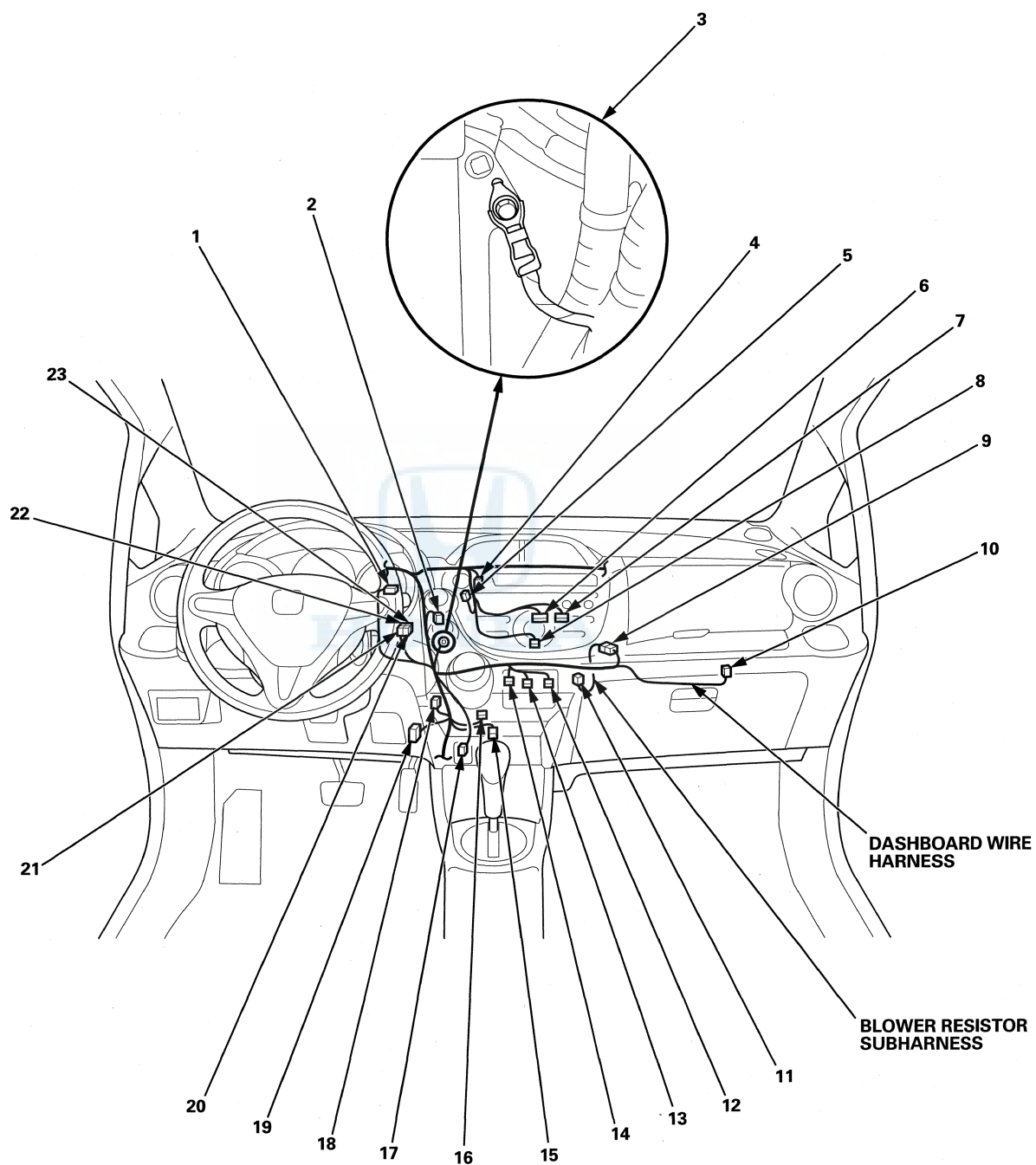
*1: '09-11 models

*2: '12 model

*3: '12 model with HandsFreeLink system

Blower Resistor Subharness (Without Navigation)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Blower resistor	11	4	Under right side of dash	Dashboard wire harness	
C501	9	8	Under right side of dash		



(cont'd)

Connectors and Harnesses

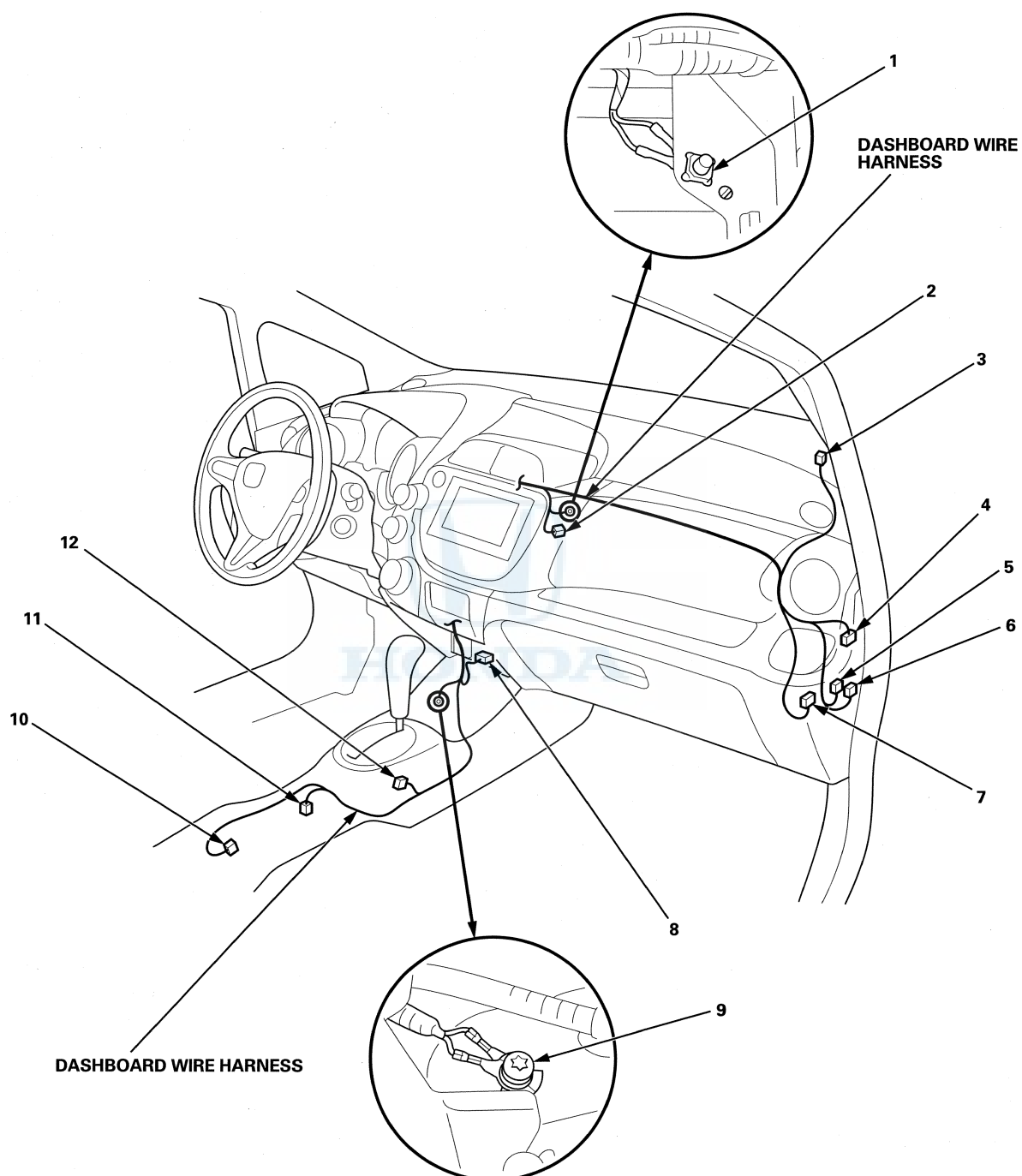
Connector to Harness Index (cont'd)

Dashboard Wire Harness (View of passenger's side) (With Navigation)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/T gear position indicator panel light/park-pin switch	12	6	Under center console	Right engine compartment wire harness	A/T
Front passenger's airbag inflator	2	4	Under right side of dash		
Fuel tank unit	11	4	Under center console		
Parking brake switch	10	1	Under center console		
Right tweeter	3	2	Right side of dash		
SRS unit connector A	8	39	Under middle of dash		*
USB adapter unit	7	14	Under right side of dash		
C201	6	13	Under right side of dash		
C202	5	4	Under right side of dash	Right engine compartment wire harness	
C761	4	13	Under right side of dash	Front passenger's door wire harness	
G503	1		Under middle of dash	Body ground, via dashboard wire harness	
G504	9		Under center console	Body ground, via dashboard wire harness	

*: '09-11 models





(cont'd)

Connectors and Harnesses

Connector to Harness Index (cont'd)

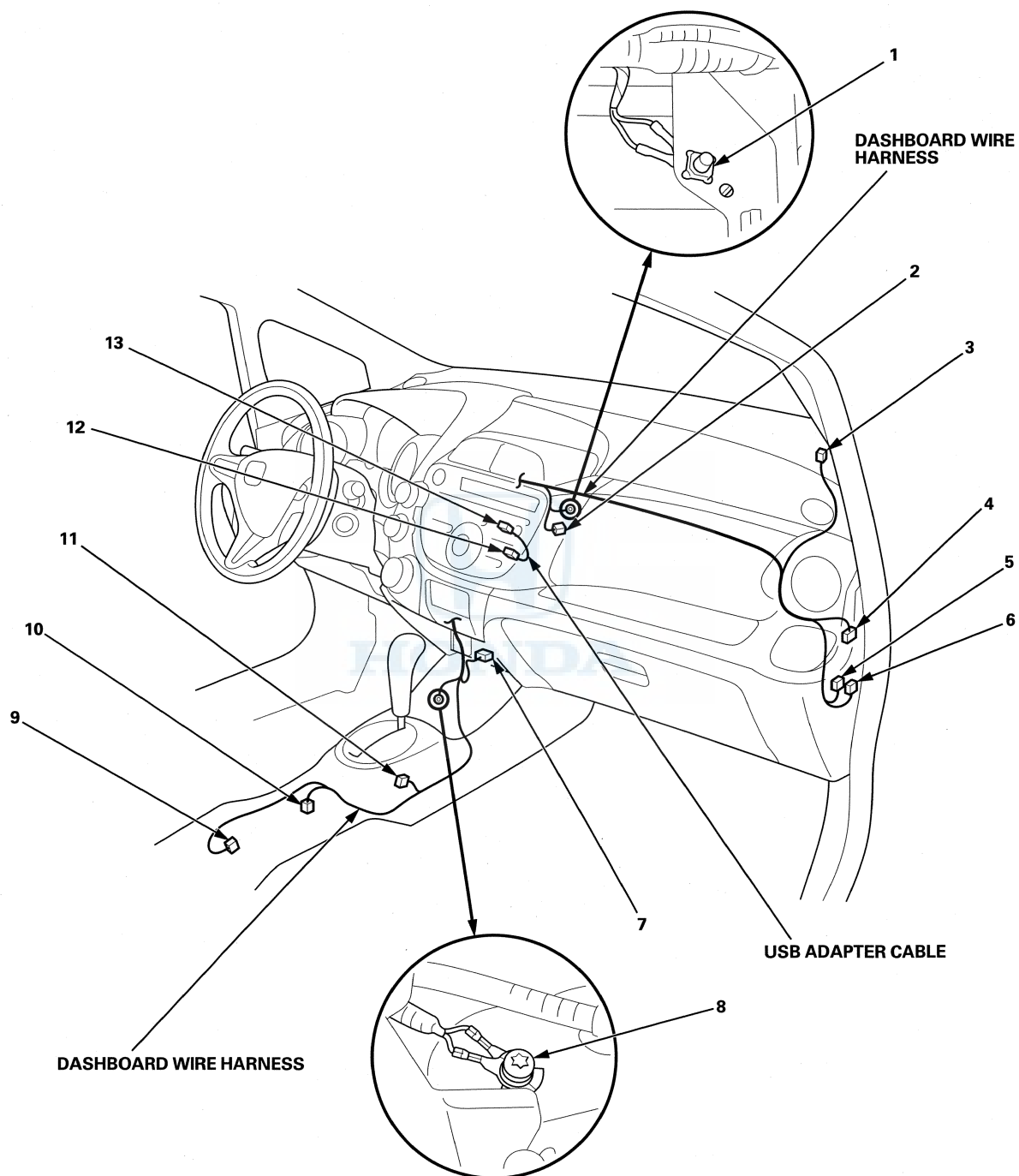
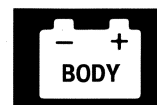
Dashboard Wire Harness (View of passenger's side) (Without Navigation)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
A/T gear position indicator panel light/park-pin switch	11	6	Under center console	Right engine compartment wire harness	A/T
Front passenger's airbag inflator	2	4	Under right side of dash		With tweeter
Fuel tank unit	10	4	Under center console		
Parking brake switch	9	1	Under center console		
Right tweeter	3	2	Right side of dash		
SRS unit connector A	7	39	Under middle of dash		
C201	6	13	Under right side of dash		
C202	5	4	Under right side of dash	Right engine compartment wire harness	
C761	4	13	Under right side of dash	Front passenger's door wire harness	
G503	1		Under middle of dash	Body ground, via dashboard wire harness	
G504	8		Under center console	Body ground, via dashboard wire harness	

USB Adapter Cable (Without Navigation)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Audio unit	13	14	Under right side of dash		
USB adapter unit	12	14	Under right side of dash		

HONDA



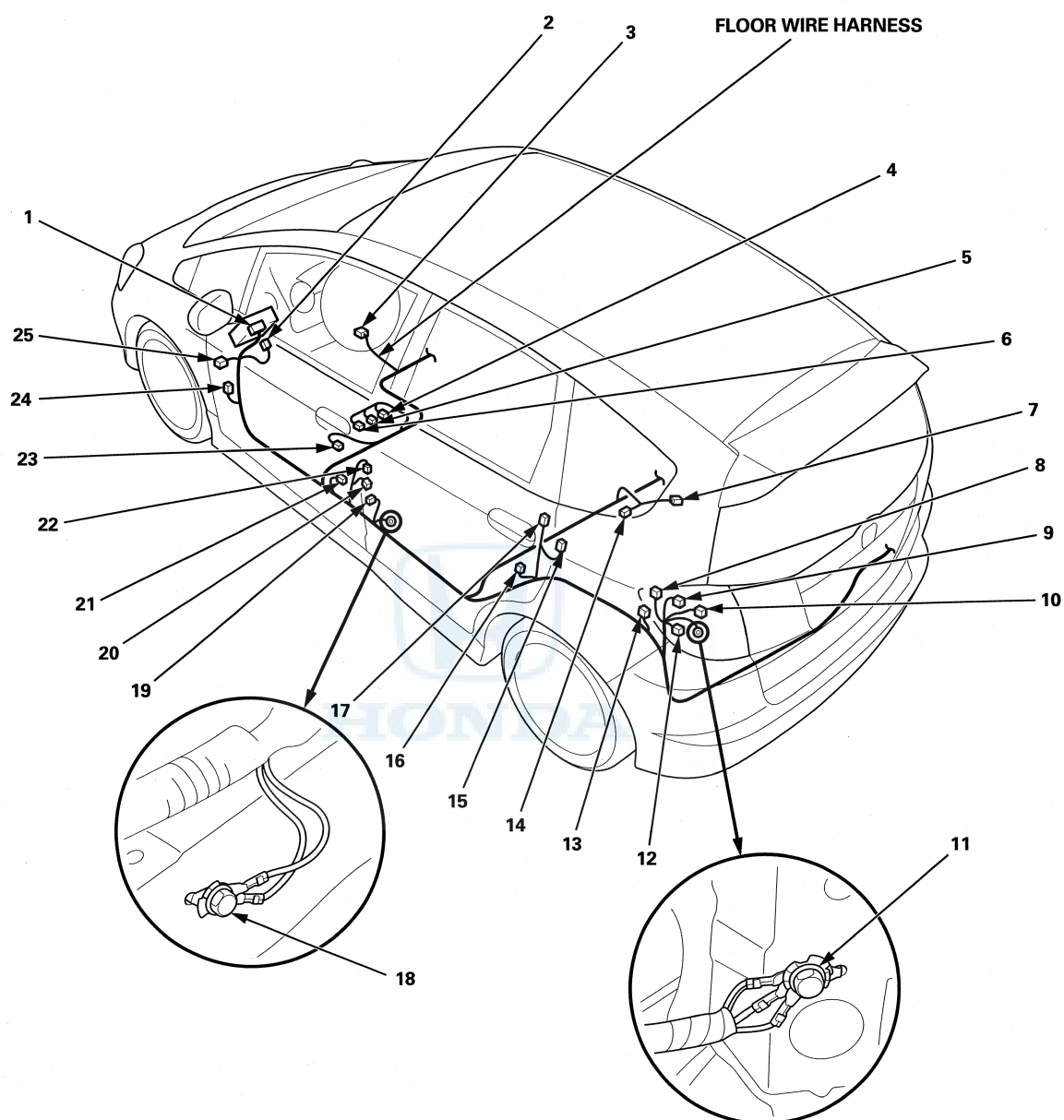
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Connectors and Harnesses

Connector to Harness Index (cont'd)

Floor Wire Harness (Left branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Cargo area light	13	2	Left side of cargo area		
Driver's door switch	19	1	Left B-pillar		
Driver's seat belt buckle switch	4	2	Under driver's seat		
Driver's seat belt tensioner	20	4	Left B-pillar		
Driver's side airbag inflator	6	2	Under driver's seat		
Left back-up light	9	2	Behind left taillight		
Left rear door switch	16	1	Left C-pillar		
Left rear wheel speed sensor	14	2	Under floor		
Left side curtain airbag inflator	17	2	Left C-pillar		
Left side impact sensor (first)	21	4	Left B-pillar		
Left side impact sensor (second)	15	2	Left C-pillar		
Left taillight/brake light	10	4	Behind left taillight		
Left turn signal light	12	3	Behind left taillight		
Right rear wheel speed sensor	7	2	Under floor		
SRS unit connector B	3	39	Under middle of dash		
Under-dash fuse/relay box connector C (see page 22-55)	1	49	Under left side of dash		
C303	2	6	Under left side of dash	Left engine compartment wire harness	
C601	24	12	Under left side of dash	Dashboard wire harness	
C602	23		Under middle of dash	Fuel tank subharness	
C604	5	3	Under driver's seat	Driver's seat position sensor harness	
C701	8	13	Left side of cargo area	Tailgate wire harness	
C752	25	4	Under left side of dash	Driver's door wire harness	
C771	22	18	Left C-pillar	Left rear door wire harness	
G601	18		Left side of floor	Body ground, via floor wire harness	
G602	11		Behind left taillight	Body ground, via floor wire harness	



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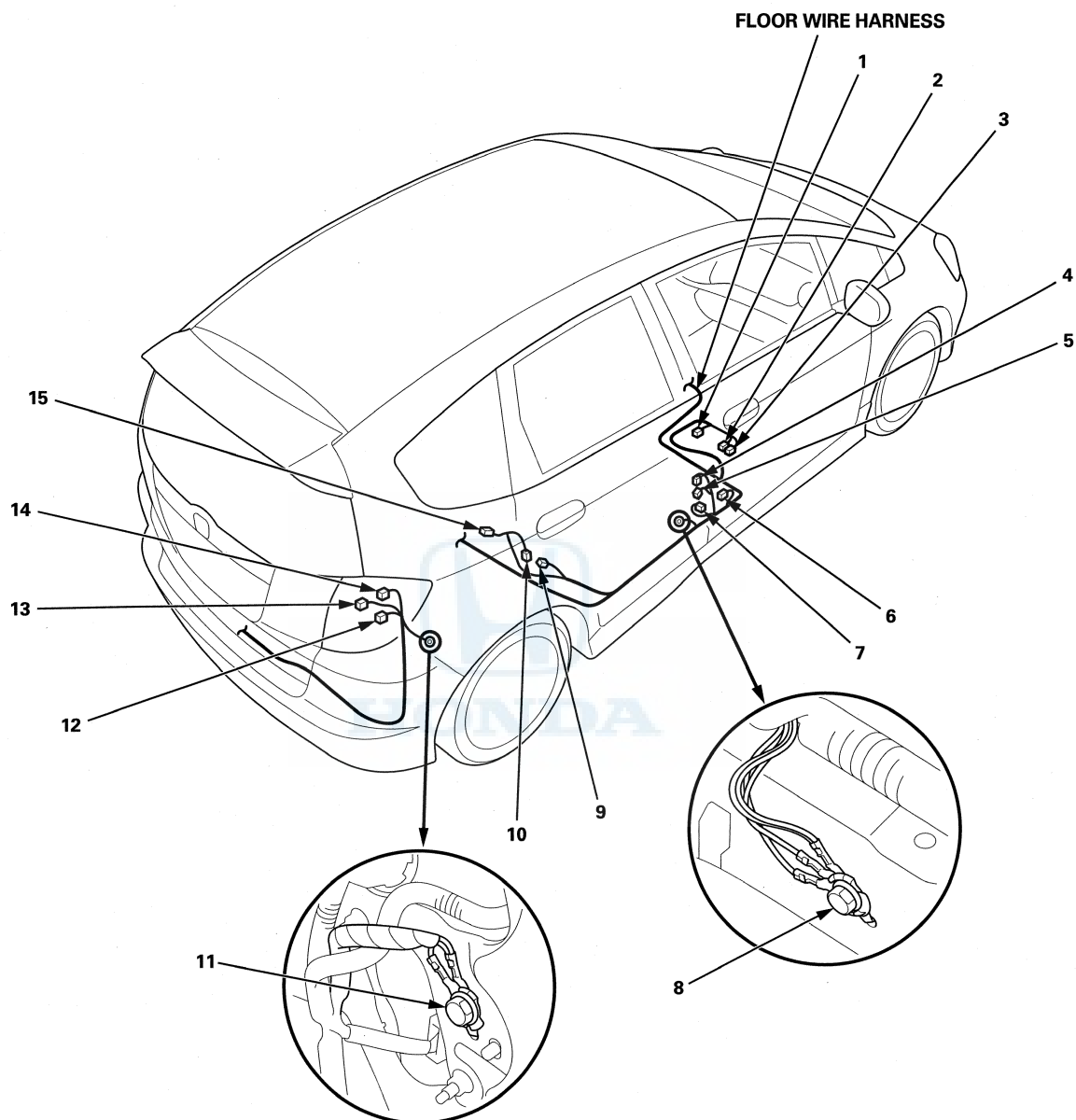
Connectors and Harnesses

Connector to Harness Index (cont'd)

Floor Wire Harness (Right branch)

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Front passenger's door switch	5	1	Right B-pillar		
Front passenger's seat belt buckle switch	1	2	Under front passenger's seat		
Front passenger's seat belt tensioner	7	4	Right B-pillar		
Front passenger's side airbag inflator	3	2	Under front passenger's seat		
Right back-up light	14	2	Behind right taillight		
Right rear door switch	10	1	Right C-pillar		
Right side curtain airbag inflator	15	2	Right C-pillar		
Right side impact sensor (first)	6	4	Right B-pillar		
Right side impact sensor (second)	9	2	Right C-pillar		
Right taillight/brake light	13	4	Behind right taillight		
Right turn signal light	12	3	Behind right taillight		
C603	2	4	Under front passenger's seat	ODS unit harness	
C781	4	18	Right C-pillar	Right rear door wire harness	
G603	8		Right side of floor	Body ground, via floor wire harness	
G604	11		Behind right taillight	Body ground, via floor wire harness	

HONDA



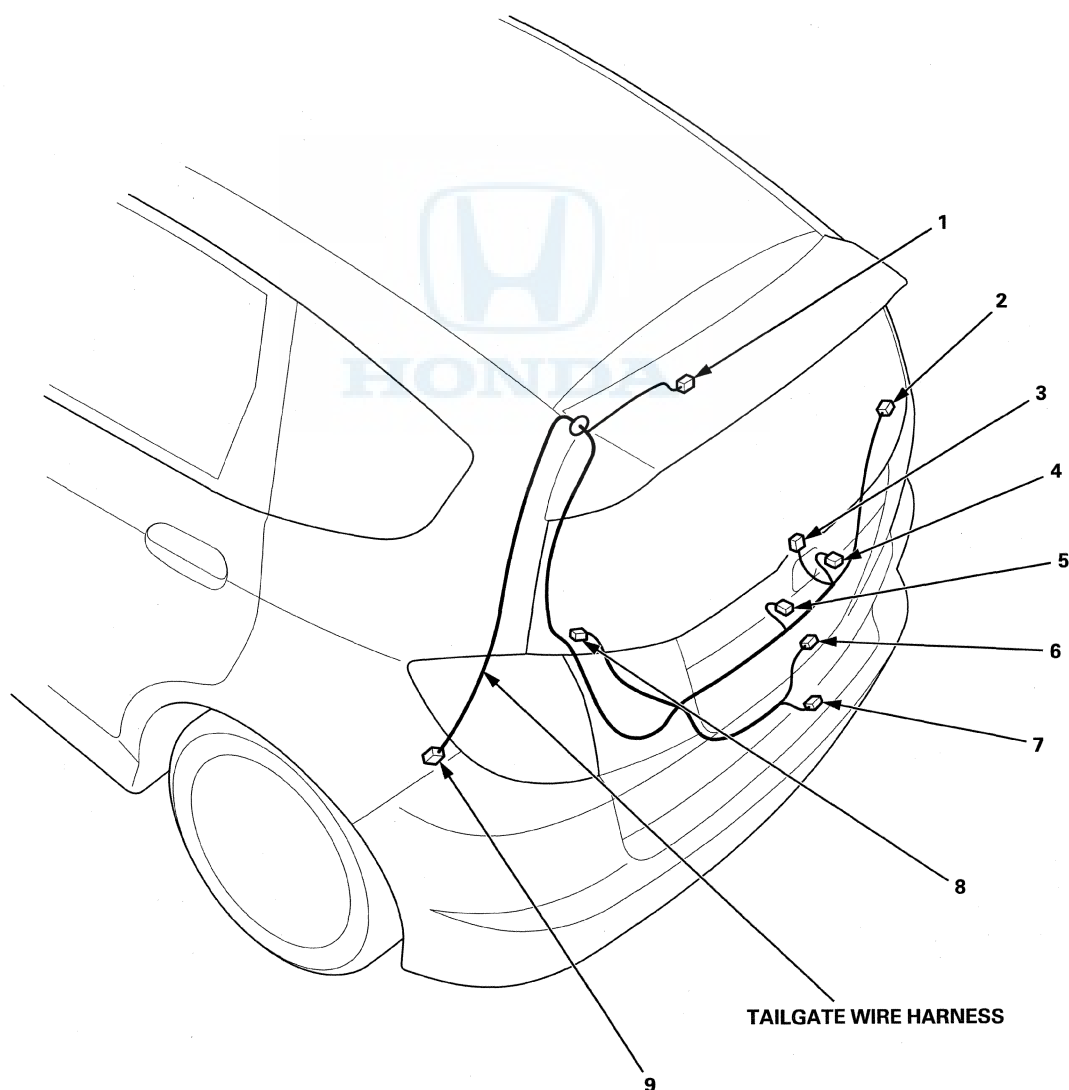
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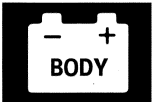
Connectors and Harnesses

Connector to Harness Index (cont'd)

Tailgate Wire Harness

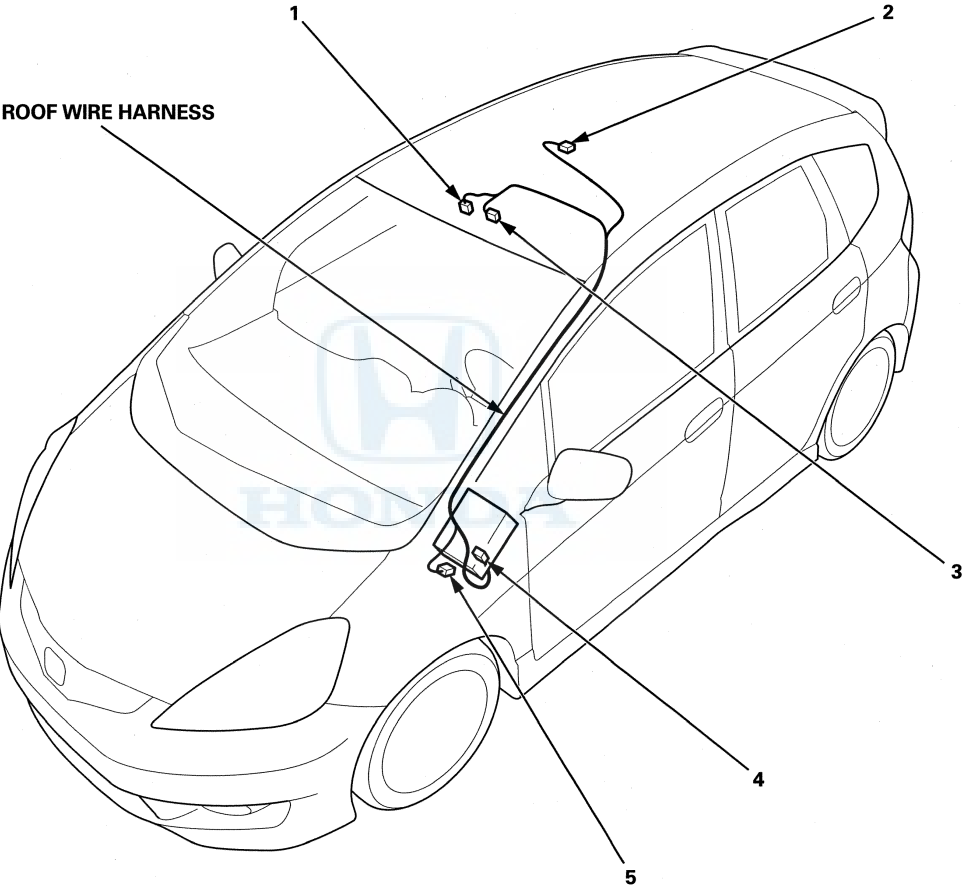
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
High mount brake light	1	2	Behind high mount brake light		
Left license plate light	5	2	Middle of tailgate		
Rear window defogger connector A (+)	8	1	Left side of tailgate		
Rear window defogger connector B (-)	2	1	Right side of tailgate		
Rear window wiper motor	3	4	Middle of tailgate		
Right license plate light	4	2	Middle of tailgate		
Tailgate latch switch	7	2	Lower side of tailgate		
Tailgate lock actuator	6	2	Lower side of tailgate		
C701	9	13	Left side of cargo area	Floor wire harness	





Roof Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Ceiling light	2	3	Roof	Dashboard wire harness	
Map light	1	3	Front of roof		
Navigation microphone	3	3	Front of roof		
Under-dash fuse/relay box connector G (see page 22-55)	4	8	Under left side of dash		
C801	5	4	Under left side of dash		



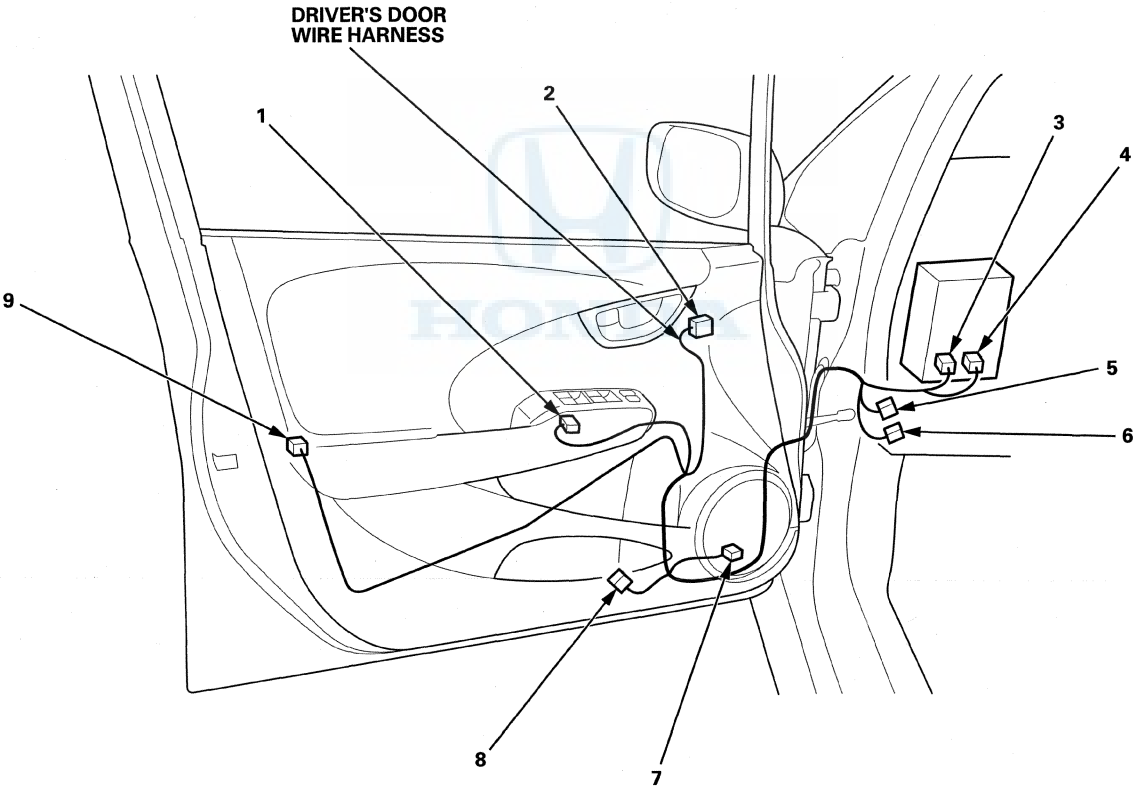
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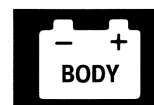
Connectors and Harnesses

Connector to Harness Index (cont'd)

Driver's Door Wire Harness

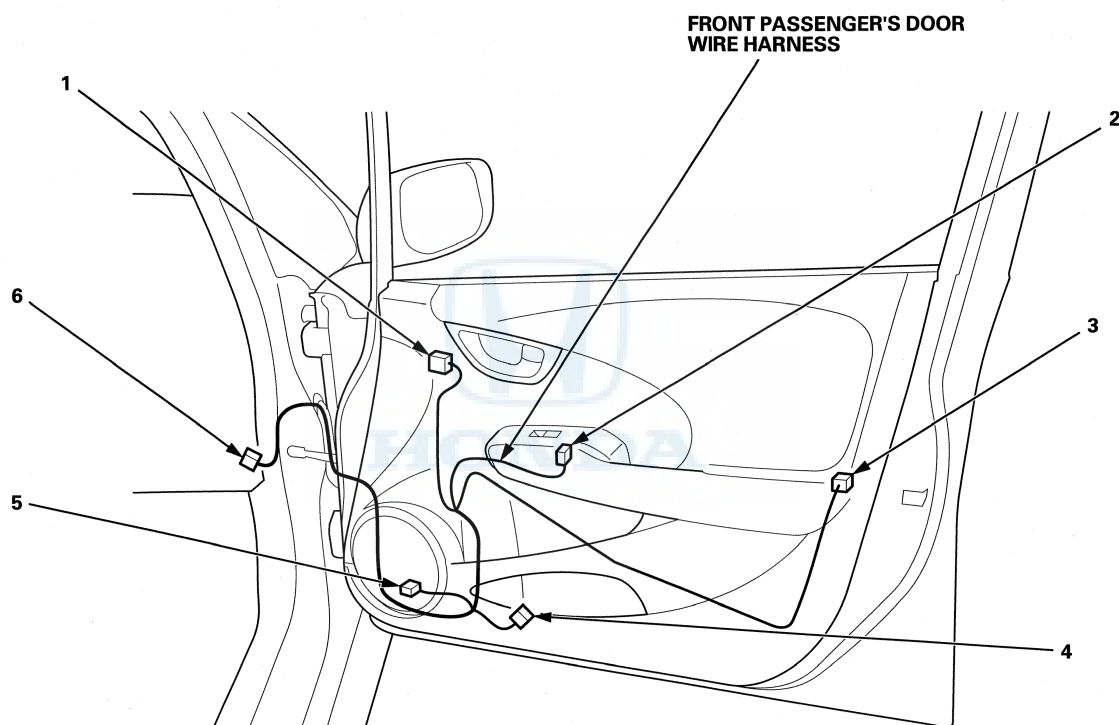
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Driver's door lock actuator/knob switch/key cylinder switch	9	10	Driver's door		With power door locks
Driver's door speaker	7	2	Driver's door		
Driver's power window motor	8	6	Driver's door		
Left power mirror	2	6	Driver's door		
Power window master switch	1	22	Driver's door		
Under-dash fuse/relay box connector E (see page 22-55)	3	12	Under left side of dash		
Under-dash fuse/relay box connector F (see page 22-55)	4	6	Under left side of dash		
C751	5	13	Under left side of dash	Dashboard wire harness	
C752	6	4	Under left side of dash	Floor wire harness	





Front Passenger's Door Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Front passenger's door lock actuator/knob switch	3	10	Front passenger's door	Dashboard wire harness (see page 22-48)	With power door locks
Front passenger's door speaker	5	2	Front passenger's door		
Front passenger's power window motor	4	2	Front passenger's door		
Front passenger's power window switch	2	5	Front passenger's door		
Right power mirror C761	1	6	Front passenger's door		
	6	13	Under right side of dash		



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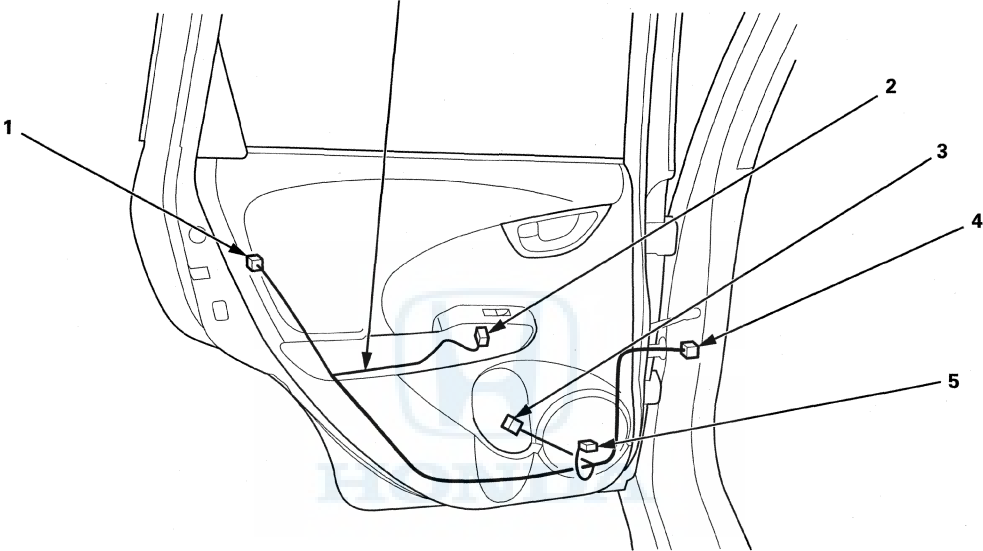
Connectors and Harnesses

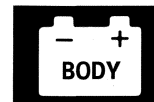
Connector to Harness Index (cont'd)

Left Rear Door Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Left rear door lock actuator/knob switch	1	10	Left rear door	Floor wire harness	With power door locks
Left rear door speaker	5	2	Left rear door		
Left rear power window motor	3	2	Left rear door		
Left rear power window switch	2	5	Left rear door		
C771	4	18	Left B-pillar		

LEFT REAR DOOR WIRE HARNESS

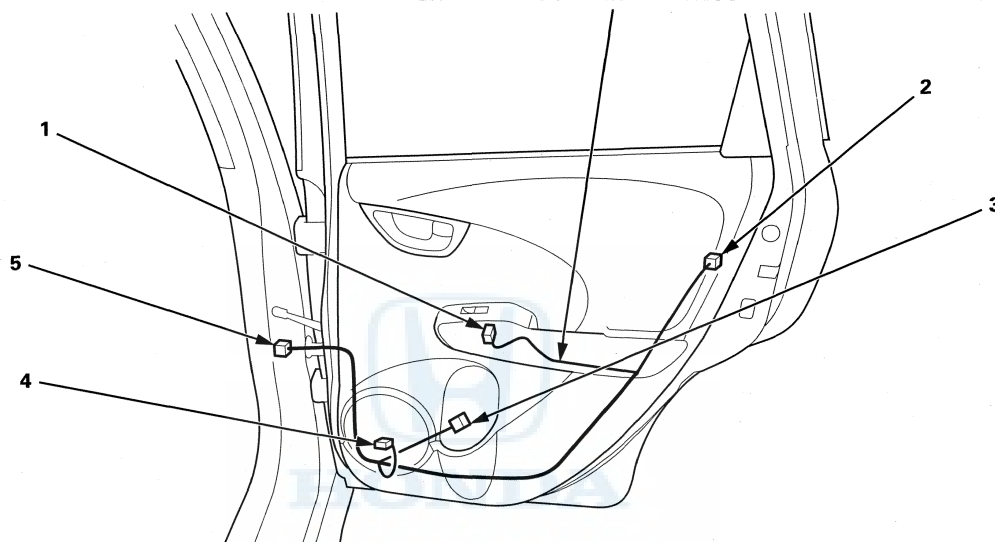




Right Rear Door Wire Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Right rear door lock actuator/knob switch	2	10	Right rear door	Floor wire harness	With power door locks
Right rear door speaker	4	2	Right rear door		
Right rear power window motor	3	2	Right rear door		
Right rear power window switch C781	1	5	Right rear door		
	5	18	Right B-pillar		

RIGHT REAR DOOR WIRE HARNESS



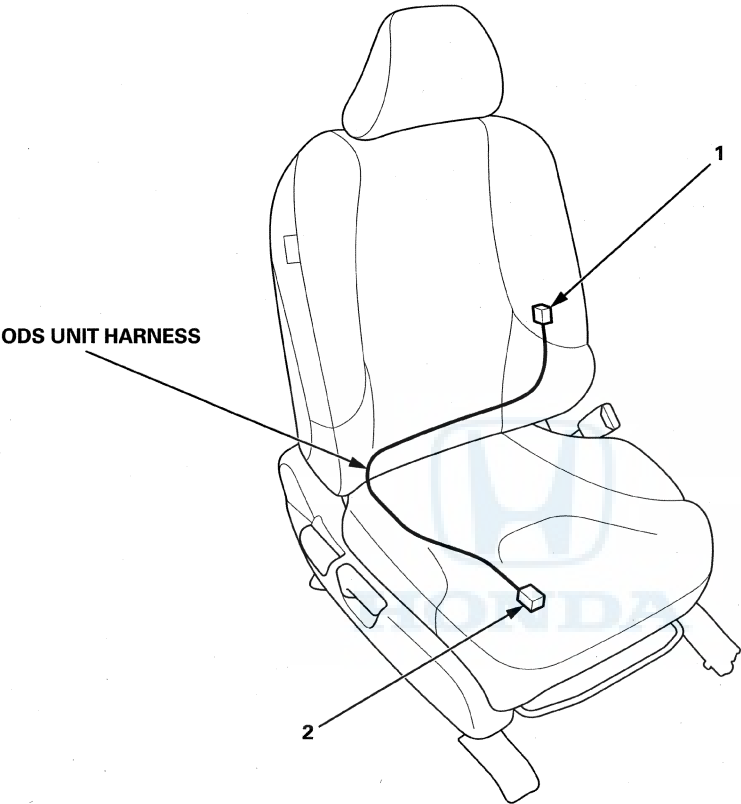
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Connectors and Harnesses

Connector to Harness Index (cont'd)

ODS Unit Harness

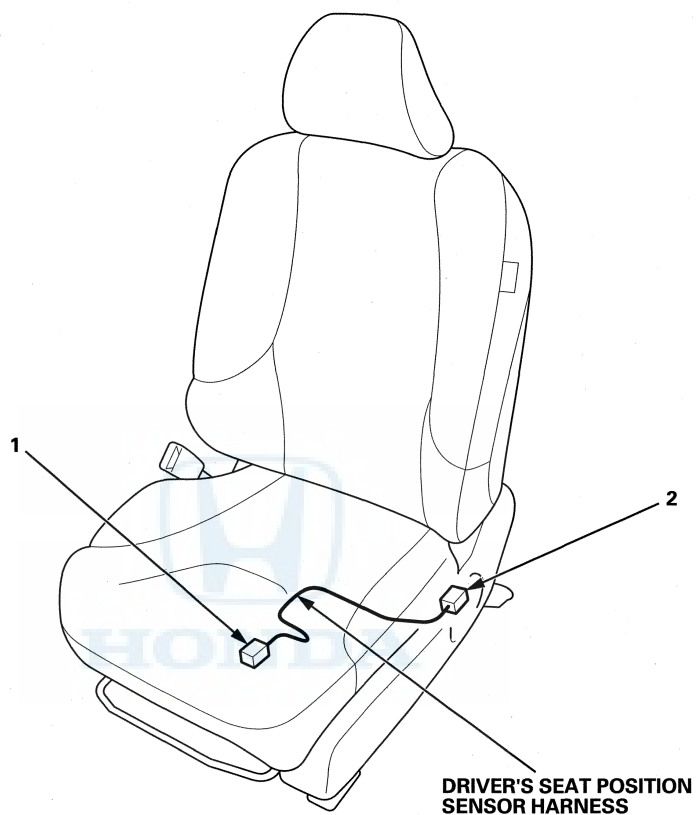
Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
ODS unit	1	4	Right side of front passenger's seat	Floor wire harness	
C603	2	4	Under front passenger's seat		





Driver's Seat Position Sensor Harness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Driver's seat position sensor C604	2	2	Inside of driver's seat	Floor wire harness	
	1	3	Under driver's seat		



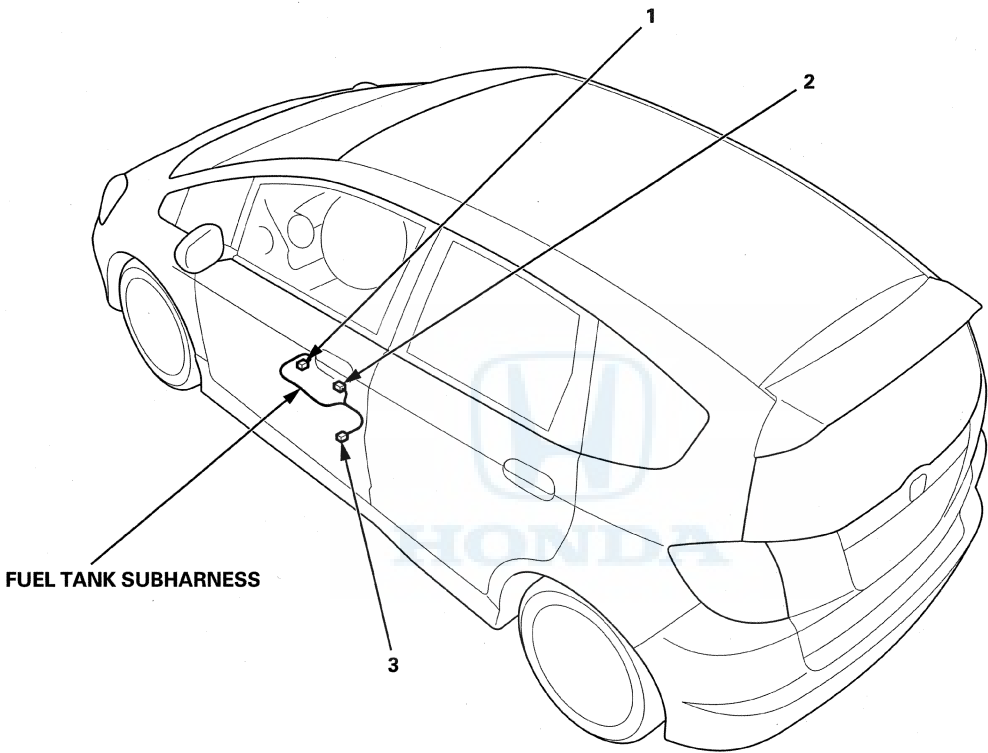
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Connectors and Harnesses

Connector to Harness Index (cont'd)

Fuel Tank Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Evaporative emission (EVAP) canister vent shut valve	1	2	Under middle of floor	Floor wire harness	
Fuel tank pressure (FTP) sensor	3	3	Under middle of floor		
C602	2	6	Under middle of floor		



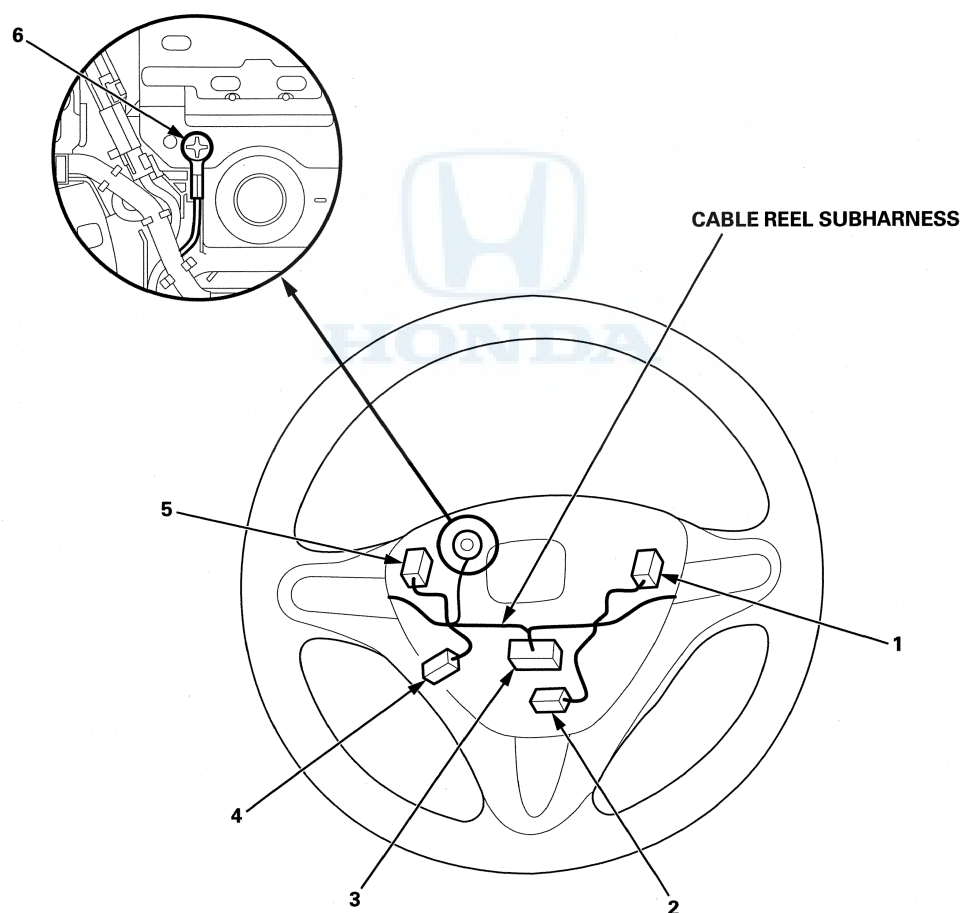
Cable Reel Subharness

Connector or Terminal	Ref	Cavities	Location	Connects to	Notes
Cable reel	3	20	Steering wheel		
HFL-navigation voice control switch	4	5	Steering wheel		*1
HFL switch	4	5	Steering wheel		*2
Horn switch	2	1	Steering wheel		
Paddle shifter - (Downshift switch)	5	2	Steering wheel		Five-position transmission
Paddle shifter + (Upshift switch)	1	2	Steering wheel		Five-position transmission
G551	6		Steering wheel		*3

*1: '12 model with navigation

*2: '12 model with HandsFreeLink system

*3: '12 model

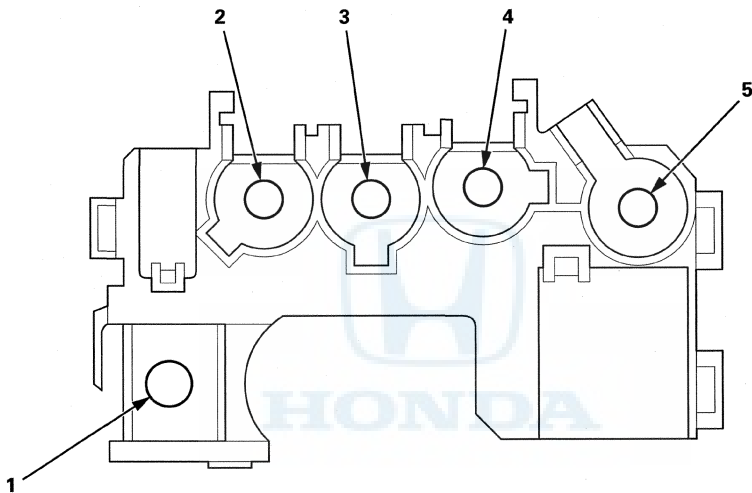


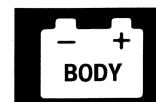
Fuse/Relay Boxes

Connector to Fuse/Relay Box Index

Battery Terminal Fuse Box

Socket	Ref	Terminal	Connects to
T1	1	—	Battery terminal, Starter (see page 22-14)
T2	2	—	Engine wire harness M/T (see page 22-16) A/T (see page 22-18)
T3	3	—	Left engine compartment wire harness (engine compartment branch) (see page 22-26)
T4	4	—	Left engine compartment wire harness (engine compartment branch) (see page 22-26)
T5	5	—	Left engine compartment wire harness (engine compartment branch) (see page 22-26)





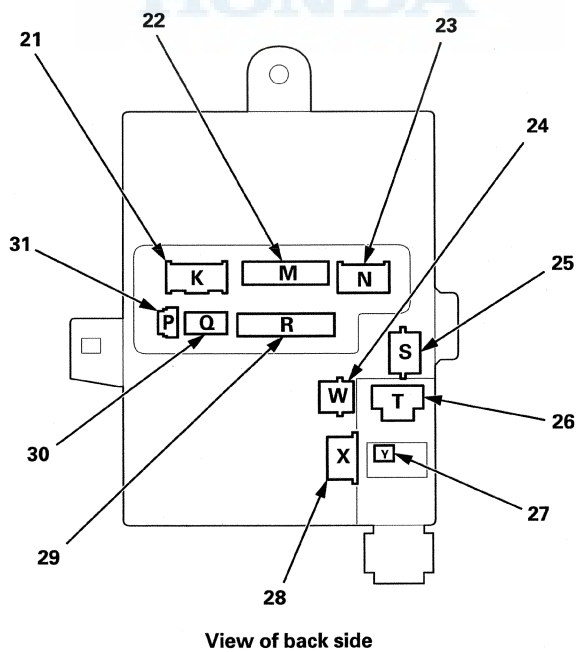
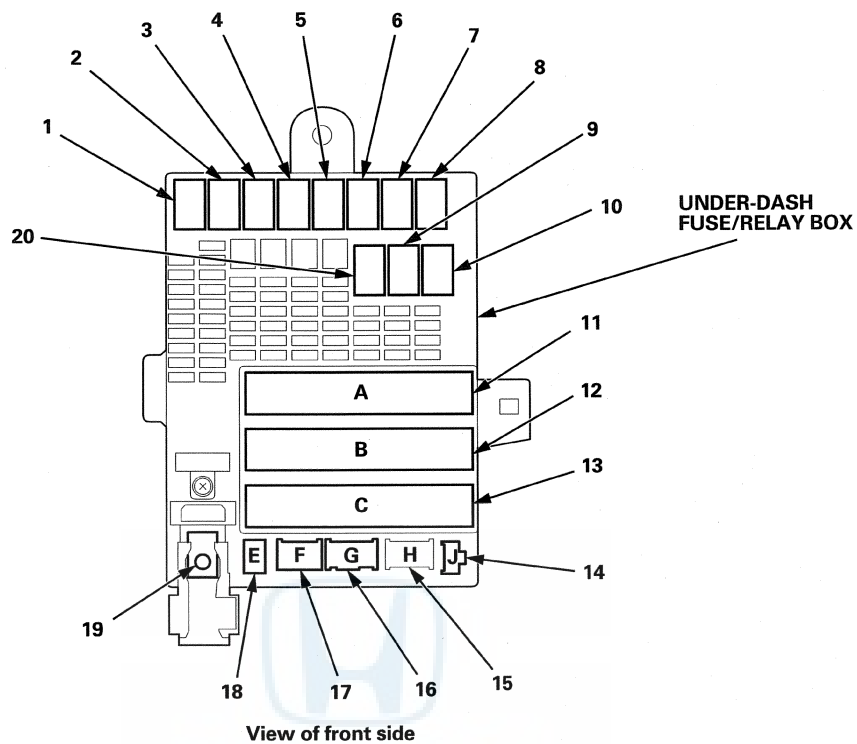
Under-dash Fuse/Relay Box

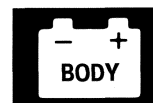
Socket	Ref	Terminal	Connects to
A	11	36	Right engine compartment wire harness (dashboard branch) (see page 22-24)
A/F sensor relay	3	4	
B	12	36	Left engine compartment wire harness (dashboard branch) (see page 22-28)
Blower motor relay	2	4	
C	13	49	Floor wire harness (left branch) (see page 22-40)
E	18	12	Driver's door wire harness (see page 22-46)
Electronic throttle control system (ETCS) control relay	7	4	
F	17	6	Driver's door wire harness (see page 22-46)
G	16	8	Roof wire harness (see page 22-45)
H (optional connector)	15	8	Not used
Ignition coil relay	5	4	
J (MICU service check connector)	14	3	
K	21	10	Dashboard wire harness (view of driver's side) (see page 22-30)
Lighting relay	4	4	
Driver's door unlock relay	20	5	
M	22	34	Dashboard wire harness (view of driver's side) (see page 22-30)
N	23	8	Dashboard wire harness (view of driver's side) (see page 22-30)
P (SRS)	31	4	Dashboard wire harness (view of driver's side) (see page 22-30)
PGM-FI main relay 1 (FI MAIN)	6	4	
PGM-FI main relay 2 (FUEL PUMP)	10	4	
Power window relay (P/W)	1	4	
Q	30	16	Dashboard wire harness (view of driver's side) (see page 22-30)
R	29	28	Dashboard wire harness (view of driver's side) (see page 22-30)
Rear window defogger relay	8	4	
S	25	3	Dashboard wire harness (view of driver's side) (see page 22-30)
Starter cut relay (ST CUT)	9	4	
T	26	2	Dashboard wire harness (view of driver's side) (see page 22-30)
W	24	1	Dashboard wire harness (view of driver's side) (see page 22-30)
X	28	3	Dashboard wire harness (view of driver's side) (see page 22-30)
Y (Electrical load detector)	27	3	Dashboard wire harness (view of driver's side) (see page 22-30)
T9	19	—	Left engine compartment wire harness (dashboard branch) (see page 22-28)

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Fuse/Relay Boxes

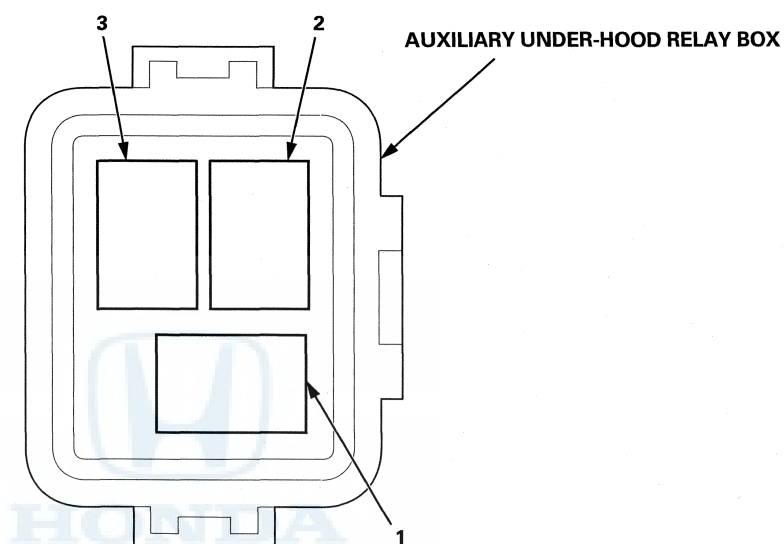
Connector to Fuse/Relay Box Index (cont'd)





Auxiliary Under-hood Relay Box

Socket	Ref	Terminal	Connects to
A/C compressor clutch relay	1	4	Left engine compartment wire harness (engine compartment branch) (see page 22-26)
A/C condenser fan relay	2	4	Left engine compartment wire harness (engine compartment branch) (see page 22-26)
Radiator fan relay	3	4	Left engine compartment wire harness (engine compartment branch) (see page 22-26)



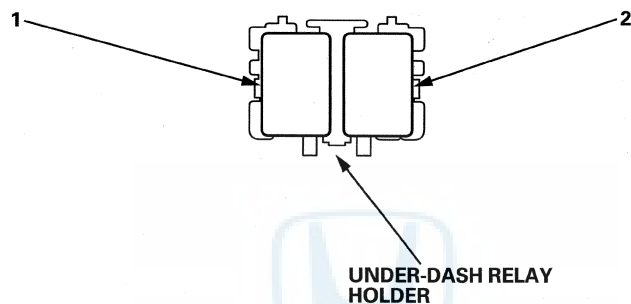
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Fuse/Relay Boxes

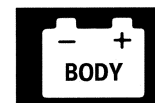
Connector to Fuse/Relay Box Index (cont'd)

Under-Dash Relay Holder

Socket	Ref	Terminal	Connects to
Fog light relay	1	4	Dashboard wire harness (view of driver's side) (see page 22-30)
Horn relay	2	4	Dashboard wire harness (view of driver's side) (see page 22-30)



Power Distribution

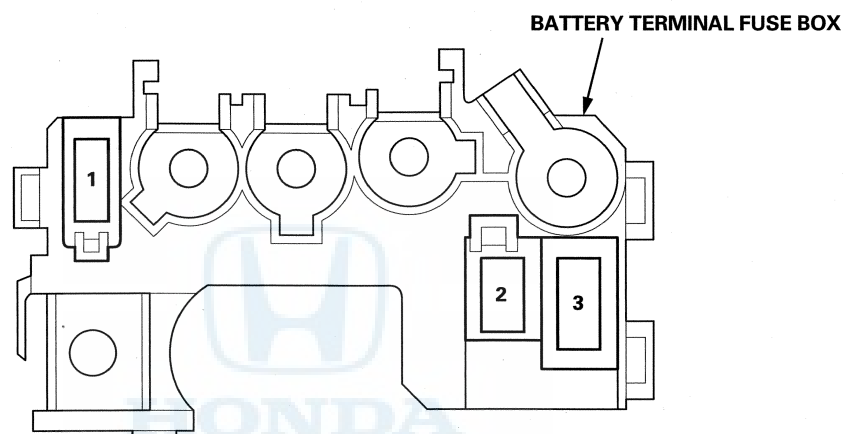


Fuse to Components Index

Battery Terminal Fuse Box

Fuse Number	Amps	Component(s) or Circuit(s) Protected
1	100 A	Alternator, Under-dash fuse/relay box fuses (No. 1, No. 2, No. 3, No. 9, No. 17 (via power window relay), No. 18 (via power window relay), No. 19 (via power window relay), No. 26, No. 27, No. 28, No. 29, No. 30, No. 32 (via lighting relay), No. 33, No. 34 (via lighting relay), No. 37, No. 38 (via driver's door unlock relay), No. 39, No. 43, No. 47, No. 48 (via MICU), No. 51 (via MICU), No. 52, No. 54 (via rear defogger relay), No. 55 (via rear defogger relay), No. 57, No. 58, No. 59, and No. 60), Lighting relay, Driver's door unlock relay, Power window relay
2	70 A	EPS control unit
3	20 A	No. 23, and No. 24 fuses in the under-dash fuse/relay box

NOTE: These fuses are not serviceable; replace the battery terminal fuse box as an assembly.



(cont'd)

Power Distribution

Fuse to Components Index (cont'd)

Under-dash Fuse/Relay Box

Fuse Number	Amps	Component(s) or Circuit(s) Protected
1	10 A	MICU (VBU), Cargo area light, Front individual map light, Ceiling light, Gauge control module, Navigation unit* ¹ , Audio unit* ² , Immobilizer-keyless control unit, Data link connector (DLC), HandsFreeLink control unit (With HandsFreeLink system)* ⁶
2	7.5 A	TPMS control unit
3	20 A	Power window master switch
4	—	Not used
5	10 A	Back-up light (via back-up light switch) (M/T), Back-up light (via MICU) (A/T), Transmission range switch (A/T)
6	10 A	SRS unit (VB)
7	10 A	PCM (VBSOL)
8	7.5 A	SRS unit (VA), ODS unit, Passenger's airbag cutoff indicator
9	20 A	Fog lights (via fog light relay)
10	7.5 A	Auxiliary under-hood relay box, A/C switch, Power mirror switch, Rear window defogger relay, Rear window defogger switch indicator
11	7.5 A	VSA modulator-control unit (IG1)* ³ , ABS modulator-control unit (IG1)* ⁴ , EPS control unit (IG1), Yaw rate acceleration sensor* ³
12	10 A	MAF sensor, EVAP canister purge valve, Secondary HO2S, Alternator, ECM/PCM (BKSWNC)
13	20 A	Accessory power socket
14	7.5 A	No. 1 (30 A) fuse in the auxiliary under-dash fuse holder, MICU (ACC), Key interlock solenoid (A/T)
15	7.5 A	MICU (DAY LT)
16	10 A	Rear window wiper motor
17	20 A	Power window master switch, Front passenger's power window motor
18	20 A	Power window master switch, Right rear power window motor
19	20 A	Power window master switch, Left rear power window motor
20	15 A	Fuel pump (via PGM-FI main relay 2), ECM/PCM (IG1), Immobilizer-keyless control unit
21	15 A	MICU (IG1 WASHER)
22	7.5 A	Electrical load detector (ELD), Gauge control module, Shift lock solenoid (A/T), TPMS control unit
23	10 A	MICU (+B HAZARD), Hazard warning switch
24	10 A	Horn, Security horn* ⁵ , Right brake light, Left brake light, High mount brake light, ECM/PCM (BKSW)
25	—	Not used
26	10 A	ECM/PCM (SUBRLY), A/F sensor (via A/F sensor relay), EVAP canister vent shut valve
27	30 A	MICU (+B DOOR LOCK)
28	20 A	MICU (H/L MAIN)

*1: With navigation

*2: Without navigation

*3: With VSA

*4: With ABS

*5: With security

*6: '12 model



Fuse Number	Amps	Component(s) or Circuit(s) Protected
29	10 A	Right front parking/side marker light, Left front parking/side marker light, Right taillight, Left taillight, Right license plate light, Left license plate light, Hazard warning switch light, A/T gear position indicator (A/T), Steering wheel switch light, Rear window defogger switch light, Audio unit light, A/C switch light, Heater control panel light, Power mirror switch light, Passenger's air bag cut off indicator, VSA OFF switch light* ¹ , Console box light* ⁵
30	30 A	Radiator fan motor (via radiator fan relay)
31	—	Not used
32	10 A	Right headlight (LO)
33	15 A	Ignition coils (via ignition coil relay), ECM/PCM (MRLY)
34	10 A	Left headlight (LO)
35	15 A	Front passenger's door lock actuator (LOCK), Right rear door lock actuator (LOCK), Tailgate lock actuator (LOCK)
36	15 A	Driver's door lock actuator (LOCK), Left rear door lock actuator (LOCK)
37	30 A	VSA modulator-control unit (FSR+B)* ¹ , ABS modulator-control unit (FSR+B)* ²
38	15 A	Driver's door lock actuator (UNLOCK)
39	15 A	ECM/PCM (MRLY), ECM/PCM (IGP), CKP sensor, CMP sensor, Injectors, ECM/PCM (IMOFPR), ECM/PCM (ETCSRLY)
40	—	Not used
41	—	Not used
42	—	Not used
43	7.5 A	A/C compressor clutch (via A/C compressor clutch relay)
44	7.5 A	Transmission range switch (N, P) (A/T), Clutch switch (M/T), Starter
45	—	Not used
46	—	Not used
47	30 A	A/C condenser fan motor (via A/C condenser fan relay)
48	10 A	Left headlight (HI)
49	15 A	Front passenger's door lock actuator (UNLOCK), Right rear door lock actuator (UNLOCK), Tailgate lock actuator (UNLOCK)
50	15 A	Left rear door lock actuator (UNLOCK)
51	10 A	Right headlight (HI)
52	15 A	ECM/PCM (VBETCS) (via ETCS control relay)
53	—	Not used
54	20 A	Rear window defogger* ⁴
55	10 A	Left power mirror defogger, Right power mirror defogger
56	30 A	MICU (IG1 FR WIPER)
57	30 A	Blower motor (via blower motor relay)
58	30 A	VSA modulator-control unit (MTR)* ¹ , ABS modulator-control unit (MTR)* ²
59	20 A* ³	Rear window defogger
	30 A* ⁴	Rear window defogger, No. 55 fuse in the under-dash fuse/relay box
60	50 A	Ignition switch
	40 A	Not used

*1: With VSA

*2: With ABS

*3: Without power mirror defogger

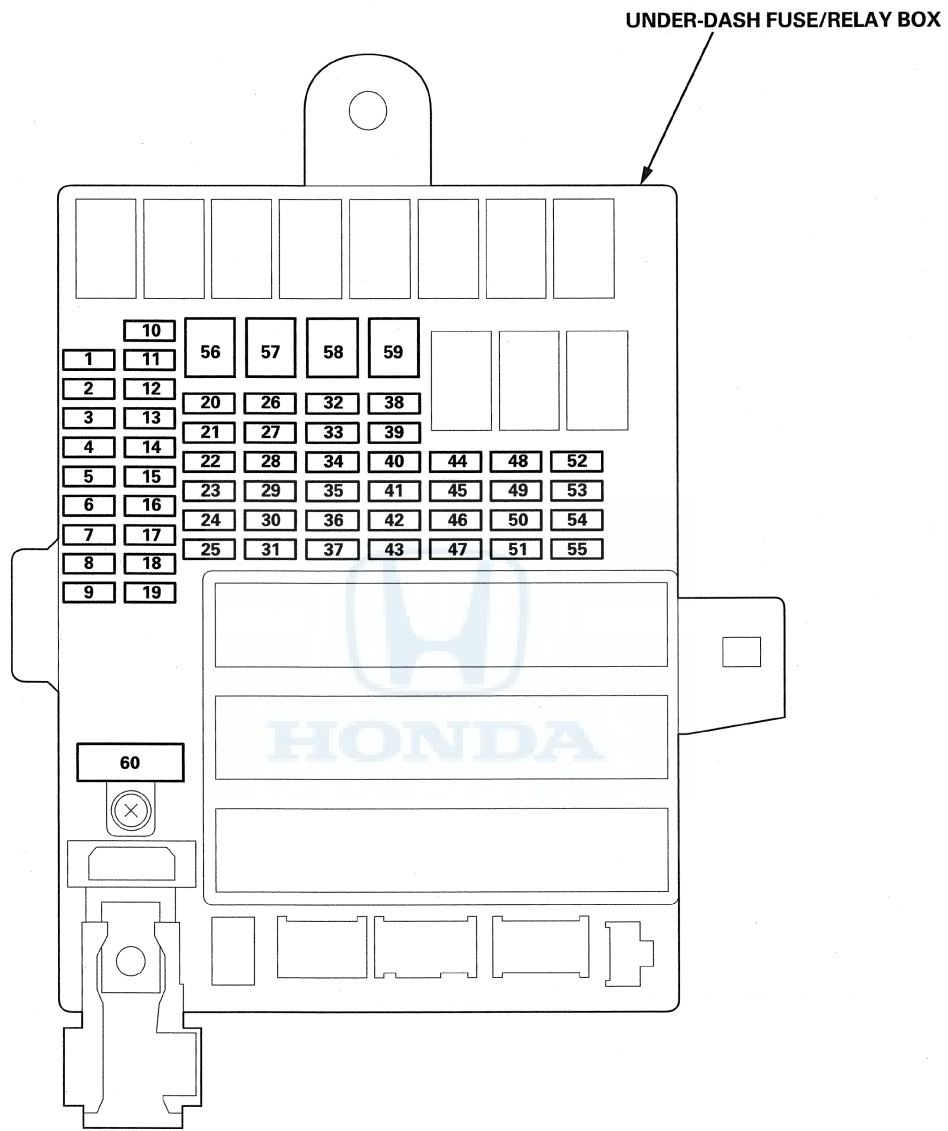
*4: With power mirror defogger

*5: '12 model

(cont'd)

Power Distribution

Fuse to Components Index (cont'd)





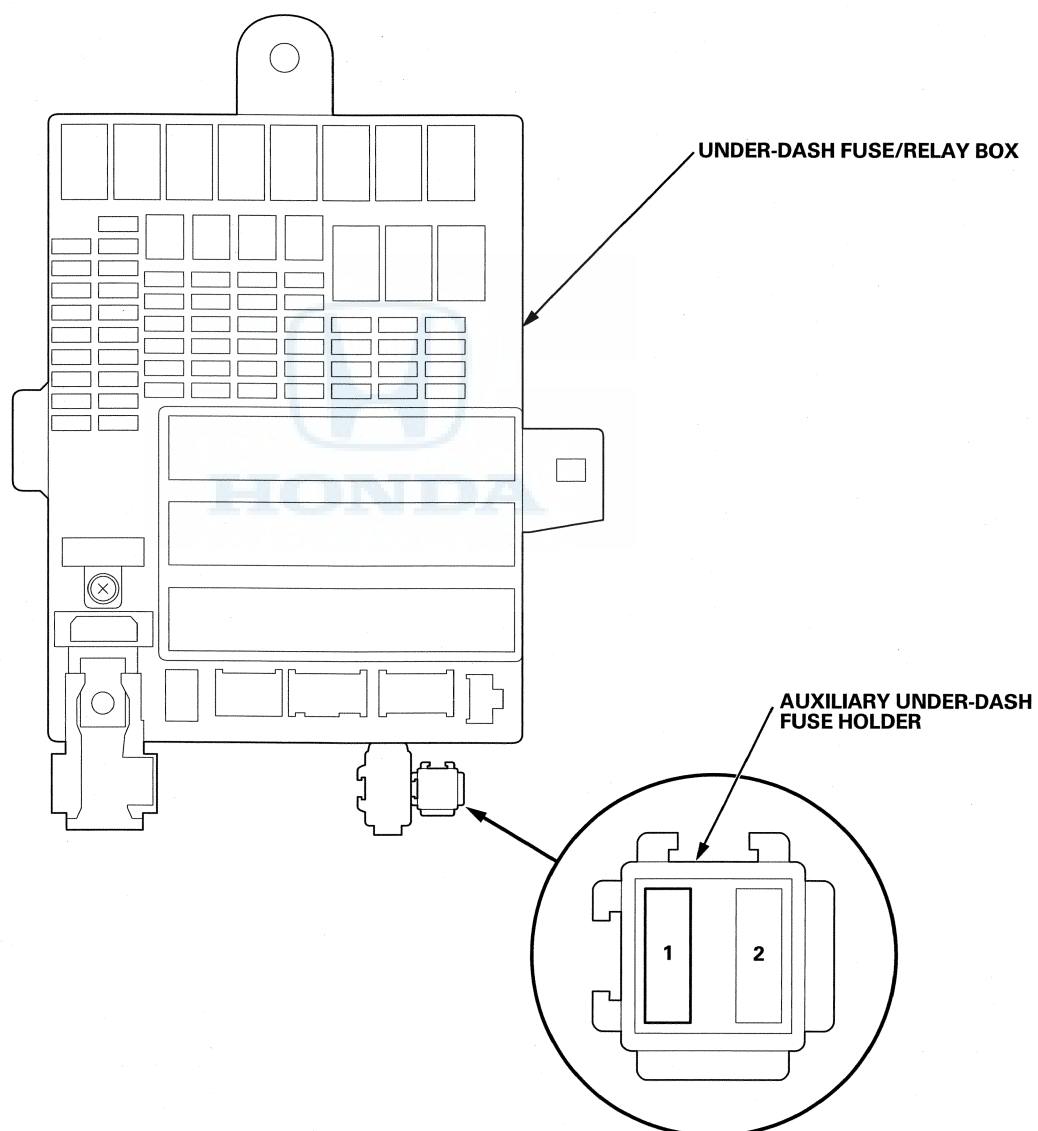
Auxiliary Under-dash Fuse Holder

Fuse Number	Amps	Component(s) or Circuit(s) Protected
1	30 A	Audio unit*1, Navigation unit*2, HandsFreeLink control unit (With HandsFreeLink system)*3
2	—	Not used

*1: Without navigation

*2: With navigation

*3: '12 model



Ground Distribution

Ground to Components Index

Ground	Component or circuit grounded
G1	Battery
G2	Engine
G3	Transmission housing
G101	Rocker arm oil control solenoid, EGR valve, ECM/PCM, Ignition coils, Rocker arm oil pressure switch, Data link connector (DLC), Immobilizer-keyless control unit, CMP sensor, CKP sensor, Transmission range switch (A/T), A/T clutch pressure control solenoid valves A, B, C Shielding between the ECM/PCM and the secondary HO2S (sensor 2) Shielding between the ECM/PCM and the knock sensor
G201	Right front turn signal light, Right front parking/side marker light, Right headlight, Washer fluid level switch (Canada models)
G202	VSA modulator-control unit* ¹ , ABS modulator-control unit* ²
G203	EPS control unit
G204	Right fog light
G301	A/C condenser fan motor, Left headlight, Left front turn signal light, wiper motor, Radiator fan motor, Left front parking/side marker light
G401	Brake fluid level switch, Hood switch (with security), Left fog light, Clutch switch (M/T)
G501	Cable reel (steering wheel switches ground), Ignition key switch, VSA OFF switch* ¹ , Power mirror switch, Electrical load detector (ELD), Power window master switch (including driver's door lock switch), Driver's door lock knob switch/key cylinder switch, Left power mirror defogger, MICU (2 wires), Driver's door unlock relay, Blower motor relay, Gauge control module, HandsFreeLink control unit (With HandsFreeLink system)* ⁶ , G551 (Via cable reel)* ⁶
G502	Data link connector (DLC), MICU (2 wire's), Rear window defogger switch, Accessory power socket, Front passenger's door lock knob switch, Right power mirror defogger, Yaw rate acceleration sensor, Parking pin switch, Fuel pump, TPMS control unit, Heater fan switch, Navigation unit* ⁵
G503	Navigation unit (2 wires)* ³ , Audio unit* ⁴
G504	SRS unit (2 wires)
G551* ⁶	G501 (Via cable reel)
G601	Left rear door lock knob switch, Driver's seat belt buckle switch
G602	Left back-up light, Left brake light/taillight, Left rear turn signal light, Rear window defogger, License plate light(s), Tailgate latch switch, Rear window wiper motor, High mount brake light
G603	Front passenger's seat belt buckle switch, Front passenger's seat sitting switch, ODS unit, Right rear door lock knob switch
G604	Right back-up light, Right brake light/taillight, Right rear turn signal light

*1: With VSA

*2: With ABS

*3: With navigation

*4: Without navigation

*5: '09-11 models with navigation

*6: '12 model

Under-Dash Fuse/Relay Box



Removal and Installation

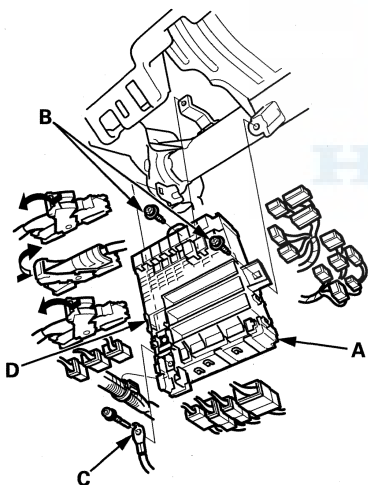
USA models

NOTE: SRS components are located in this area. Review the SRS component locations (see page 24-13), and precautions and procedures (see page 24-15) before doing repairs or servicing.

Removal

NOTE: The imoes unit is built into the MICU which is part of the under-dash fuse/relay box. You must register the imoes unit when replacing the under-dash fuse/relay box, or the engine will not start.

1. Do the battery terminal disconnection procedure (see page 22-69).
2. Remove the driver's dashboard undercover (see page 20-98).
3. Remove the fuse access panel (see page 20-97).
4. Disconnect the connectors from the front side of the under-dash fuse/relay box (A).



5. Remove the mounting bolts (B) and the terminal (C).
6. Release the lock (D) and pull the fuse/relay box away from the body.
7. Disconnect the connectors from the back side of the under-dash fuse/relay box, then remove the under-dash fuse/relay box.
8. Carefully remove the relays by prying under the base of the relay (see page 22-76).

NOTE: Do not use pliers. Pliers will damage the relays, which could cause the engine to stall or not start or cause other functions to fail.

Installation

9. Install the relays and connect the connectors to the under-dash fuse/relay box, then install the under-dash fuse/relay box in the reverse order of removal.
10. Install the removed parts in the reverse order of removal.
11. Do the battery terminal reconnection procedure (see page 22-70).
12. If the under-dash fuse/relay box is being replaced, do the following with the HDS.
 - 1. Have all registered keys and the ECM/PCM code.
 - 2. Connect the HDS to the data link connector (DLC).
 - 3. Turn the ignition switch to ON (II).
 - 4. Select IMMOBI from the System Selection Menu, then select IMMOBILIZER SETUP.
 - 5. Select REPLACE MPCS/MICU/IMOES.
 - 6. Do the registration according to the instructions on the HDS screen.
13. Confirm that all systems work properly.

(cont'd)

Under-Dash Fuse/Relay Box

Removal and Installation (cont'd)

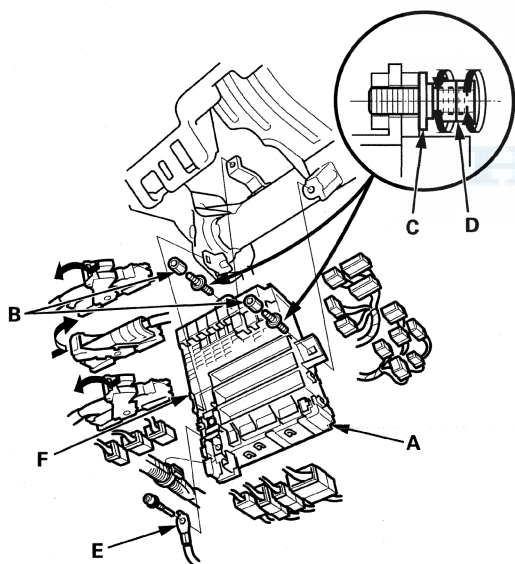
Canada models

NOTE: SRS components are located in this area. Review the SRS component locations (see page 24-13), and precautions and procedures (see page 24-15) before doing repairs or servicing.

Removal

NOTE: The imoes unit is built into the MICU which is part of the under-dash fuse/relay box. You must register the imoes unit when replacing the under-dash fuse/relay box, or the engine will not start.

1. Do the battery terminal disconnection procedure (see page 22-69).
2. Remove the driver's dashboard undercover (see page 20-98).
3. Remove the fuse access panel (see page 20-97).
4. Disconnect the connectors from the front side of the under-dash fuse/relay box (A).



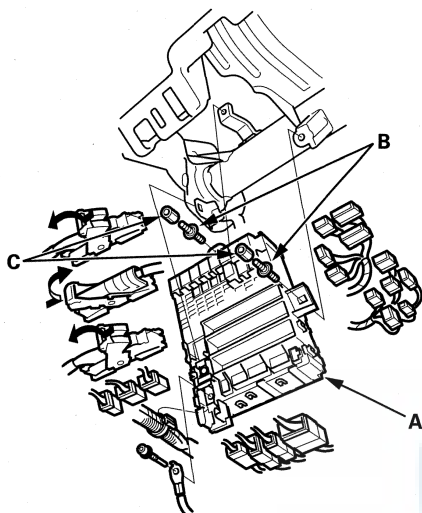
5. Remove the nuts (B), then remove the stud bolts (C) using the double nuts (D), then remove the terminal (E).
6. Release the lock (F) and pull the fuse/relay box away from the body.
7. Disconnect the connectors from the back side of the under-dash fuse/relay box, then remove the under-dash fuse/relay box.

8. Carefully remove the relays by prying under the base of the relay (see page 22-76).

NOTE: Do not use pliers. Pliers will damage the relays, which could cause the engine to stall or not start or cause other functions to fail.

Installation

9. Install the relays and connect the connectors to the under-dash fuse/relay box (A), then install the under-dash fuse/relay box in the reverse order of removal.



10. Remove the double nuts from stud bolts (B), then install the nuts (C) to the stud bolts.
11. Install the removed parts in the reverse order of removal.
12. Do the battery terminal reconnection procedure (see page 22-70).
13. If the under-dash fuse/relay box is being replaced, do the following with the HDS.
 - 1. Have all registered keys and the ECM/PCM code.
 - 2. Connect the HDS to the data link connector (DLC).
 - 3. Turn the ignition switch to ON (II).
 - 4. Select IMMOBI from the System Selection Menu, then select IMMOBILIZER SETUP.
 - 5. Select REPLACE MPCS/MICU/IMOES.
 - 6. Do the registration according to the instructions on the HDS screen.
14. Confirm that all systems work properly.

Battery

Battery Test

WARNING

A battery can explode if you do not follow the proper procedure, causing serious injury to anyone nearby. Follow all procedures carefully and keep sparks and open flames away from the battery.

Special Tools Required

Honda Electrical System Analyzer (ED-18 Battery Tester): Model Number INB17191840*

Honda Battery Diagnostic Station (GR8): Model Number MTRGR81100P*

*To order, go to the Honda Tool and Equipment catalog on the iN, or call 888-424-6857

Software Version

Make sure you have the latest software for the ED-18 and GR8.

To check the version on the ED-18, do this:

- Press the POWER button.
- Read the version number on the screen. It should appear for about 3 seconds.
- Or you can select: Language> Options> Info> Version. The version number will appear near the top of the screen.

Write down the version number, then call Midtronics at 800-776-1995 to verify you have the latest software version.

To check the version on the GR8, do this:

- Press the POWER button.
- Read the version number on the screen. It should appear for about 5 seconds.
- Or from the Main Menu, select: Options> Info> I Version. The version number will appear on the screen.

Write down the version number, then call Midtronics at 800-776-1995 to verify you have the latest software version.

Using the ED-18 Battery Tester

NOTE: For set up, customization, and other available features, refer to the ED-18 user's manual.

1. Connect the leads to the positive and negative terminal of the battery.
2. Use the arrow keys to select the battery test, then press enter, then follow the prompts.

NOTE:

- Make sure to enter the correct cold cranking ampere (CCA) rating of the battery. You can find the CCA printed on the label on the top of the battery. If the CCA rating is not entered correctly, the test result will not be accurate.
 - Make sure you select FLOODED for the battery type.
3. Here are the four possible battery conditions:
 - Good-Battery: The battery has at least 60 percent of its charge and requires no action.
 - GR8 Diagnostic Needed: The battery voltage is below 60 percent of its state-of-charge, and the condition of the battery is unknown. Use the GR8 to charge the battery and properly diagnose it.
 - Replace Battery: The battery condition is poor. Replace it.
 - Bad Cell: There is an internal problem with the battery. Replace it.



Using the GR8 Battery Diagnostic Station

NOTE:

- For set up, customization, and other available features, refer to the GR8 user's manual.
- On the GR8, you can select two modes: DEALER INVENTORY or CUSTOMER VEHICLE.
 - DEALER INVENTORY: Use this mode for vehicles in dealer inventory. The GR8 charges the battery to 80% of its state-of-charge. If the battery condition is OK, the GR8 states the battery is GOOD. If you leave the GR8 attached to the battery, it changes to Top Off mode, and continues to charge the battery until it is at 100% of its state-of-charge.
 - CUSTOMER VEHICLE: In order to give a waiting customer quicker service, the GR8 charges the battery to 60% of its state-of-charge. If the battery condition is OK, the GR8 states the battery is GOOD. If you leave the GR8 attached to the battery, it changes to Top Off mode, and continues to charge the battery until it is at 100% of its state-of-charge.

1. Connect the leads to the positive and negative terminal of the battery.
2. Use the arrow keys to select Diagnostic, and follow the prompts.

NOTE:

- Make sure to enter the correct cold cranking ampere (CCA) rating of the battery. You can find the CCA printed on the label on the top of the battery. If the CCA rating is not entered correctly, the test result will not be accurate.
 - Make sure you select FLOODED for the battery type.
3. Here are the three possible battery conditions:
 - Good-Battery: The battery state of health is good and state of charge is at least 60%.
 - Replace Battery: The battery condition is poor. Replace it.
 - Bad Cell: There is a problem with the battery. Replace it.

Battery Terminal Disconnection and Reconnection

Disconnection

NOTE: Some systems store data in memory that is lost when the battery is disconnected. Do the following procedures before disconnecting the battery.

1. Make sure you have the anti-theft code for the audio system or the audio-navigation unit.
2. Make sure the ignition switch is in LOCK (0).
3. Disconnect and isolate the negative cable from the battery.

NOTE: Always disconnect the negative cable from the battery first.

4. Disconnect the positive cable from the battery.

(cont'd)

Battery

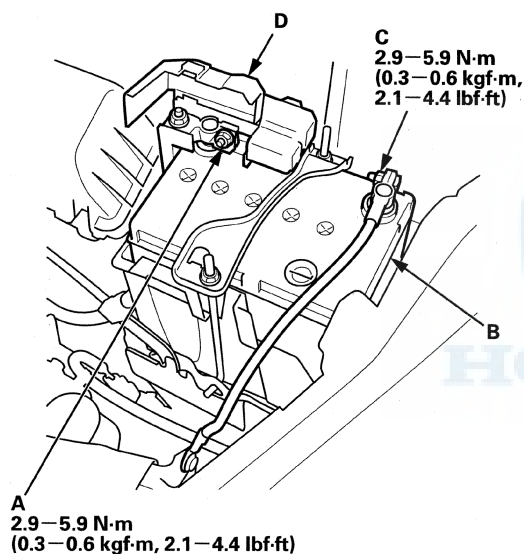
Battery Terminal Disconnection and Reconnection (cont'd)

Reconnection

NOTE: Some systems store data in memory that is lost when the battery is disconnected. Do the following procedures to restore the system back to normal operation.

1. Clean the battery terminals.
2. Test the battery (see page 22-68).
3. Reconnect the positive cable (A) to the battery (B) first, then reconnect the negative cable (C) to the battery.

NOTE: Always connect the positive cable to the battery first.



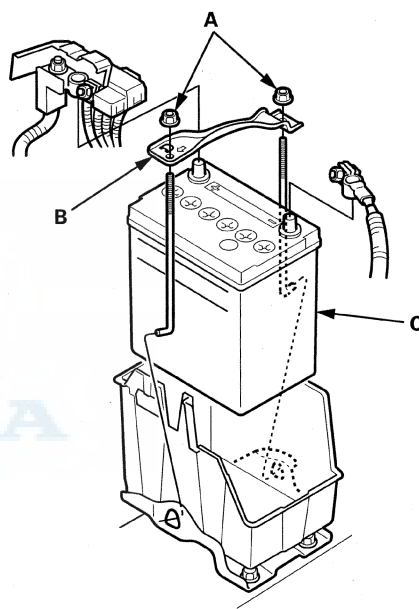
4. Apply multipurpose grease to the terminals to prevent corrosion.
5. Install the terminal cover (D).
6. Enter the anti-theft code for the audio system or the audio-navigation unit.
7. Set the clock (for vehicles without navigation).

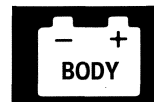
Battery Removal and Installation

NOTE: The battery terminal disconnection/reconnection procedure (see page 22-69) must be done before and after doing this procedure. Some systems store data in memory that is lost when the battery is disconnected.

Removal

1. Do the battery terminal disconnection procedure (see page 22-69).
2. Remove the two nuts (A) securing the battery setting plate (B), then remove the battery setting plate and the battery (C).

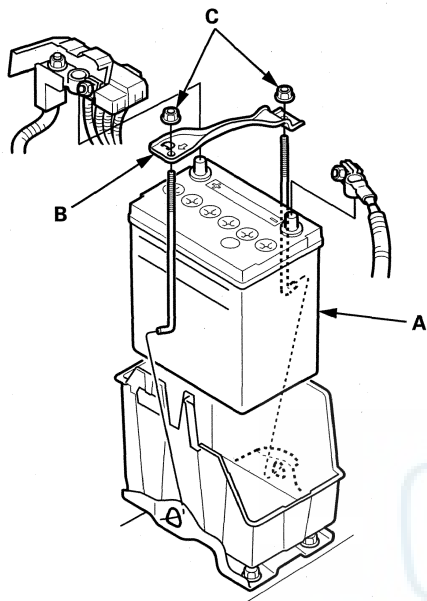




Parasitic Draw Check

Installation

1. Install the battery (A), then install the battery setting plate (B).



2. Tighten the two nuts (C) equally until the battery is stable.

NOTE: Do not deform the battery setting plate by over-tightening the nuts.

3. Do the battery terminal reconnection procedure (see page 22-70).

NOTE: Make sure the battery is installed correctly, and the positive terminal and the negative terminal are not connected in reverse.

Special Tools Required

LH41 AC/DC low current clamp meter, FLULH41A*

* : Available through the Honda Tool and Equipment Program, 888-424-6857

1. Make sure the battery is fully charged, and that all the vehicle's electrical accessories are turned off.
2. Open the hood (with security).
3. Disconnect the security hood switch 2P connector to allow the security system to arm itself with the hood open (with security).
4. Turn the ignition switch to ON (II).
5. Turn the ignition switch to LOCK (0), and remove the ignition key from the ignition switch.
6. Get out of the vehicle, and close all doors.
7. Lock the doors with the keyless transmitter.
8. Make sure the map lights are turned off and the security alarm system is armed by confirming that the security indicator is flashing (with security).
9. Make sure the map lights are turned off and all of the doors are closed (without security).
10. Wait at least 20 minutes.

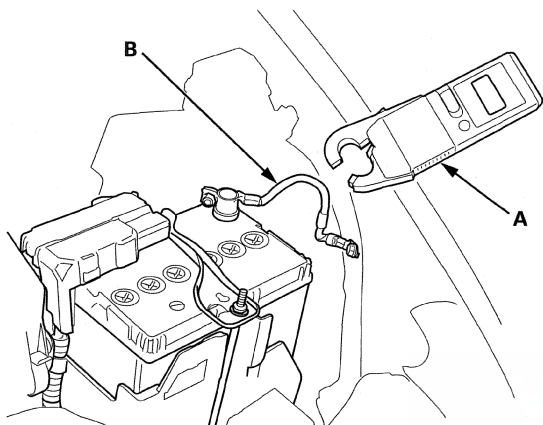
(cont'd)

Battery

Parasitic Draw Check (cont'd)

11. Attach the LH41 AC/DC low current clamp meter (A) to the battery ground cable (B). Follow the equipment manufacturer's instructions, then measure the parasitic draw.

NOTE: If using a digital multimeter, go to step 13.



Is the parasitic draw 30 mA or less?

YES—Go to step 19.

NO—Go to step 12.

12. Check for poor connections and loose terminals at the battery and the alternator terminal.

Are the connections OK?

YES—Do the alternator and regulator circuit troubleshooting (see page 4-27), and alternator control circuit troubleshooting (see page 4-27), then recheck. If the system is OK, the battery is flat from natural self-discharge. Check the battery (see page 22-68), then recharge or replace the battery (see page 22-70). ■

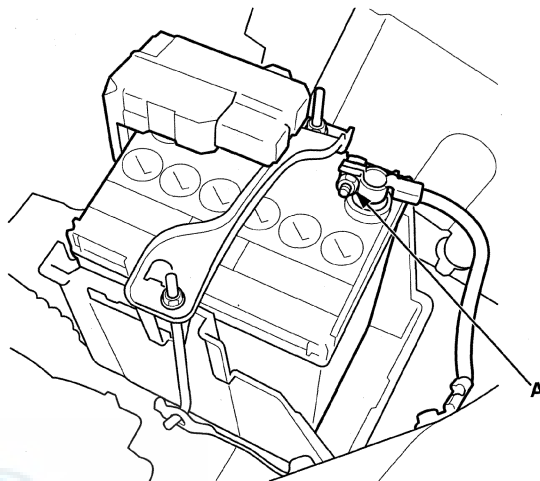
NO—Reconnect the terminals, then recheck. ■

13. Check the following items before measuring:

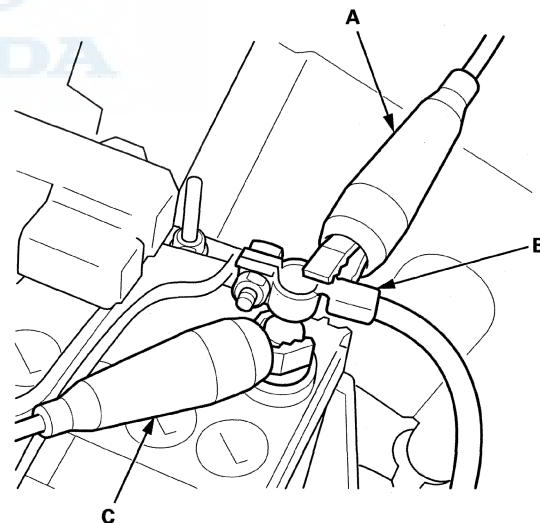
- The multimeter dial is set to the DCA (direct current amps) range.
- The red test probe is plugged into the red A (Amps) jack, and the black test probe is plugged into the COM jack.
- To avoid blowing an input fuse, start by setting the range above 10 A.

14. Loosen the nut (A) of the battery negative terminal.

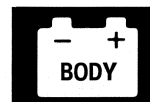
NOTE: Be careful not to disconnect the battery ground cable terminal from the battery negative terminal.



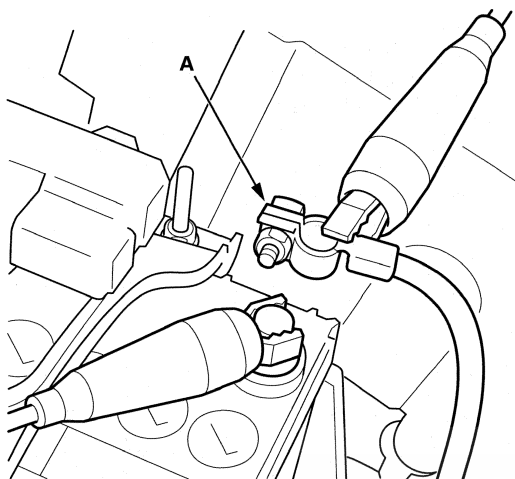
15. Connect the red (+) test lead (A) to the negative terminal (B) of the battery ground cable.



16. Slide the negative terminal of the battery ground cable upwards from the battery negative terminal post to avoid disconnection. Then connect the black (−) test lead (C) to the battery negative terminal post.



17. Disconnect the negative terminal (A) of the battery ground cable from the battery negative terminal.



18. Measure the parasitic draw.

Is the parasitic draw 30 mA or less?

YES—The system is normal at this time. ■

NO—Go to step 19.

19. Check if there are any aftermarket electrical accessories installed on the vehicle.

Are there aftermarket electrical accessories installed?

YES—Go to step 20.

NO—Go to step 22.

20. Make sure that the aftermarket electrical accessories have been properly installed.

Are the aftermarket electrical accessories installed correctly?

YES—Go to step 21.

NO—Repair or reinstall, or remove the aftermarket accessories, then recheck. ■

21. Disconnect the aftermarket electrical accessories one at a time, then measure the parasitic draw.

- 1. Turn the ignition switch to ON (II), and then back to LOCK (0).
- 2. Get out of the vehicle and close all doors.
- 3. Wait at least 40 seconds.
- 4. Measure the parasitic draw.

Is the parasitic draw 30 mA or less?

YES—Replace or repair the aftermarket electrical accessories that reduced the parasitic draw to 30 mA or less when disconnected. ■

NO—Go to step 22.

22. Remove the No. 1 (10 A) fuse in the under-dash fuse/relay box, then measure the parasitic draw.

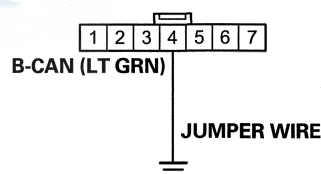
Is the parasitic draw 30 mA or less?

YES—Go to step 23.

NO—Go to step 25.

23. Connect immobilizer-keyless control unit 7P connector terminal No. 4 and body ground with a jumper wire.

IMMOBILIZER-KEYLESS CONTROL UNIT 7P CONNECTOR



Wire side of female terminals

(cont'd)

Battery

Parasitic Draw Check (cont'd)

24. Install the No. 1 (10 A) fuse in the under-dash fuse/relay box.

- 1. Turn the ignition switch to ON (II), and then back to LOCK (0).
- 2. Get out of the vehicle and close all doors.
- 3. Wait at least 40 seconds.
- 4. Measure the parasitic draw.

Is the parasitic draw 30 mA or less?

YES—Disconnect the control units from the B-CAN circuit one at a time, perform steps 1-4 above, then measure the parasitic draw. Do the input test for the control unit that reduced the parasitic draw to 30 mA or less when disconnected. ■

NO—Disconnect the control units from the No. 1 (10 A) fuse circuit one at a time, perform steps 1-4 above, then measure the parasitic draw. Replace the control unit that reduced the parasitic draw to 30 mA or less when disconnected. ■

25. Remove the No. 60 (50 A) fuse from the under-dash fuse/relay box.

- 1. Turn the ignition switch to ON (II), and then back to LOCK (0).
- 2. Get out of the vehicle and close all doors.
- 3. Wait at least 40 seconds.
- 4. Measure the parasitic draw.

Is the parasitic draw 30 mA or less?

YES—Go to step 26.

NO—Remove the fuses from the under-dash fuse/relay box one at a time, perform steps 1-4 above, then measure the parasitic draw in order to isolate the circuit which contains the fault. If all circuit are OK, check the starter circuits and do the starter performance test (see page 4-10). ■

26. Install the No. 60 (50 A) fuse in the under-dash fuse/relay box.

27. Disconnect the ignition switch 7P connector, then measure the parasitic draw.

Is the parasitic draw 30 mA or less?

YES—Replace the ignition switch (see page 22-85). ■

NO—Repair a short to ground in the wire between the No. 60 (50 A) fuse in the under-dash fuse/relay box and ignition switch. ■

Symptom Troubleshooting

Low or Dead Battery

NOTE: A battery might be discharged under these conditions:

- Driving a vehicle 6 miles (10 km) or less per day.
- Leaving a vehicle parked without removing the ignition key from the ignition switch.
- Leaving the vehicle idling high electrical loads such as headlight, wipers, rear window defogger, etc.
- Parking the vehicle with the hood unlatched prevents the security system from arming, which causes excessive parasitic draw.

1. Check the battery (see page 22-68). Recharge or replace the battery if necessary.
2. Start the engine, and check the charging system indicator.

Does the charging system indicator go off with the engine running?

YES—Go to step 3.

NO—Do the Charging System Indicator Stays On symptom troubleshooting (see page 4-25). ■

3. Check the following items:

- The hazard warning switch is off.
- The individual map light and ceiling light switches are off.
- All of the doors, hood, and tailgate are closed.
- The brake pedal is not depressed.

Are all check items OK?

YES—go to step 4.

NO—Turn off the switch, and check the parasitic draw (see page 22-71). ■

4. Lock the doors with the remote transmitter LOCK button. Make sure the security alarm system arms by confirming that the security indicator is flashing slowly, about once every 3 seconds.

Is the security alarm system armed?

YES—Go to step 5.

NO—Go to the symptom troubleshooting of the security alarm system (see page 22-138). ■



5. Check the following items with the ignition key removed from the ignition switch:
- The brake lights are off when the brake pedal is not pressed.
 - The cargo area light is off with the tailgate closed.
 - The radiator and condenser fans are not running.
 - The audio (including navigation) is off.
 - There is no operating sound from the ABS or VSA modulator-control unit.
 - The rear window defogger and the power mirror defoggers* are off.

*: With power mirror defogger

Are all check items OK?

YES—Check the parasitic draw (see page 22-71).■

NO—Troubleshoot and repair the affected circuits.■



Relays

Power Relay Test

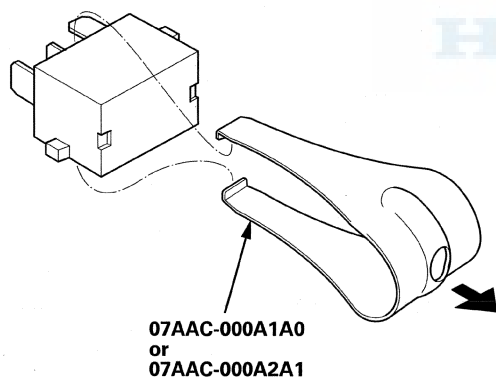
Special Tools Required

Relay Puller 07AAC-000A1A0 or 07AAC-000A2A1

Use this chart to identify the type of relay, then do the test listed for it.

Relay	Test
A/C compressor clutch relay	Normally-open Four-terminal type
A/C condenser fan relay	
A/F sensor relay*	
Blower motor relay*	
ETCS control relay*	
Fog light relay	
Horn relay	
Ignition coil relay*	
Lighting relay*	
PGM-FI main relay 1 (FI MAIN)*	
PGM-FI main relay 2 (FUEL PUMP)*	
Power window relay (P/W)*	
Radiator fan relay	
Rear window defogger relay*	
Starter cut relay (ST CUT)*	
Driver's door unlock relay*	Five-terminal type

*: Carefully remove the relay from the under-dash fuse/relay box using the relay puller. Do not use pliers. Pliers will damage the relay.

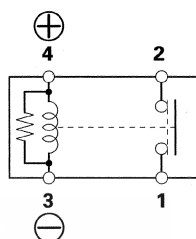


Normally-open Four-terminal Type

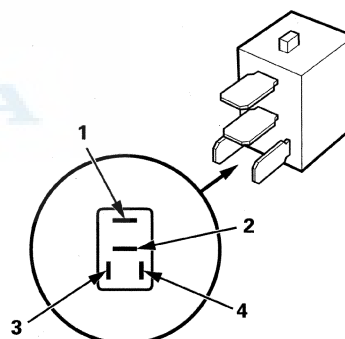
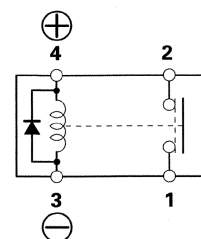
Check for continuity between the terminals:

- There should be continuity between terminals No. 1 and No. 2 when battery power is connected to terminal No. 4, and body ground is connected to terminal No. 3.
- There should be no continuity between terminals No. 1 and No. 2 when power is disconnected.

Resistance type



Diode type

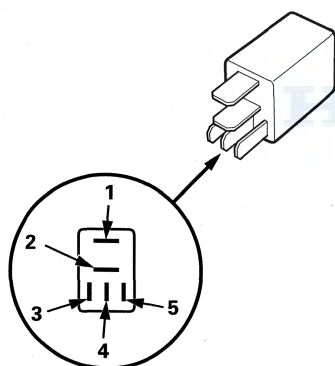
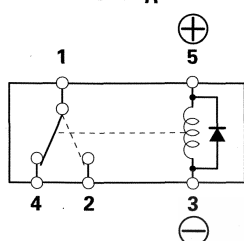


Five-terminal Type

Check for continuity between the terminals:

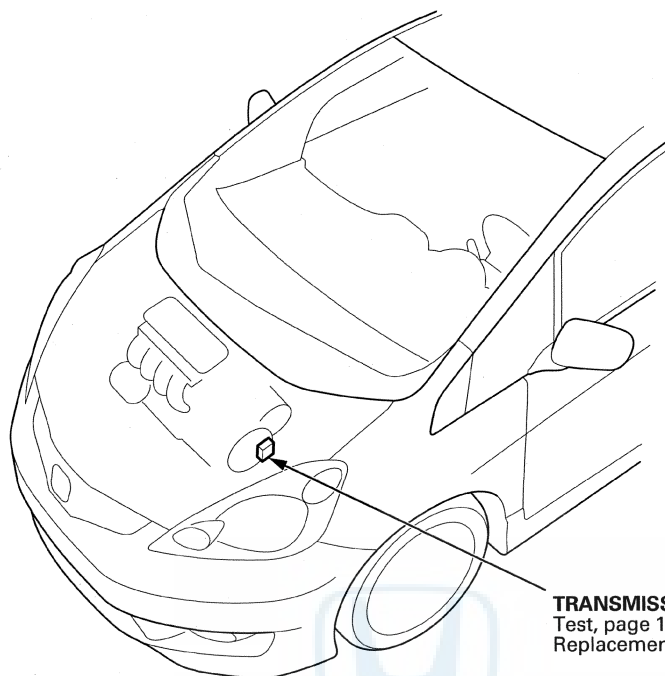
- There should be continuity between terminals No. 1 and No. 2 when battery power is connected to terminal No. 5, and body ground is connected to terminal No. 3.
- There should be continuity between terminals No. 1 and No. 4 when power is disconnected.

Diode type



Ignition Switch

Component Location Index



TRANSMISSION RANGE SWITCH

Test, page 14-226

Replacement, page 14-228

UNDER-DASH FUSE/RELAY BOX

Removal and installation

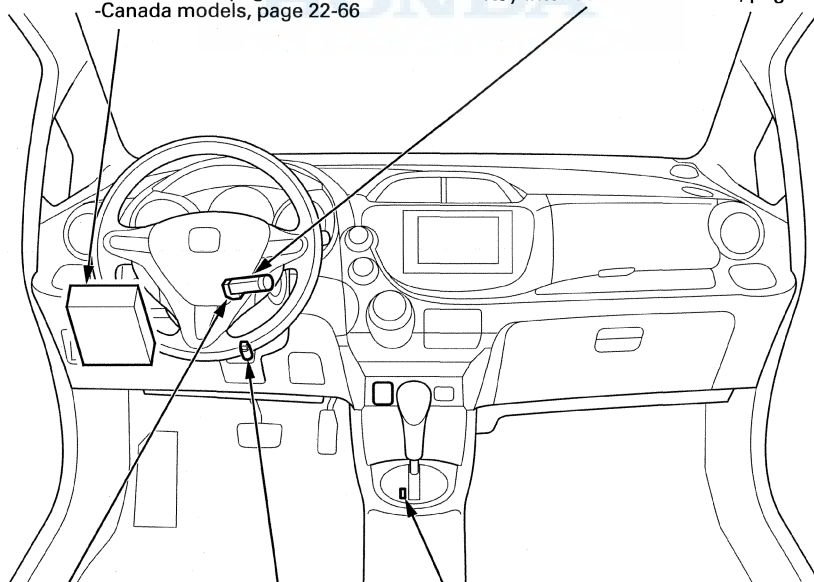
-USA models, page 22-65

-Canada models, page 22-66

STEERING LOCK ASSEMBLY

Key Interlock System Circuit Troubleshooting, page 22-80

Key Interlock Solenoid Test, page 22-83



IGNITION SWITCH

Test, page 22-84

Replacement, page 22-85

BRAKE PEDAL POSITION SWITCH

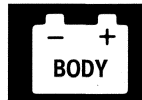
Test, page 22-208

PARK PIN SWITCH

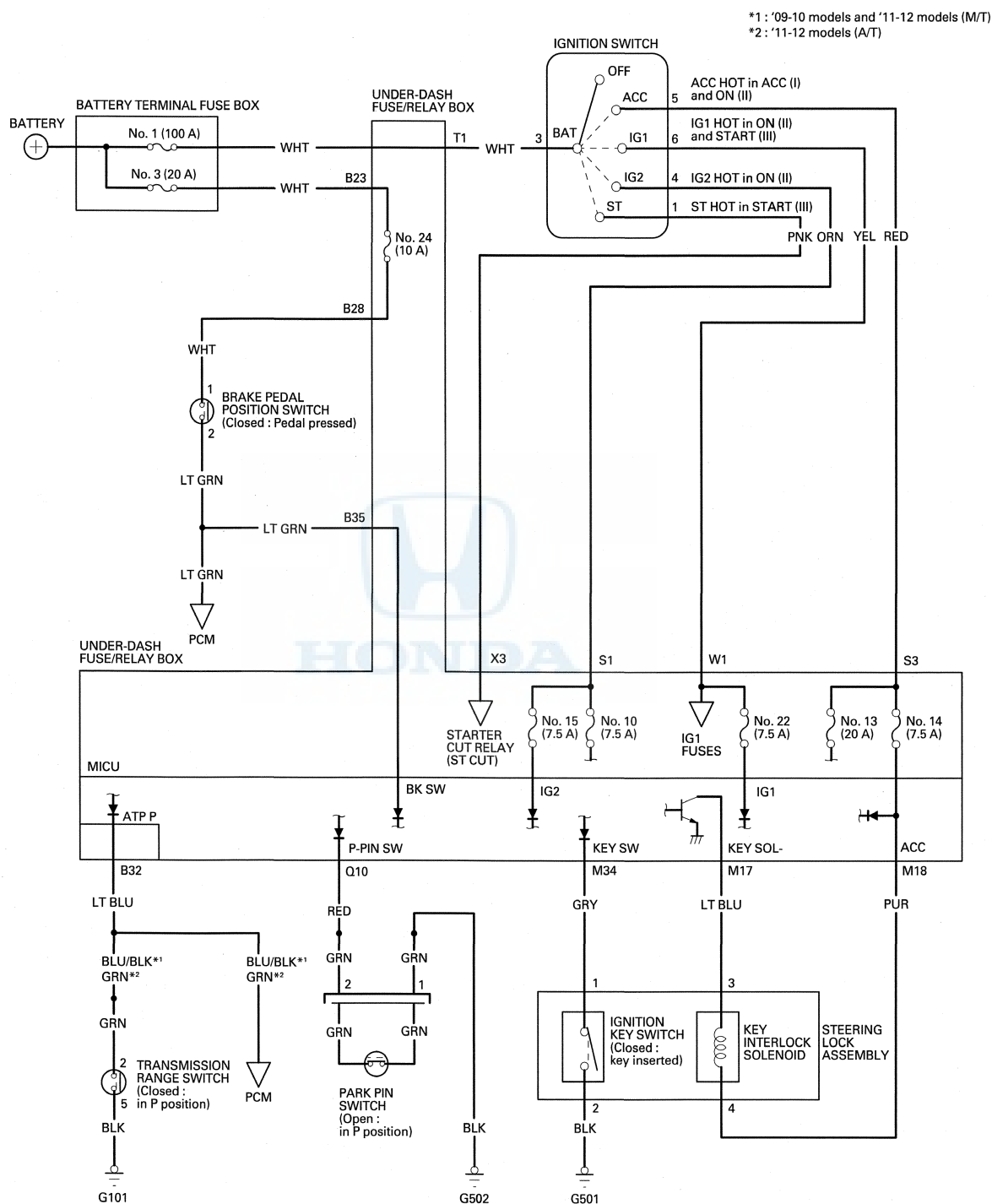
Key Interlock System Circuit Troubleshooting, page 22-80

Test, page 22-83

Replacement, page 14-243



Circuit Diagram



Ignition Switch

Key Interlock System Circuit Troubleshooting

NOTE: SRS components are located in this area. Review the SRS component locations (see page 24-13), and precautions, and procedures (see page 24-15) before doing repairs or servicing.

1. Check the A/T system DTCs with the HDS.

Are DTCs P0705 and/or P0706 indicated?

YES—Go to DTC troubleshooting P0705 (see page 14-89), P0706 (see page 14-90).

NO—Go to step 2.

2. Move the shift lever to P and set the parking brake.
3. Remove the steering column covers (see page 20-105).
4. Disconnect the steering lock 6P connector.
5. Turn the ignition switch to ACCESSORY (I).
6. Check if the ignition switch can be turned to LOCK (0).

Can the ignition switch be turned to LOCK (0)?

YES—Go to step 10.

NO—Replace the steering lock (see page 17-16). ■

7. Check the No.14 (7.5A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

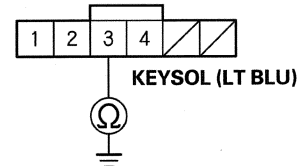
YES—Go to step 8.

NO—Replace the fuse. If the fuse blows again, repair a short to ground in the No. 14 (7.5A) fuse circuit.

8. Make sure the ignition switch is turned to LOCK (0).
9. Disconnect under-dash fuse/relay box connector M (34P).

10. Check for continuity between steering lock 6P connector terminal No. 3 and body ground.

STEERING LOCK ASSEMBLY 6P CONNECTOR



Wire side of female terminals

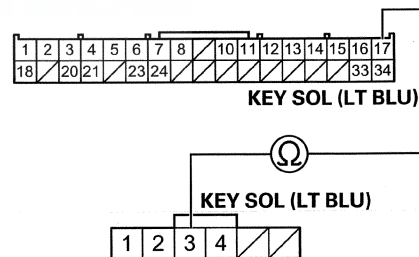
Is there continuity?

YES—Repair a short to body ground in the wire between the key interlock solenoid and the MICU. ■

NO—Go to step 11. ■

11. Check for continuity between under-dash fuse/relay box connector M (34P) terminal No. 17 and steering lock 6P connector terminal No. 3.

UNDER-DASH FUSE/RELAY BOX CONNECTOR M (34P)



STEERING LOCK ASSEMBLY 6P CONNECTOR

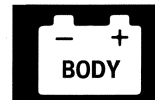
Wire side of female terminals

Is there continuity?

YES—Go to step 12.

NO—Repair an open or high resistance in the wire between the key interlock solenoid and the MICU. ■

12. Move the shift lever P position.
13. Remove the center console (see page 20-93).
14. Disconnect the park pin switch 2P connector.



15. Do the park pin switch test (see page 22-83).

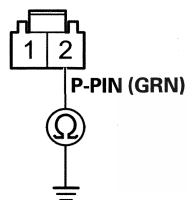
Is the switch OK?

YES—Go to step 16.

NO—Check the park pin switch installation. If the switch installation is OK, replace the switch (see page 14-243) and retest. ■

16. Check for continuity between park pin switch 2P connector terminal No. 2 and body ground.

PARK PIN SWITCH 2P CONNECTOR



Wire side of female terminals

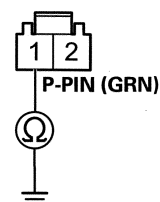
Is there continuity?

YES—Repair a short to ground in the wire between park pin switch 2P connector terminal No. 2 and the MICU. ■

NO—Go to step 17.

17. Check for continuity between park pin switch 2P connector terminal No. 1 and body ground.

PARK PIN SWITCH 2P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 18.

NO—Repair an open or high resistance in the ground wire or poor ground (G502). ■

18. Check the A/T system Data List with the HDS.

Is the transmission range switch indicated ON when the shift lever is in P, and is the transmission range switch indicated OFF when the shift lever is shifted to any position other than P?

YES—Go to step 20.

NO—Go to step 19.

19. Do the transmission range switch test (see page 14-226).

Is the switch OK?

YES—Go to step 20.

NO—Check the transmission range switch installation. If the switch installation is OK, replace the switch (see page 14-228) and retest. ■

20. Disconnect the transmission range switch 10P connector.

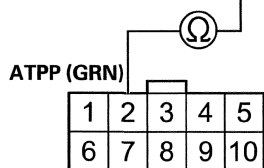
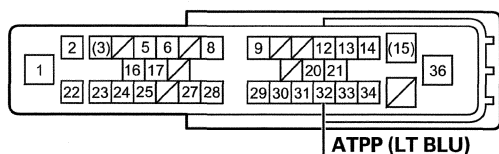
(cont'd)

Ignition Switch

Key Interlock System Circuit Troubleshooting (cont'd)

21. Check for continuity between under-dash fuse/relay box connector B (36P) terminal No. 32 and transmission range switch 10P connector terminal No. 2.

UNDER-DASH FUSE/RELAY BOX CONNECTOR B (36P)



TRANSMISSION RANGE SWITCH 10P CONNECTOR

Wire side of female terminals

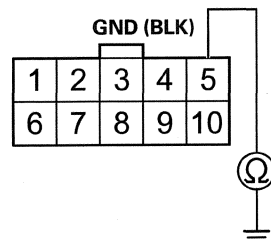
Is there continuity?

YES—Go to step 22.

NO—Repair an open or high resistance in the wire between transmission range switch 10P connector terminal No. 2 and MICU. ■

22. Check for continuity between transmission range switch 10P connector terminal No. 5 and body ground.

TRANSMISSION RANGE SWITCH 10P CONNECTOR



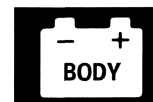
Wire side of female terminals

Is there continuity?

YES—Faulty MICU, replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

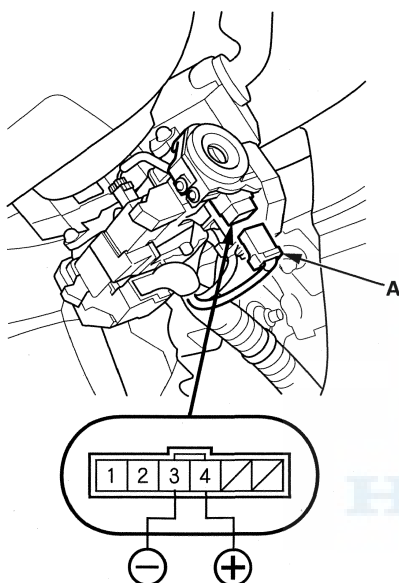
NO—Repair an open or high resistance in the ground wire or poor ground (G101). ■



Key Interlock Solenoid Test

NOTE: SRS components are located in this area. Review the SRS component locations (see page 24-13), and precautions and procedures (see page 24-15) before doing repairs or servicing.

1. Remove the steering column covers (see page 20-105).
2. Disconnect the steering lock assembly 6P connector (A).



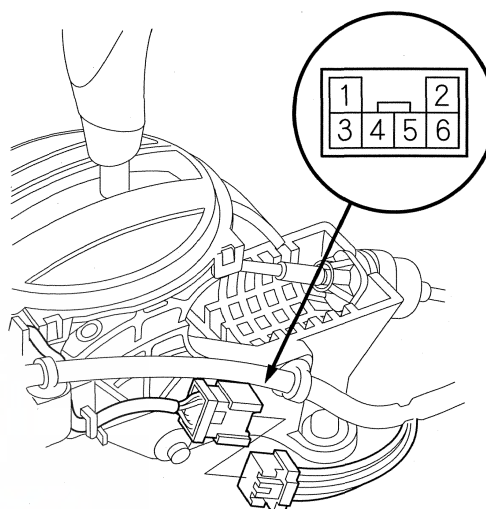
3. Insert the ignition key in the key cylinder, then turn the ignition key to ACCESSORY (I).
4. Connect the positive battery terminal to steering lock assembly connector terminal No. 4, and connect the negative battery terminal to terminal No. 3. Check that the ignition key cannot be turned to LOCK (0). Release the battery terminals, and check that the key can be turned to the LOCK (0) position and removed from the cylinder.
5. If the key interlock solenoid works improperly, replace the steering lock assembly (see page 17-16).

Park Pin Switch Test

1. Remove the center console (see page 20-93).
2. Check the Park Pin Switch signal with the HDS in the A/T data list while the shift lever is in P, and when the shift lever is moved to any position other than P.

NOTE: If the HDS does not communicate with the PCM, troubleshoot the DLC circuit (see page 11-193)

Terminal side of male terminals



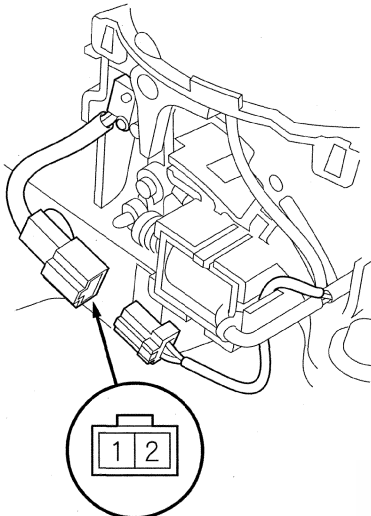
3. Check that the park pin switch signal is OFF while the shift lever is in P, and signal is ON when the shift lever is moved out of P.
4. If the park pin switch signal is OK, test is complete, disconnect the HDS. If the signal is incorrect, go to step 5, and test the switch signal at the park pin switch/AT gear position indicator panel light connector.
5. If the park pin switch tests OK, connect the connector and install the center console (see page 20-93).
6. If the park pin switch tests incorrectly, test the park pin switch at the park pin switch 2P connector.

(cont'd)

Ignition Switch

Park Pin Switch Test (cont'd)

7. Disconnect the park pin switch 2P connector, and remove it from the bracket base.



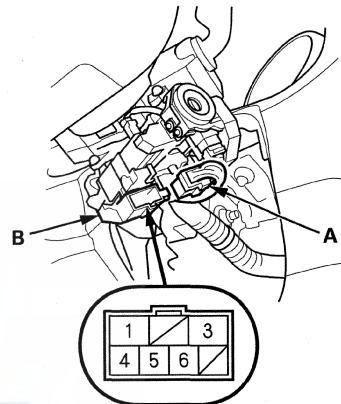
Terminal side of male terminals

8. Shift into P, and check for continuity between park pin switch 2P connector terminals No. 1 and No. 2. Do not press the shift lever button. There should be no continuity.
9. Shift out of P, and check for continuity between connector terminals No. 1 and No. 2. There should be continuity.
10. If the park pin switch tests OK at the 2P connector, there is an open or short in the wire between shift lock solenoid/park pin switch/A/T gear position indicator panel light connector and the 2P connector. Replace the shift lock solenoid (see page 14-241); the shift lock solenoid is combined with the park pin switch harness and the indicator panel light harness/socket, and supplied as an assembly.
11. If the park pin switch fails the test, replace the park pin switch (see page 14-243).
12. Install the center console (see page 20-93).

Ignition Switch Test

NOTE: SRS components are located in the area. Review the SRS component locations (see page 24-13), and precautions and procedures (see page 24-15) before doing repairs or servicing.

1. Do the battery terminal disconnection procedure (see page 22-69).
2. Remove the steering column covers (see page 20-105).
3. Disconnect the 7P connector (A) from the ignition switch (B).



4. Check for continuity between the terminals in each switch position according to the table.

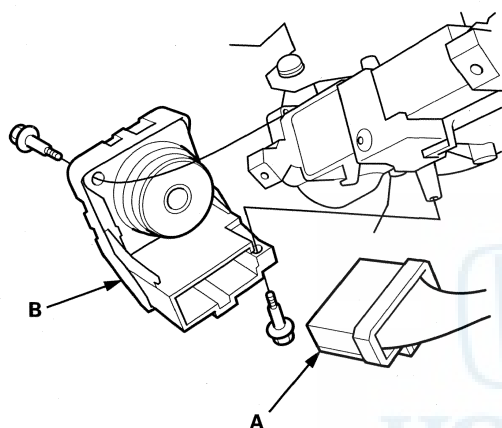
Terminal Position	5 (ACC)	3 (BAT)	6 (IG1)	4 (IG2)	1 (ST)
0 (LOCK)					
I (ACC)	○—○				
II (ON)	○—○	○—○	○—○	○—○	
III (START)		○—○	○—○	○—○	○—○

5. If the continuity is not as specified, replace the ignition switch (see page 22-85).
6. Do the battery terminal reconnection procedure (see page 22-70).

Ignition Switch Replacement

NOTE: SRS components are located in the area. Review the SRS component locations (see page 24-13), and precautions and procedures (see page 24-15) before doing repairs or servicing.

1. Do the battery terminal disconnection procedure (see page 22-69).
2. Remove the steering column covers (see page 20-105).
3. Disconnect the 7P connector (A) from the ignition switch (B).



4. Remove the two screws and the ignition switch.
5. Install the parts in the reverse order of removal.
6. Do the battery terminal reconnection procedure (see page 22-70).

Multiplex Integrated Control System

Component Location Index

MICU
(Built into the under-dash fuse/relay box)
Input Test, page 22-120
Removal and installation
-USA models, page 22-65
-Canada models, page 22-66

GAUGE CONTROL MODULE
Input Test, page 22-290
Replacement, page 22-294

HANDSFREELINK CONTROL UNIT
('12 model without navigation)

IMMOBILIZER- KEYLESS CONTROL UNIT
(Has a built-in receiver)
Symptom Troubleshooting Index, page 22-325
Registration, page 22-335
Input Test, page 22-332
Replacement, page 22-336



General Troubleshooting Information

Troubleshooting CAN Circuit Related Problems

NOTE: Check the ECM/PCM for DTCs and troubleshoot ECM/PCM (see page 11-3) or F-CAN loss of communication errors first.

Using the HDS (Preferred method)

Connect the HDS to the Data Link Connector (DLC).

There are two ways to read B-CAN codes with the HDS:

First method: On the HDS, select BODY ELECTRICAL, then select the subsystem that relates to the problem (for example: door locks, keyless, security, etc.), and then last, select the DTCs.

Second method: Ground the SCS circuit with the HDS, then read the DTCs displayed in the gauge control module, then go to B-CAN System Diagnosis Test Mode A (see page 22-107).

Using the B-CAN System Diagnosis Test Mode 1 (Use only if the HDS is unavailable)

1. Check for communication circuit problems using the B-CAN System Diagnostic Test Mode 1 (see page 22-111).
2. Check for DTCs.
3. If there are DTCs stored, sort them, and then troubleshoot the DTCs in this order.

- 1. Battery voltage DTCs
- 2. Internal error DTCs
- 3. Loss of communication DTCs

NOTE: If DTC B1000 is stored, troubleshoot DTC B1000 first.

- 4. Signal error DTCs
4. If no DTCs are found, use the B-CAN System Diagnostic Test Mode 2 to check all inputs related to the failure (see page 22-111).



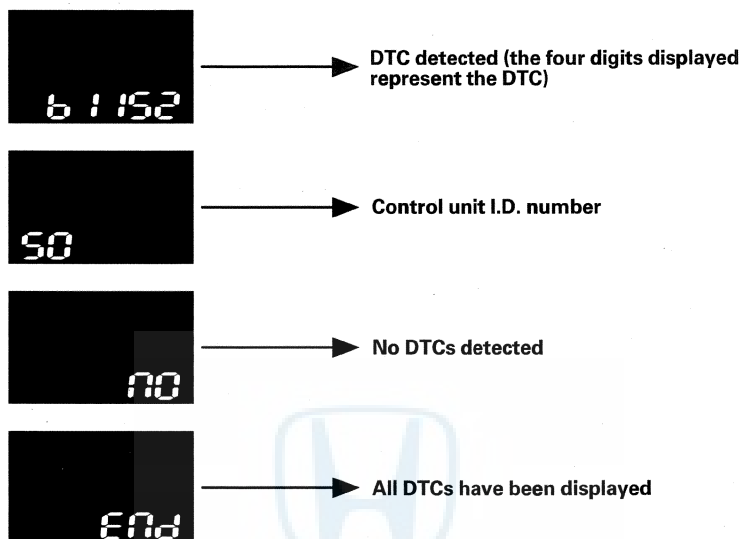
(cont'd)

Multiplex Integrated Control System

General Troubleshooting Information (cont'd)

How to Display DTCs on the Gauge Control Module

Enter B-CAN System Diagnosis Test Mode 1 (see page 22-111). While in Test Mode 1, when communication between the MICU and the gauge control module is normal, the DTCs which have been detected and stored individually by various B-CAN (Body-Controller Area Network) units are shown one by one on the LCD display. To scroll through the DTCs, press the SELECT/RESET button.

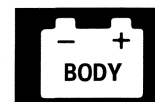


The unit that has stored the code can be identified by the number shown on the odo/trip display.

Control Unit	Control Unit I.D. Number
MICU	10
Gauge control module	50
HandsFreeLink control unit ('12 model without navigation)	94
Immobilizer-keyless control unit	96

How to Clear the DTCs

1. Enter B-CAN System Diagnosis Test Mode 1 (see page 22-111).
2. While in Test Mode 1, press and hold the SELECT/RESET button for at least 10 seconds to clear the DTCs.



Loss of Communication DTC Cross-Reference Chart

When an ECU on the CAN circuit is unable to communicate with other ECUs on the CAN circuit, the other control units set loss of communication DTCs. Use this chart to find the control unit that is not communicating with the other control units on the CAN circuit.

1. Find the transmitting control unit that is in the same row as all of the loss of communication DTCs retrieved.
2. Do the input test for the transmitting control unit.

BUS-OFF and Internal Error Codes

DTC type	Related Unit			
	MICU	Gauge Control Module	Immobilizer-Keyless Control Unit	HandsFreeLink Control Unit
BUS-OFF	B1000	B1150	B1900	U1280
ECU (EEPROM) Error	B1002	B1152		B1792

Transmitting Control Unit	Message	Receiving Unit/Loss of Communication DTC		
		MICU	Gauge Control Module	Immobilizer-Keyless Control Unit
MICU	RM		B1188	
	HLSW		B1155	
	WIPSW		B1156	
	MICU		B1157	
	DOORSW		B1159	
	DRLOCKSW			B1905
Gauge Control Module	VSP/NE	B1011		
	A/T			B1906
ECM/PCM	ENG		B1168	
	A/T		B1169	
VSA Modulator-Control Unit* ¹ ABS Modulator-Control Unit* ²	VSA/ABS		B1170	
EPS Control Unit	EPS		B1183	
SRS	SRS		B1187	
TPMS	TPMS		B1173	

*1: With VSA

*2: With ABS

Multiplex Integrated Control System

DTC Troubleshooting Index

NOTE: Record all DTCs, all sort them by DTC type using the following DTC troubleshooting indexes, then troubleshoot the DTC(s) in this order:

- Battery voltage DTCs
- Internal error DTCs
- Loss of communication DTCs (beginning with the lowest number first; for example, if B1011 and B1036 are retrieved, troubleshoot B1011 first).
- Signal error DTCs

MICU

DTC	Description	DTC type	Page
B1000	Communication circuit error (BUS Off)	Loss of communication	DTC Troubleshooting (see page 22-115)
B1002	MICU internal error (EEPROM error)	Internal error	DTC Troubleshooting (see page 22-116)
B1011	MICU lost communication with Gauge Control Module (VSP/NE message)	Loss of communication	DTC Troubleshooting (see page 22-116)
B1028	Rear wiper motor (Park) signal error	Signal error	DTC Troubleshooting (see page 22-248)
B1036	IG1 Power supply Circuit Malfunction	Signal error	DTC Troubleshooting (see page 22-117)
B1077	Windshield wiper motor (Park) signal error	Signal error	DTC Troubleshooting (see page 22-250)
B1078	Daytime Running Light for Canada Circuit Malfunction	Bulb failure	DTC Troubleshooting (see page 22-187)
B1079	Daytime Running Light for USA Circuit Malfunction	Bulb failure	DTC Troubleshooting (see page 22-187)
B1127	Driver's door key cylinder switch input Circuit Malfunction (Simultaneous input of lock and unlock signal)	Signal error	DTC Troubleshooting (see page 22-130)
B1128	Driver's door remote switch input Circuit Malfunction (Simultaneous input of lock and unlock signal)	Signal error	DTC Troubleshooting (see page 22-131)
B1129	Driver's door knob switch input Circuit Malfunction (Simultaneous input of lock and unlock signal)	Signal error	DTC Troubleshooting (see page 22-133)
B1275	Head light OFF position Circuit Malfunction	Signal error	DTC Troubleshooting (see page 22-189)
B1276	Head light switch parking (small) position circuit malfunction	Signal error	DTC Troubleshooting (see page 22-189)
B1278	Head light ON position Circuit Malfunction	Signal error	DTC Troubleshooting (see page 22-189)
B1279	Dimmer switch Circuit Malfunction	Signal error	DTC Troubleshooting (see page 22-191)
B1280	Turn signal switch Circuit Malfunction	Signal error	DTC Troubleshooting (see page 22-212)
B1281	Front wiper MIST position Circuit Malfunction	Signal error	DTC Troubleshooting (see page 22-252)
B1282	Front wiper INT(AUTO) position Circuit Malfunction	Signal error	DTC Troubleshooting (see page 22-252)
B1283	Front wiper LOW position Circuit Malfunction	Signal error	DTC Troubleshooting (see page 22-252)
B1284	Front wiper HIGH position Circuit Malfunction	Signal error	DTC Troubleshooting (see page 22-252)



Gauge Control Module

DTC	Description	DTC type	Page
B1150	Communication circuit error (BUS Off)	Loss of communication	DTC Troubleshooting (see page 22-118)
B1152	Gauge control module internal (EEPROM) error	Internal error	DTC Troubleshooting (see page 22-283)
B1155	Gauge control module lost communication with MICU (headlight switch message)	Loss of communication	DTC Troubleshooting (see page 22-283)
B1156	Gauge Control Module lost communication with MICU (wiper switch message)	Loss of communication	DTC Troubleshooting (see page 22-283)
B1157	Gauge control module lost communication with the MICU (MICU message)	Loss of communication	DTC Troubleshooting (see page 22-283)
B1159	Gauge control module lost communication with the MICU (DOORSW message)	Loss of communication	DTC Troubleshooting (see page 22-283)
B1168	Gauge control module lost communication with the PCM (Engine messages)	Loss of communication	DTC Troubleshooting (see page 22-284)
B1169	Gauge control module lost communication with the PCM (A/T messages)	Loss of communication	DTC Troubleshooting (see page 22-284)
B1170	Gauge control module lost communication with the VSA/ABS modulator-control unit (VSA/ABS message)	Loss of communication	DTC Troubleshooting (see page 22-285)
B1173	Gauge control module lost communication with TPMS control unit (TPMS message)	Loss of communication	DTC Troubleshooting (see page 22-286)
B1183	Gauge control module lost communication with EPS Unit	Loss of communication	DTC Troubleshooting (see page 22-287)
B1187	Gauge control module lost communication with the SRS Unit (SRS message)	Loss of communication	DTC Troubleshooting (see page 22-288)
B1188	Gauge control module lost communication with the MICU (RM message)	Loss of communication	DTC Troubleshooting (see page 22-289)

Immobilizer-Keyless Control Unit

DTC	Description	DTC type	Page
B1900	Communication circuit error (BUS Off)	Loss of communication	DTC Troubleshooting (see page 22-118)
B1905	Immobilizer unit lost communication with MICU (door lock switch message)	Loss of communication	DTC Troubleshooting (see page 22-321)
B1906	Immobilizer unit lost communication with Gauge control module (A/T message)	Loss of communication	DTC Troubleshooting (see page 22-321)

HandsFreeLink Control Unit ('12 model without navigation)

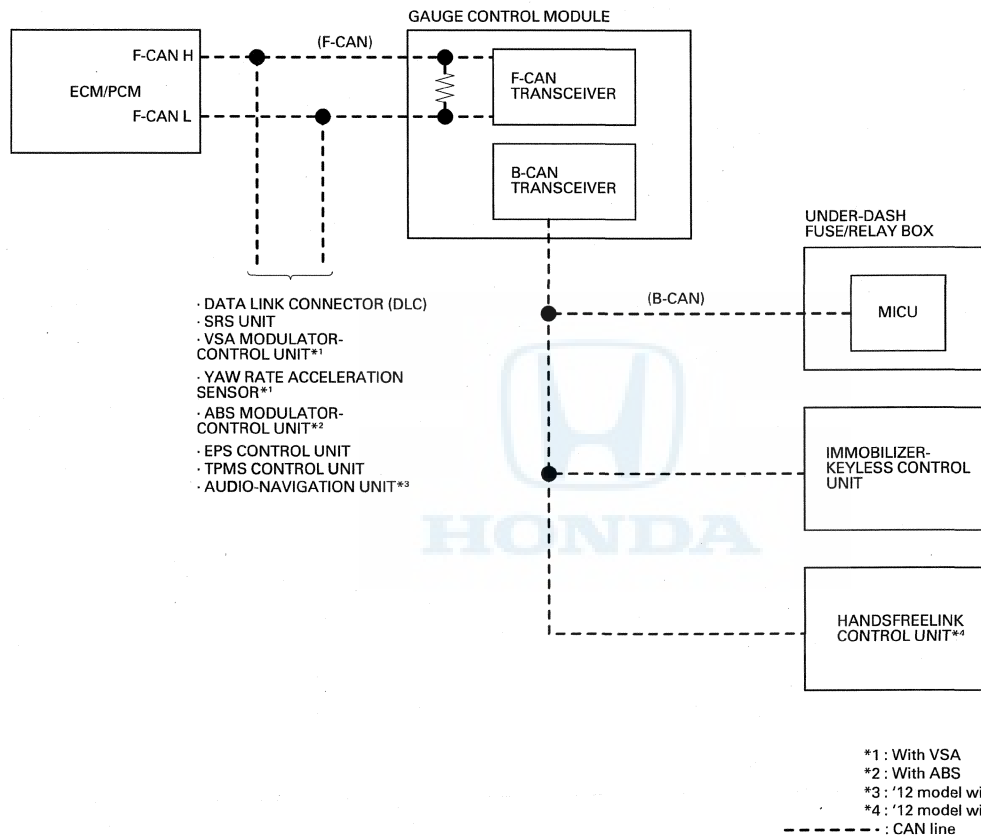
DTC	Description	DTC type	Page
B1775	Microphone input/output shorted to power or open	Signal Error	DTC Troubleshooting (see page 23-340)
B1776	Microphone input/output shorted to ground	Signal Error	DTC Troubleshooting (see page 23-344)
B1779	HandsFreeLink steering wheel switch failure	Signal Error	DTC Troubleshooting (see page 23-347)
B1780	HandsFreeLink steering wheel switch line short	Signal Error	DTC Troubleshooting (see page 23-349)
B1792	HandsFreeLink control module error	Signal Error	DTC Troubleshooting (see page 23-351)
U1280	Communication bus line error (BUS-OFF)	Loss of communication	DTC Troubleshooting (see page 22-119)

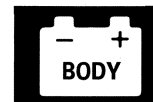
Multiplex Integrated Control System

System Description

Body Controller Area Network (B-CAN) and Fast Controller Area Network (F-CAN)

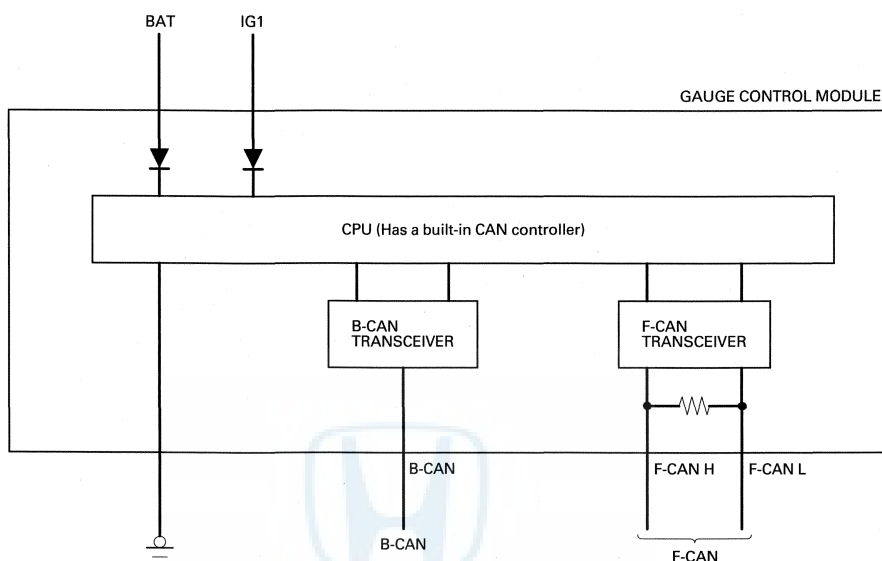
The body controller area network (B-CAN) and the fast controller area network (F-CAN) share information between multiple electronic control units (ECUs). B-CAN communication moves at a slower speed (33.33 kbps) for convenience related items and for other functions. F-CAN information moves at a faster speed (500 kbps) for "real time" functions such as fuel and emissions data. To allow both systems to share information, the gauge control module translates information from B-CAN to F-CAN and from F-CAN to B-CAN. This is called the Gateway Function.





Gateway Function

The gauge control module acts as a gateway to allow both systems to share information. The gauge control module translates and relays the information from B-CAN to F-CAN and from F-CAN to B-CAN.



Network "Loss of Communication" Error Checking Function

The ECUs on the CAN circuit send messages to each other. If there are any malfunctions on the network, the LCD display on the gauge control module can indicate the error messages by entering the gauge control module self-diagnostic function (see page 22-274).

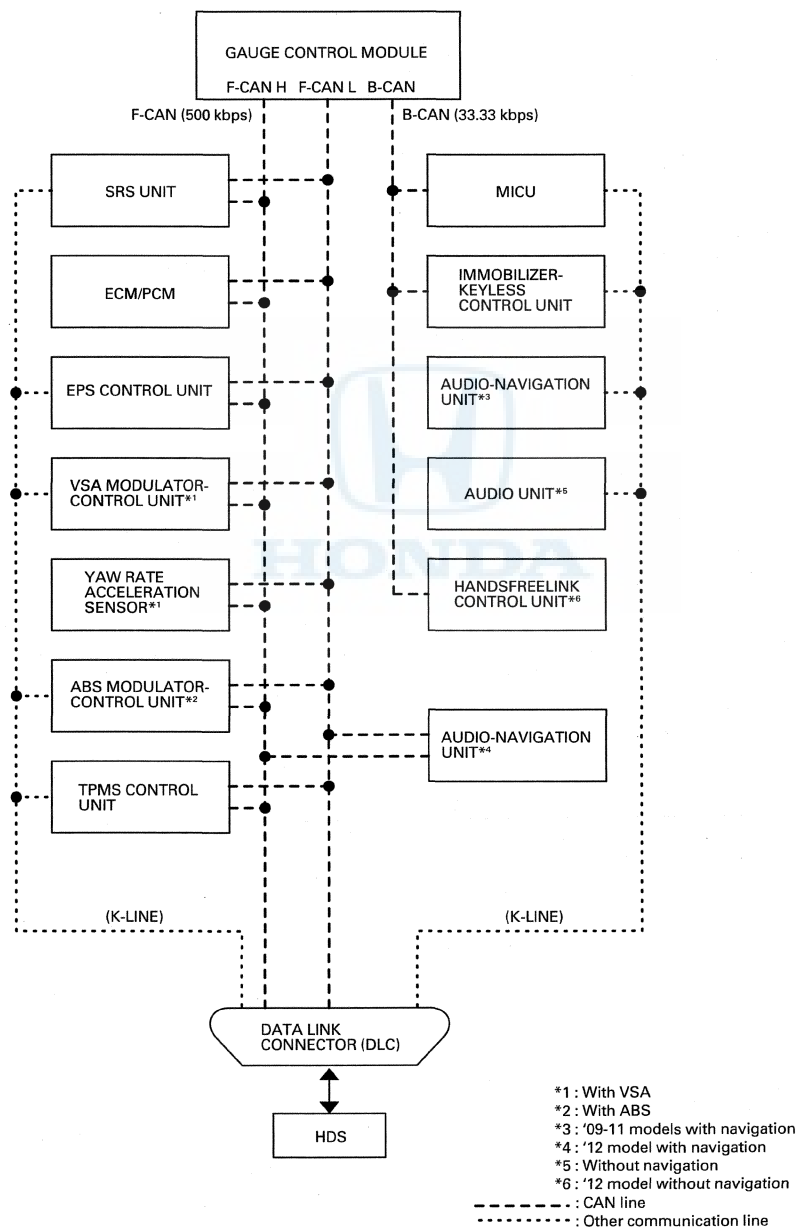
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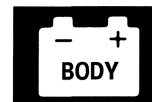
Multiplex Integrated Control System

System Description (cont'd)

Self-diagnostic Function

By connecting the HDS to the data link connector (DLC), the HDS can retrieve the diagnostic information from the MICU via a diagnostic line called K-LINE. The K-LINE is separate from the CAN lines, and is connected to the CAN related ECUs. The MICU is a gateway between the HDS and B-CAN related ECUs, and it sends B-CAN diagnostic information to the HDS. When doing a function test with the HDS, the HDS sends an output signal through the K-LINE to the MICU. The MICU either relays the request to another ECU or commands the function itself.





Wake-up and Sleep Function

The multiplex integrated control system has wake-up and sleep functions to decrease parasitic draw on the battery when the ignition switch is at LOCK (0).

- In the sleep mode, the multiplex integrated control system stops functioning (communication and CPU control) when it is not necessary for the system to operate.
- As soon as any operation is requested (for example, a door is unlocked), the related control units in the sleep mode immediately wake-up and begin to function.
- When the ignition switch is turned to LOCK (0) with all the doors and the tailgate closed, and the driver's door is opened then closed, there is a delay of about 40 seconds before the control unit goes from the wake-up mode to the sleep mode.
- The sleep mode will not function if any door or the tailgate is open or if a key is in the ignition switch.
- Electrical draw is reduced from 200 mA to less than 35 mA when in sleep mode.

NOTE: Sleep and Wake-Up Mode Test (see page 22-113).

Fail-Safe Function

To prevent improper operation, the MICU has a fail-safe function. In the fail-safe mode, the output signal is fixed when any part of the system malfunctions (for example, a faulty control unit or communication line).

Each control unit has a hardware fail-safe function that fixes the output signal when there is a CPU malfunction and a software fail-safe function that ignores the signal from a malfunctioning control unit, which allows the system to continue operating normally.

Hardware Fail-Safe Control

Fail-safe function

When a CPU problem or an abnormal power supply voltage is detected, the MICU moves to the hardware fail-safe mode, and each system output load is set to the pre-programmed fail-safe value.

Software Fail-Safe Control

When any of the data from the B-CAN circuit cannot be received within a specified time, or an unusual combination of data is recognized, the MICU moves to the software fail-safe mode. The data that cannot be received is forced to a pre-programmed value.

(cont'd)

Multiplex Integrated Control System

System Description (cont'd)

Power Supply Voltage Monitoring Function

The MICU monitors the power supply voltage (back-up voltage). If the voltage drops below 10 V, the MICU will not store DTCs.

	Input	Output
MICU	Battery voltage (VBU)	
B-CAN		MICU (UNDER 10 V) message

Combination Light Switch

The MICU controls the lighting system based on input from the combination light switch.

	Input	Output
MICU	IG1 power supply Combination light switch (OFF) Combination light switch (ON) Combination light switch (PARKING) Combination light switch (PASSING) Combination light switch (DIMMER)	Headlights (LO) Headlights (HI) Side marker lights Parking lights Taillights
B-CAN		Combination light switch (PARKING) message Combination light switch (HLLO) message Combination light switch (HLHI) message Combination light switch (PASSING) message

Fog Lights

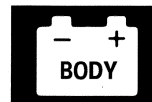
The MICU controls the fog lights based on input signal from the fog light switch.

	Input	Output
MICU	IG1 power supply Combination light switch (OFF) Combination light switch (ON) Combination light switch (FOG)	Fog light relay
B-CAN		Combination light switch (FRFOG) message RM (FRFOGRLY) message

Turn Signal/Hazard Warning Lights

The MICU controls the turn signal/hazard warning lights based on input from the turn signal switch and the hazard warning switch.

	Input	Output
MICU	IG1 power supply Hazard warning switch Turn signal switch (LEFT) Turn signal switch (RIGHT)	Turn signal lights (LEFT) Turn signal lights (RIGHT)
B-CAN		MICU (HAZARDSW) message MICU (TURNRLY) message Turn signal switch (TURNL) message Turn signal switch (TURNR) message



Entry Light

The MICU controls the interior lights based on input signals of each switch and B-CAN signals.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Driver's door lock knob switch (LOCK/UNLOCK)	Ceiling light
B-CAN	Keyless door lock signal	

Cargo Area Light

The MICU controls the cargo area light based on the tailgate latch switch.

	Input	Output
MICU	Tailgate latch switch	Cargo area light

Daytime Running Lights

The MICU controls the headlights as daytime running lights based on input from each switch and B-CAN signals.

	Input	Output
MICU	IG2 power supply Combination light switch (OFF) Combination light switch (ON) Combination light switch (PASSING) Combination light switch (DIMMER)	Headlights (LO) Headlights (HI) Side maker lights Taillights
B-CAN	Parking brake switch signal IG1 METER signal	RM (DRLKC) message RM (DRLWRN) message

Windshield Wiper/Washer

The MICU controls the windshield wiper motor and windshield washer motor based on input signals from each switch and B-CAN signals.

	Input	Output
MICU	IG1 power supply Windshield Wiper switch (INT) Windshield Wiper switch (LO) Windshield Wiper switch (HI) Windshield Wiper switch (MIST) Windshield Washer switch Windshield Wiper motor (AUTO STOP) Brake pedal position switch Transmission range switch (P) position (A/T)	Windshield Wiper motor (INT) Windshield Wiper motor (LO) Windshield Wiper motor (HI) Windshield Washer motor
B-CAN	IG1 METER signal Parking brake switch signal Vehicle speed pulse signal	Windshield wiper switch (FRINT) message Windshield wiper switch (FRWIPLO) message Windshield wiper switch (FRWIPHl) message Windshield washer switch (FRWASH) message Windshield wiper switch (FRMIST) message Windshield wiper motor (FRWIPAS) message

(cont'd)

Multiplex Integrated Control System

System Description (cont'd)

Rear Window Wiper/Washer

The MICU controls the rear window wiper motor and rear window washer motor based on inputs from each switch.

	Input	Output
MICU	IG1 power supply Rear window wiper motor switch Rear window washer motor switch Windshield washer switch Windshield wiper switch (INT) Windshield wiper switch (LO) Windshield wiper switch (HI) Back-up light switch (M/T) Transmission range switch (R) position (A/T)	Rear window wiper motor Rear window washer motor
B-CAN		Windshield washer switch (FRWASH) message Rear window washer switch (RRWASH) message

Windshield/Rear Window Washer

The MICU controls the windshield washer and the rear window washer motor based on inputs from each switch.

	Input	Output
MICU	IG1 power supply Windshield washer motor switch Rear window washer motor switch	Rear window washer motor Windshield washer motor
B-CAN		Windshield washer switch (FRWASH) message Rear window washer switch (RRWASH) message

Power Window Timer (Key-Off Operation)

The MICU controls the power window key-off operation based on inputs from each switch.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch	Power window timer

Collision Detection Signal (CDS)

The MICU controls the door lock actuators based on the IG1 and SRS (CDS) inputs.

	Input	Output
MICU	IG1 power supply	Door/Tailgate lock actuators (UNLOCK)
B-CAN	SRS (CDSFR) message SRS (CDSSD) message SRS (CDSRR) message SRS (CDSRO) message	



Power Door Locks

The MICU controls the door lock actuators based on inputs from each switch.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Tailgate latch switch Driver's door lock switch (LOCK/UNLOCK) Driver's door key cylinder switch (LOCK/UNLOCK) Driver's door lock knob switch (LOCK/UNLOCK)	Door/Tailgate lock actuators (LOCK) Door/Tailgate lock actuators (UNLOCK)

Keyless Entry System

The MICU controls the door lock actuators based on inputs of each switch.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Tailgate latch switch Driver's door lock knob switch (LOCK/UNLOCK) Driver's door lock switch (LOCK/UNLOCK) Driver's door key cylinder switch (LOCK/UNLOCK)	Driver's door lock actuator (UNLOCK) Door/Tailgate lock actuators (LOCK) Door/Tailgate lock actuators (UNLOCK)
B-CAN	Keyless door lock signal	Relock message

Key Interlock (A/T)

The MICU controls the key interlock solenoid based on inputs from each switch.

	Input	Output
MICU	Ignition switch (I) Transmission range switch (P) position Park-pin switch	Key interlock solenoid

(cont'd)

Multiplex Integrated Control System

System Description (cont'd)

Security Alarm System

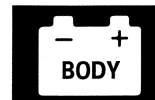
The MICU controls the exterior lights and the horn based on inputs of each switch.

	Input	Output
MICU	IG1 power supply Ignition key switch Audio switch Tailgate latch switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Driver's door key cylinder switch (LOCK/UNLOCK) Driver's door lock knob switch (UNLOCK) Front passenger's door lock knob switch (UNLOCK) Left rear door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Security hood switch	Headlights (LO) Parking lights Side marker lights Taillights Security horn
B-CAN	Keyless door lock signal Door lock signal VALID CODE message	MICU (SET1) message MICU (SET2) message ALARM (ACTION) message

Answer Back Response Operation

The MICU controls the lighting system and horn based on keyless signals sent by B-CAN.

	Input	Output
MICU		Horn Headlights (LO) Taillights Side marker lights Parking lights
B-CAN	Answer back (PARKING) signal Answer back (HLL0) signal Answer back (HORN) signal	



Auto Door Lock

The MICU controls the door lock actuators based on inputs from each switch and B-CAN signals.

	Input	Output
MICU	IG1 power supply Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Tailgate latch switch Driver's door lock knob switch (UNLOCK) Front passenger's door lock knob switch (UNLOCK) Left rear door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Transmission range switch (P) position (A/T) Brake pedal position switch	Door/Tailgate lock actuators (LOCK)
B-CAN	Vehicle speed signal Engine speed signal	

Auto Door Unlocks

The MICU controls the door lock actuators based on the inputs from each switch.

	Input	Output
MICU	IG1 power supply Ignition key switch Driver's door switch Front passenger's door switch Left rear door switch Right rear door switch Tailgate latch switch Driver's door lock knob switch (UNLOCK) Front passenger's door lock knob switch (UNLOCK) Left rear door lock knob switch (UNLOCK) Right rear door lock knob switch (UNLOCK) Transmission range switch (P) position Brake pedal position switch	Door/Tailgate lock actuators (UNLOCK) Driver's door lock actuator (UNLOCK)

Keyless Panic Function

The MICU controls the keyless PANIC function based on Panic signals sent by B-CAN.

	Input	Output
MICU		Headlights (LO) Parking lights Side marker lights Taillights Horn
B-CAN	PANIC singals	

(cont'd)

Multiplex Integrated Control System

System Description (cont'd)

HDS Inputs and Function Tests

Certain inputs happen so quickly that the HDS cannot update fast enough. Hold the switch that is being tested while monitoring the Data List. This should give the HDS time to update the signal on the Data List.

Because the HDS software is updated to support the release for newer vehicles, it is not uncommon to see system function tests that are not supported.

Make sure that the most current HDS software is loaded.

Input

System Menu	Data List	Data List Indication
Lighting	Driver's Door Switch	OFF/ON
	Hazard Warning Switch	OFF/ON
	Headlight Switch (OFF)	OFF/ON
	Headlight Switch (PARKING)	OFF/ON
	Headlight Switch (HEADLIGHT)	OFF/ON
	Headlight Switch (High Beam)	OFF/ON
	Headlight Switch (PASSING)	OFF/ON
	Turn Signal Switch (LEFT)	OFF/ON
	Turn Signal Switch (RIGHT)	OFF/ON
	Fog Light Switch	OFF/ON
	Left Turn Signal Command	OFF/ON
	Right Turn Signal Command	OFF/ON
	Cargo Light Command	OFF/ON
	Headlight Command	OFF/ON
	Headlight High Beam Command	OFF/ON
	Parking Light Command	OFF/ON
	Fog Light Command	OFF/ON
	DRL Command	OFF/ON



Input

System Menu	Data List	Data List Indication
Gauges	Cruise Control Main Switch (ACC switch)	OFF/ON
	Cruise Control Set Switch	OFF/ON
	Cruise Control Resume Switch	OFF/ON
	Washer Fluid Level Switch	OFF/ON
	Gauge Select/Reset Switch	OFF/ON
	VSA off Switch	OFF/ON
	Parking Brake Switch	OFF/ON
	Brake Fluid Level Switch	OFF/ON
	Fuel Sending Unit Input 1	V
	Fuel Sending Unit Input 2	V
	ABS Indicator	OFF/ON
	EBD Indicator (Electronic Brake Distribution)	OFF/ON
	Cruise Control Main Switch Indicator	OFF/ON
	MIL Indicator	OFF/ON
	VSA Off Indicator	OFF/ON
	VSA Indicator	OFF/ON
	DRL Indicator	OFF/ON
	Low Oil Pressure Indicator	OFF/ON
	Charging System Indicator	OFF/ON
	Maintenance Minder Indicator	OFF/ON
	High Beam Indicator	OFF/ON
	Parking Light ON Indicator	OFF/ON
	Low Fuel Warning Indicator	OFF/ON
	Security Indicator	OFF/ON
	Fog Light Indicator	OFF/ON
	Seatbelt Indicator	OFF/ON
	SRS Indicator	OFF/ON
	Speed Indicator (km/h) Command	km/h/Fail
	Speed Indicator (mph) Command	mile/h/Fail
	Driver's Seat Belt Buckle Switch	OFF/ON
	A/T Gear Position Switch (R)	OFF/ON
	A/T Gear Position Switch (P)	OFF/ON

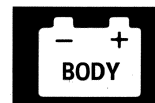
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Multiplex Integrated Control System

System Description (cont'd)

Input

System Menu	Data List	Data List Indication
Door Locks	Driver's Door Switch	OFF/ON
	Front Passenger's Door Switch	OFF/ON
	Driver's Rear Door Switch	OFF/ON
	Passenger's Rear Door Switch	OFF/ON
	Driver's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Passenger's Rear Door Lock Knob Sw. (UNLOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (LOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Switch (LOCK)	OFF/ON
	Driver's Door Lock Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Knob Switch (LOCK)	OFF/ON
	Driver's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Front Passenger's Door Lock Knob Sw. (UNLOCK)	OFF/ON
	Door LOCK Command	OFF/ON
	Door UNLOCK Command	OFF/ON
Wiper	Brake Pedal Position Switch	OFF/ON
	Rear Wiper Auto Stop Switch	ON/OFF
	Windshield Wiper Switch (LOW)	OFF/ON
	Windshield Wiper Switch (HIGH)	OFF/ON
	Windshield Wiper Switch (MIST)	OFF/ON
	Rear Wiper Switch	OFF/ON
	Windshield Wiper Switch (INT)	OFF/ON
	Windshield Washer Switch	OFF/ON
	Rear Washer Switch	OFF/ON
	Windshield Wiper Motor PARK Switch	OFF/ON
	Rear Wiper Command	OFF/ON
	Rear Washer Command	OFF/ON
	Windshield Wiper Motor HI Command	OFF/ON
	Windshield Wiper Motor LO Command	OFF/ON
	Windshield Washer Motor Command	OFF/ON
Keyless Transmitter	Driver's Door Switch	OFF/ON
	Front Passenger's Door Switch	OFF/ON
	Driver's Rear Door Switch	OFF/ON
	Passenger's Rear Door Switch	OFF/ON
	Front Passenger's Door Lock Knob Sw. (UNLOCK)	OFF/ON
	Driver's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Passenger's Rear Door Lock Knob Sw. (UNLOCK)	OFF/ON
	Trunk Knob Sw. (UNLOCK)	OFF/ON
	Trunk Key Cylinder (UNLOCK)	OFF/ON
	Trunk Handle Switch	OFF/ON
	Driver's Door Key Cylinder Switch (LOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Switch (LOCK)	OFF/ON
	Driver's Door Lock Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Knob Switch (LOCK)	OFF/ON
	Driver's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Door LOCK Command	OFF/ON
	Door UNLOCK Command	OFF/ON
	Driver's Door LOCK Command	OFF/ON
	Trunk Lid Release Command	OFF/ON



Input

System Menu	Data List	Data List Indication
Security	Ignition Key Cylinder Switch	OFF/ON
	Driver's Door Switch	OFF/ON
	Front Passenger's Door Switch	OFF/ON
	Driver's Rear Door Switch	OFF/ON
	Passenger's Rear Door Switch	OFF/ON
	Trunk Lid/Tailgate Switch	OFF/ON
	Front Passenger's Door Lock Knob Sw. (UNLOCK)	OFF/ON
	Driver's Rear Door Lock Knob Switch (UNLOCK)	OFF/ON
	Passenger's Rear Door Lock Knob Sw. (UNLOCK)	OFF/ON
	Trunk Knob Sw. (UNLOCK)	OFF/ON
	Trunk Key Cylinder (UNLOCK)	OFF/ON
	Trunk Handle Switch	OFF/ON
	Hazard warning switch	OFF/ON
	Security Hood Switch	OFF/ON
	Driver's Door Key Cylinder Switch (LOCK)	OFF/ON
	Driver's Door Key Cylinder Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Switch (LOCK)	OFF/ON
	Driver's Door Lock Switch (UNLOCK)	OFF/ON
	Driver's Door Lock Knob Switch (LOCK)	OFF/ON
	Driver's Door Lock Knob Switch (UNLOCK)	OFF/ON
	Door LOCK Command	OFF/ON
	Door UNLOCK Command	OFF/ON
	Driver's Door UNLOCK Command (Individual)	OFF/ON
	Trunk Lid Release Command	OFF/ON
	Headlight Command	OFF/ON
	Headlight High Beam Command	OFF/ON
	Parking Light Command	OFF/ON
	Horn Command	OFF/ON

(cont'd)

Multiplex Integrated Control System

System Description (cont'd)

HDS Inputs and Function Tests

Function Test

System Menu	HDS Description	Note
Door Locks	LOCK all doors	Outputs LOCK signal 1 time (for 0.6 seconds) to all door
	UNLOCK driver's side door	Outputs UNLOCK signal 1 time (for 0.6 seconds) to driver's side door
	UNLOCK all doors	Outputs UNLOCK signal 1 time (for 0.6 seconds) to all door
Lighting	Interior Light Command	Illuminates for 30 seconds
	Left Turn Signal Command	Blinks for 5 seconds
	Right Turn Signal Command	Blinks for 5 seconds
	Hazard Flasher	Blinks turn signal (left and right) for 15 seconds
	Headlight Command	Operates headlight (low) for 15 seconds
	Headlight High Beam Command	Operates headlight (high) for 15 seconds
	Parking Lights Command	Operates Parking Light for 15 seconds
	Fog Light	Operates fog light for 15 seconds
Security	Cargo Area Light	Illuminates for 30 seconds
	Horn Command	Operates horn for 1 second
Wiper	Windshield Wiper Motor Low Command	Operates windshield wiper for 5 seconds (low speed)
	Windshield Wiper Motor High Command	Operates windshield wiper for 5 seconds (high speed)
	Windshield Washer Command	Operates windshield washer for 5 seconds
	Rear Wiper Motor	Operates for 5 seconds
	Rear Wiper Washer	Operates for 5 seconds



Troubleshooting - B-CAN System Diagnosis Test Mode A

Check the ECM/PCM for DTCs and troubleshoot ECM/PCM (see page 11-3) or F-CAN loss of communication errors first, then do this diagnosis if the symptom is related to the B-CAN system.

1. Compare the symptom with this list of B-CAN related systems:

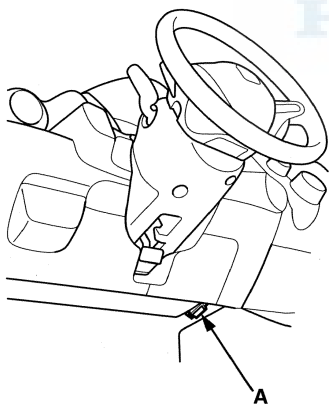
- Gauge control module
- Exterior lights
- Entry light control
- Horns (security and panic)
- Wiper/washer
- Security
- Keyless entry
- Power door locks
- Immobilizer
- HandsFreeLink

Is the symptom related to the B-CAN system?

YES—Go to step 2.

NO—Go to the system troubleshooting for the system with the symptom. ■

2. Connect the HDS to the data link connector (DLC) (A), then turn the ignition switch to ON (II).



3. From the BODY ELECTRICAL menu, select B-CAN CONTROL UNITS INFORMATION, and then select CONNECTED UNIT listed to see if the following control units are communicating with the HDS.

- MICU
- Gauge control module
- Immobilizer-keyless control unit
- HandsFreeLink control unit

NOTE:

- If a unit is communicating with the HDS, DETECT is displayed.
- If a unit is not communicating or the vehicle is not equipped, "Not Available" is displayed.
- The HDS only checks the connected units status one time when BODY ELECTRICAL is selected. To recheck the status after repair, reboot the HDS and repeat step 3.

Are all control units communicating with the HDS?

YES—Go to step 4.

NO—If any of the control units are not communicating, go to B-CAN System Diagnosis Test Mode B (see page 22-108). If all units are not communicating or only the MICU is communicating, go to DTC B1000 troubleshooting (see page 22-115). ■

4. Select the system that has the problem from the BODY ELECTRICAL menu, then select DTCs.

Are any DTCs indicated?

YES—Go to step 6.

NO—If the problem is related to one of the following items, and the system that is malfunctioning does not stop or turn off, go to B-CAN System Diagnosis Test Mode C (see page 22-109). If the problem is related to one of the following items and the system that is malfunctioning does not work or turn on, go to B-CAN System Diagnosis Test Mode D (see page 22-110).

- Exterior lights
- Entry light control
- Horns (security and panic)
- Wiper/washer

If the problem is related to one of the following items, go to the troubleshooting for that individual system. ■

- Gauge control module
- Security
- Keyless entry
- HandsFreeLink

(cont'd)

Multiplex Integrated Control System

Troubleshooting - B-CAN System Diagnosis Test Mode A (cont'd)

5. Record all DTCs, and sort them by DTC type.
6. Troubleshoot the DTC(s) in this order:
 - Battery voltage DTCs.
 - Internal error DTCs.
 - Loss of communication DTCs.
 - Signal error DTCs.

Troubleshooting - B-CAN System Diagnosis Test Mode B

Do this diagnosis if any of the control units are not communicating (Not Available is displayed on the HDS) as found by the B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Using the HDS, select the system that has the symptom from the BODY ELECTRICAL menu.
2. Select the DTCs, and then check for loss of communication DTCs.

Are any loss of communication DTCs indicated?

YES—Go to step 3.

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

3. Do the power, ground, and communication part of the input test for the unit(s) not communicating with the HDS.

Unit not communicating
MICU (see page 22-120)
Gauge control module (see page 22-290)
Immobilizer-keyless control unit (see page 22-332)
HandsFreeLink control unit



Troubleshooting - B-CAN System Diagnosis Test Mode C

Do this diagnosis if a component that is controlled by the B-CAN system does not stop or turn off.

NOTE:

- If the component does not turn on, go to B-CAN System Diagnosis Test Mode D (see page 22-110).
- See the B-CAN system unit input/output index for a list of input and output devices and the control units that monitor the input and controls the output devices (see page 22-92).
- Always cycle the ignition switch within 3 seconds when prompted in the DTC troubleshooting procedures in this section.

1. Check for DTCs by selecting the MODE MENU from the HDS.

Are any DTCs indicated?

YES—Go to B-CAN System Diagnosis Test Mode A (see page 22-107).■

NO—Go to step 2.

2. Turn off the switch that controls the malfunctioning component.
3. Select the applicable system from the system MODE MENU, then select DATA LIST, and check the input of the switch that controls the component.

Does the HDS indicate the switch is OFF?

YES—Go to step 4.

NO—Go to step 6.

4. In the DATA LIST, check the output signal of the malfunctioning component.

Is the output signal OFF?

YES—Go to step 5.

NO—Replace the control unit that controls the device that will not turn OFF.■

5. Check the relay that does not stop or turn off, if applicable, then check for a short in the wire between the relay and the component, the relay and control unit, or the component and control unit.

Are the relay and the wire harness OK?

YES—Replace the control unit that controls the component that will not turn OFF.■

NO—Replace the relay or repair the wire harness.■

6. Check the switch, then check for a short in the wire between the switch and the control unit that monitors the switch.

Are the switch and wire harness OK?

YES—Replace the control unit that monitors the switch.■

NO—Replace the switch, or repair the wire harness.■

Multiplex Integrated Control System

Troubleshooting - B-CAN System Diagnosis Test Mode D

Do this diagnosis if a component that is controlled by the B-CAN system does not work or come on.

NOTE:

- If the component does not turn off or stop, go to B-CAN System Diagnosis Test Mode C (see page 22-109).
- See the B-CAN system unit input/output index for a list of input and output devices and the control units that monitor the input and controls the output devices (see page 22-92).

1. Check the fuse of the malfunctioning output device.

Is the fuse OK?

YES—Go to step 2.

NO—Replace the fuse. If the fuse blows again, repair a short to ground on the fuse circuit of the malfunctioning device.■

2. Check for DTCs by selecting the MODE MENU from the HDS.

Are any DTCs indicated ?

YES—Go to B-CAN System Diagnosis Test Mode A (see page 22-107).■

NO—Go to step 3.

3. Turn ON the switch that controls the malfunctioning component.

4. Select the applicable system from the system MODE MENU, then select DATA LIST, and check output signal for the malfunctioning component.

Is there an output signal?

YES—Go to step 5.

NO—Go to step 9.

5. Check the relay and ground, then check for an open or a short in the circuit for the malfunctioning component.

Are the relay and circuit OK?

YES—Go to step 6.

NO—Replace the relay or repair the wire circuit.■

6. Do the function test for the malfunctioning component.

Does the output device pass the function test?

YES—Go to step 7.

NO—Replace the component.■

7. With the malfunctioning output device connected, connect a voltmeter between the malfunctioning output device input and the ground wire that the control unit uses to control the output device circuit.

8. Select FUNCTIONAL TEST from the MODE MENU, and do the forced operation test of the malfunctioning component.

Is there a change in voltage (12 V to 0 V or 0 V to 12 V)?

YES—Replace the component.■

NO—Replace the control unit that controls the malfunctioning component.■

9. Select DATA LIST from the system MODE MENU, and make sure the switch signal input for the malfunctioning system indicates a change when operated.

Does the switch input indicated ON when the switch is ON?

YES—Replace the control unit that controls the malfunctioning component.■

NO—Go to step 10.

10. Check the switch and its ground (if applicable), then check for an open or a short in the wire between the switch and the control unit that monitors it.

Is the switch and the wire harness OK?

YES—Replace the control unit that monitors the switch.■

NO—Replace the switch, or repair the wire harness.■



Troubleshooting - B-CAN System Diagnosis Test Mode 1 and Test Mode 2 (without the HDS)

Special Tools Required

MPCS (MCIS) Service Connector 07WAZ-001010A

Test Mode 1

Check the ECM/PCM for DTCs and troubleshoot ECM/PCM (see page 11-3) or F-CAN loss of communication errors first, then do this diagnosis if the HDS is not available.

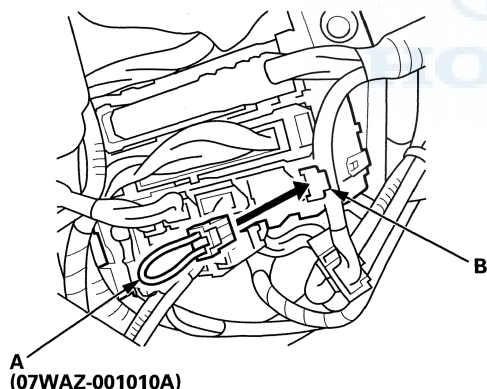
1. Check the No. 1 (10 A) and the No. 22 (7.5 A) fuses in the under-dash fuse/relay box.

Are the fuses OK?

YES—Go to step 2.

NO—Replace the fuses. If the fuse blows again, repair the short to ground on the fuse circuit(s). ■

2. Remove the fuse access panel (see page 20-97).
3. Turn the ignition switch to ON (II), and move the ceiling light switch to the middle (DOOR) position.
4. Connect the MPCS service connector (A) to the multiplex control inspection connector socket (B) in the under-dash fuse/relay box.



5. Wait 5 seconds, and watch the ceiling light. When the ceiling light flashes quickly once and then goes off, the system is in Test Mode 1.

6. Check for B-CAN DTCs indicated by the odo/trip LCD display on the gauge control module while still in Test Mode 1. Push the odometer SELET/RESET button to display the next code. After you get to the last code, the display shows END. If no DTCs are stored, the display will read NO. (see page 22-88)

NOTE: If the test times out, remove the MPCS service connector, turn the ignition switch to LOCK(0), and repeat step 3 and 4.

Are any DTCs indicated?

YES—Go to step 7.

NO—Go to step 9.

7. Record all DTCs and troubleshoot them in this order:
 - Battery voltage DTCs
 - Internal error DTCs
 - Loss of communication DTCs
 - Signal error DTCs
8. Clear the DTCs by pressing and holding the SELECT/RESET button for about 10 seconds.
9. You will hear a beep to confirm the codes have been cleared. Operate the devices that failed, and recheck for codes.

Test Mode 2

10. Remove the MPCS service connector from the under-dash fuse/relay box multiplex control inspection connector socket for 5—10 seconds, then re-insert it to enter Mode 2. When the system enters Mode 2, the ceiling light will flash two times quickly and then go off.

NOTE: If the MPCS service connector is disconnected for too short or too long of a time, or the ignition switch is turned to LOCK (0), the system will return to Test Mode 1.

11. The following table lists the circuits that can be checked in Test Mode 2. Operate the switch that is most closely related to the problem. If the circuit is OK, the ceiling light blink once. If the circuit is faulty, there is no indication.

(cont'd)

Multiplex Integrated Control System

Troubleshooting - B-CAN System Diagnosis Test Mode 1 and Test Mode 2 (without the HDS) (cont'd)

MICU

Item
Brake pedal position switch (ON)
Driver's door switch
Left rear door switch
Tailgate latch switch
Fog light switch
Left rear door lock knob switch (UNLOCK)
Windshield wiper switch (LOW)
Windshield wiper switch (HIGH)
Windshield wiper switch (INT)
Windshield wiper switch (MIST)
Rear wiper switch
Windshield washer switch
Wiper intermittent dwell time controller
Turn signal switch (LEFT)
Turn signal switch (RIGHT)
Hazard warning switch (ON)
Headlight switch (OFF)
Headlight switch (PARKING)
Headlight switch (HEADLIGHT)
Headlight switch (High Beam)
Headlight switch (PASSING)
Trunk lid opener main switch
Trunk lid outer handle switch
A/C pressure switch
Transmission range switch (P) (A/T)
Ignition key cylinder switch
Security hood switch
Back-up light switch
Windshield wiper motor PARK switch
Front passenger's door switch
Right rear door switch
Right rear door lock knob switch (UNLOCK)
Audio unit or Audio-navigation unit connected
Driver's door lock switch (UNLOCK)
Driver's door lock switch (LOCK)
Driver's door lock knob switch (UNLOCK)
Driver's door lock knob switch (LOCK)
Driver's door lock key cylinder switch (UNLOCK)*
Driver's door lock key cylinder switch (LOCK)*
Front passenger's door lock knob switch (UNLOCK)

* A second key is necessary to check the key cylinder inputs. Be sure to rotate the key cylinder switch two times to each position (lock and lock, unlock and unlock) to ensure the door lock knob switch is in the appropriate position.

Does the ceiling light work properly in all switch positions?

YES—Go to function and input test for the system related to the failure. ■

NO—Repair the open, or short, or replace the faulty switch. ■



Sleep and Wake-Up Mode Test

1. Shift to the sleep mode:

Close all doors. Turn the ignition switch to LOCK (0), and remove the key, then open and close the driver's door. If the MICU receives no signals from the inputs listed below, it will go into sleep mode in less than 40 seconds.

2. Confirm the sleep mode:

NOTE: Check any official Honda service website for more service information about parasitic draw at the battery.

Check the parasitic draw at the battery after 40 seconds; amperage should change to less than 30 mA in less than 40 seconds.

3. Shift to the wake up mode:

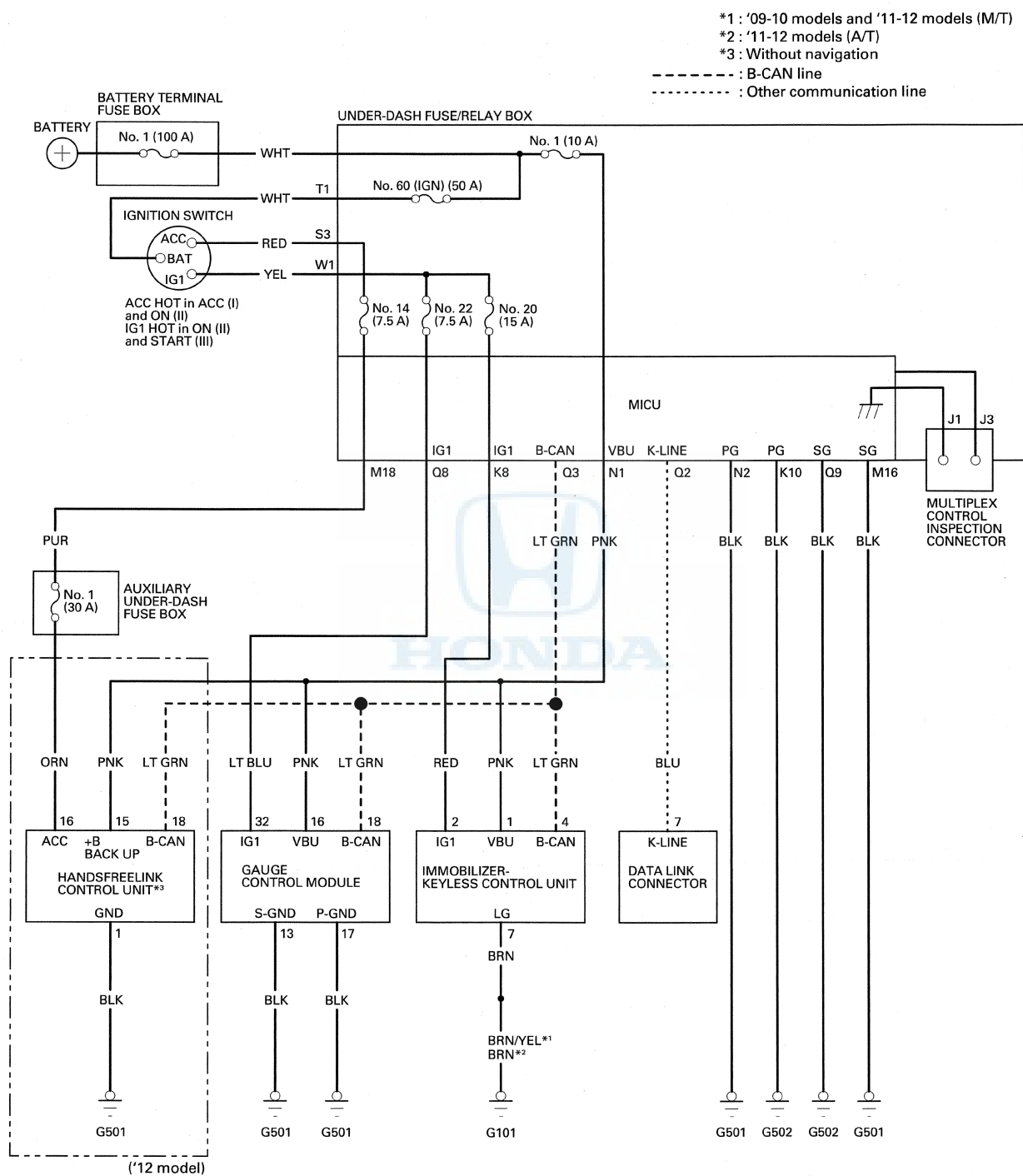
When the ignition switch is turned to ON (II), the MICU, gauge control module, immobilizer-keyless control unit, and ECM/PCM wake up at the same time without "talking" to each other through the communication lines. When any switch in the multiplex integrated control system is turned on, it wakes up its related control unit which, in turn, wakes up the other units. After confirming the sleep mode, look in the following table for the switch most related to the problem. Operate that switch and see if its control unit wakes up.

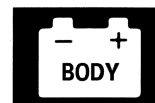
NOTE: If any control unit is faulty and will not wake up, several circuits in the system will malfunction at the same time. Below is a list of the switches and the input signals that wake them up.

- Driver's door switch (door open)
- Left rear door switch (door open)
- Tailgate latch switch (Tailgate open)
- Left rear door lock knob switch
- Hood switch (hood open)
- Hazard warning switch (ON)
- Combination light switch (Parking, Headlight, Dimmer, Passing ON)
- Ignition key switch (key inserted)
- Driver's door key cylinder switch (LOCK/UNLOCK)
- Passenger's rear door lock knob (UNLOCK)
- Front passenger's door lock knob (UNLOCK)
- Driver's door lock switch (LOCK/UNLOCK)
- Front passenger's door switch (door open)
- Passenger's rear door switch (door open)

Multiplex Integrated Control System

Circuit Diagram





DTC Troubleshooting

DTC B1000: Communication circuit error (BUS Off)

NOTE: If you are troubleshooting multiple DTC's, be sure to follow the instruction in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC B1000 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections, or worn/shorted wires. If the connections are good, check the battery condition (see page 22-68) and the charging system. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the appropriate connector at each control unit in the table one at a time. Clear the DTC, then recheck for DTCs after each unit is disconnected.

Control Unit	Connector
Gauge control module	32P connector
Immobilizer-keyless control unit	7P connector
HandsFreeLink control unit	28P connector

Is DTC B1000 indicated with each individual unit disconnected?

YES—Go to step 7.

NO—Go to the input test for the control unit that was disconnected when DTC B1000 did not reset and perform all power and ground input tests. If the tests prove OK, replace that unit. ■

- Gauge control unit input test (see page 22-290)
- Immobilizer-keyless control unit input test (see page 22-332)

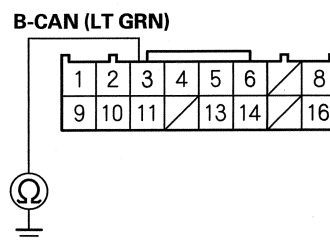
7. Turn the ignition switch to LOCK (0).
8. Disconnect each control unit connector in the table.

Control Unit	Connector
Gauge control module	32P connector
Immobilizer-keyless control unit	7P connector
HandsFreeLink control unit	28P connector

9. Disconnect under-dash fuse/relay box connector Q (16P).

10. Check for continuity between under-dash fuse/relay box connector Q (16P) terminal No. 3 and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR Q (16P)



Wire side of female terminals

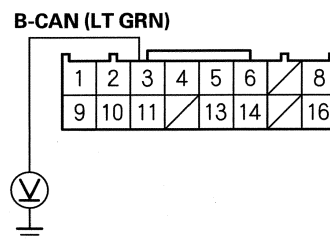
Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Go to step 11.

11. Turn the ignition switch to ON (II).
12. Measure the voltage between under-dash fuse/relay box connector Q (16P) terminal No. 3 and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR Q (16P)



Wire side of female terminals

Is there voltage?

YES—Repair a short to power in the wire between the under-dash fuse/relay box and the affected control unit. ■

NO—Faulty MICU, replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

(cont'd)

Multiplex Integrated Control System

DTC Troubleshooting (cont'd)

DTC B1002: MICU internal error (EEPROM error)

NOTE: If you are troubleshooting multiple DTC's, be sure to follow the instruction in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Check for DTCs with the HDS.

Is DTC B1002 indicated?

YES—Faulty MICU; replace the under-dash fuse/relay box.■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. If the connections are good, check the battery condition (see page 22-68) and the charging system.■

DTC B1011: MICU lost communication with Gauge Control Module (VSP/NE message)

NOTE:

- If you are troubleshooting multiple DTC's, be sure to follow the instruction in B-CAN System Diagnosis Test Mode A (see page 22-107).
- Before troubleshooting, check the No. 1 (10 A) and No. 22 (7.5 A) fuses in the under-dash fuse/relay box.

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

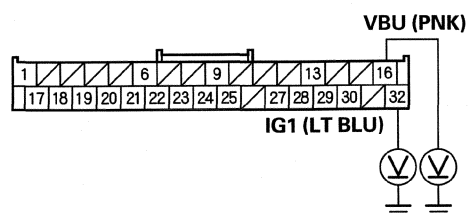
Is DTCs B1011 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the gauge control module and under-dash fuse/relay box connector Q (16P). If the connections are good, check the battery condition (see page 22-68) and the charging system.■

5. Measure the voltage between gauge control module 32P connector terminals No. 16 and No. 32 and body ground individually.

GAUGE CONTROL MODULE 32P CONNECTOR



Wire side of female terminals

Is there battery voltage?

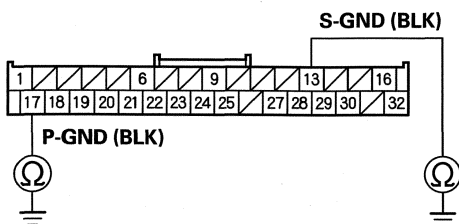
YES—Go to step 6.

NO—Repair open or high resistance in the wire.■



6. Measure the voltage between gauge control module 32P connector terminals No. 13 and No. 17 and body ground individually.

GAUGE CONTROL MODULE 32P CONNECTOR



Wire side of female terminals

Is there less than 0.2 V?

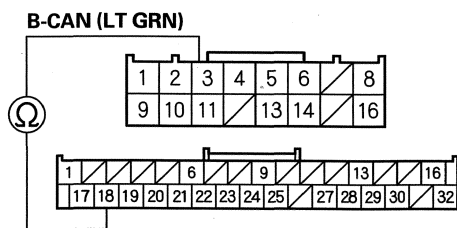
YES—Go to step 7.

NO—Repair an open or high resistance in the ground wire or poor ground (G501).■

7. Turn the ignition switch to LOCK (0).
8. Disconnect under-dash fuse/relay box connector Q (16P).
9. Disconnect the gauge control module 32P connector.
10. Check for continuity between under-dash fuse/relay box connector Q (16P) terminal No. 3 and gauge control module 32P connector terminal No. 18.

UNDER-DASH FUSE/RELAY BOX CONNECTOR Q (16P)

Wire side of female terminals



B-CAN (LT GRN)

GAUGE CONTROL MODULE 32P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Faulty MICU; replace the under-dash fuse/relay box.■

NO—Repair open or high resistance in the wire between the under-dash fuse/relay box and the gauge control module.■

DTC B1036: IG1 Power supply Circuit Malfunction

NOTE:

- If you are troubleshooting multiple DTC's, be sure to follow the instruction in B-CAN System Diagnosis Test Mode A (see page 22-107).
- Before troubleshooting, make sure the No. 22 (7.5 A) fuse in the under-dash fuse/relay box is OK.

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

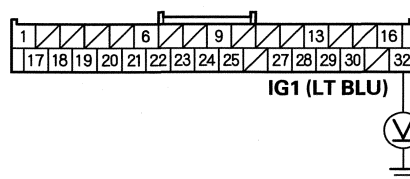
Is DTC B1036 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connection at the gauge control module 32P connector, and at under-dash fuse/relay box connector Q (16P). If the connections are good, check the battery condition (see page 22-68) and the charging system.■

5. Measure the voltage between the gauge control module 32P connector terminal No. 32 and body ground.

GAUGE CONTROL MODULE 32P CONNECTOR



Wire side of female terminals

Is there battery voltage?

YES—Faulty MICU; replace the under-dash fuse/relay box.■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Repair an open or high resistance in the wire between the under-dash fuse/relay box and the gauge control module.■

(cont'd)

Multiplex Integrated Control System

DTC Troubleshooting (cont'd)

DTC B1150: Communication circuit error (BUS Off)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC B1150 indicated?

YES—Troubleshoot DTC B1000 (see page 22-115). ■

NO—Intermittent failure, the system is OK at this time. ■

DTC B1900: Communication circuit error (BUS Off)

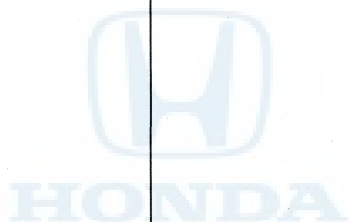
NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC B1900 indicated?

YES—Troubleshoot DTC B1000 (see page 22-115). ■

NO—Intermittent failure, the system is OK at this time. ■





DTC U1280: Communication bus Line Error (BUS-OFF)

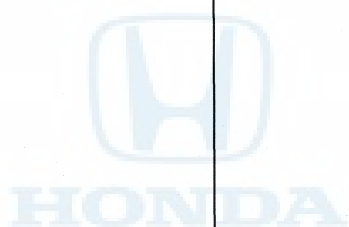
NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC U1280 indicated?

YES—Troubleshoot DTC B1000 (see page 22-115). ■

NO—Intermittent failure, the system is OK at this time. ■

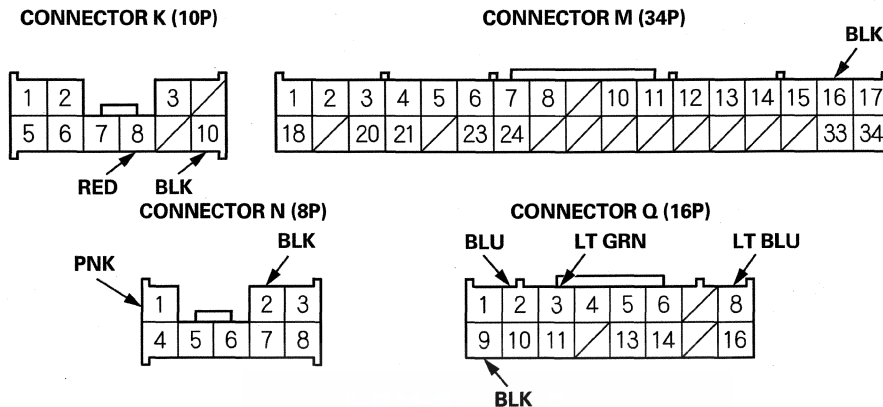


Multiplex Integrated Control System

MICU Input Test

1. Turn the ignition switch to LOCK (0).
2. Remove the fuse access panel (see page 20-97).
3. Disconnect under-dash fuse/relay box connectors K, M, N, and Q.

NOTE: All connector views are wire side of female terminals.



4. Inspect the connector and socket terminals to be sure they are all making good contact.
 - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
 - If the terminals look OK, go to step 5.
5. With the connectors still disconnected, do these input tests at the following connectors.
 - If any test indicates a problem, find and correct the cause, then recheck the system.
 - If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
Q2	BLU	Under all conditions	Check for continuity between terminal Q2 and the data link connector 16P connector terminal No. 7: There should be continuity.	An open or high resistance in the wire
Q3	LT GRN	Immobilizer-keyless control unit 7P connector disconnected	Check for continuity between terminal Q3 and the immobilizer-keyless control unit 7P connector terminal No. 4: There should be continuity.	An open or high resistance in the wire
Q3	LT GRN	Gauge control module 32P connector disconnected	Check for continuity between terminal Q3 and the gauge control module 32P connector terminal No. 18: There should be continuity.	An open or high resistance in the wire
Q3*	LT GRN	HandsFreeLink control unit 28P connector disconnected	Check for continuity between terminal Q3 and the HandsFreeLink control unit 28P connector terminal No. 18: There should be continuity.	An open or high resistance in the wire

*: '12 model without navigation



6. Reconnect the connectors to the under-dash fuse/relay box, turn the ignition switch to ON (II), and do these input tests at the following connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 7.

NOTE: These are power and ground tests for the multiplex integrated control unit.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
N1	PNK	Under all conditions	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 1 (10 A) fuse in the under-dash fuse/relay box • Faulty driver's under-dash fuse/relay box • An open or high resistance in the wire
Q8	LT BLU	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 22 (7.5 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open or high resistance in the wire
K10	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) or an open in the ground wire • An open or high resistance in the wire
M16	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) or an open in the ground wire • An open or high resistance in the wire
N2	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) or an open in the ground wire • An open or high resistance in the wire
Q9	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) or an open in the ground wire • An open or high resistance in the wire

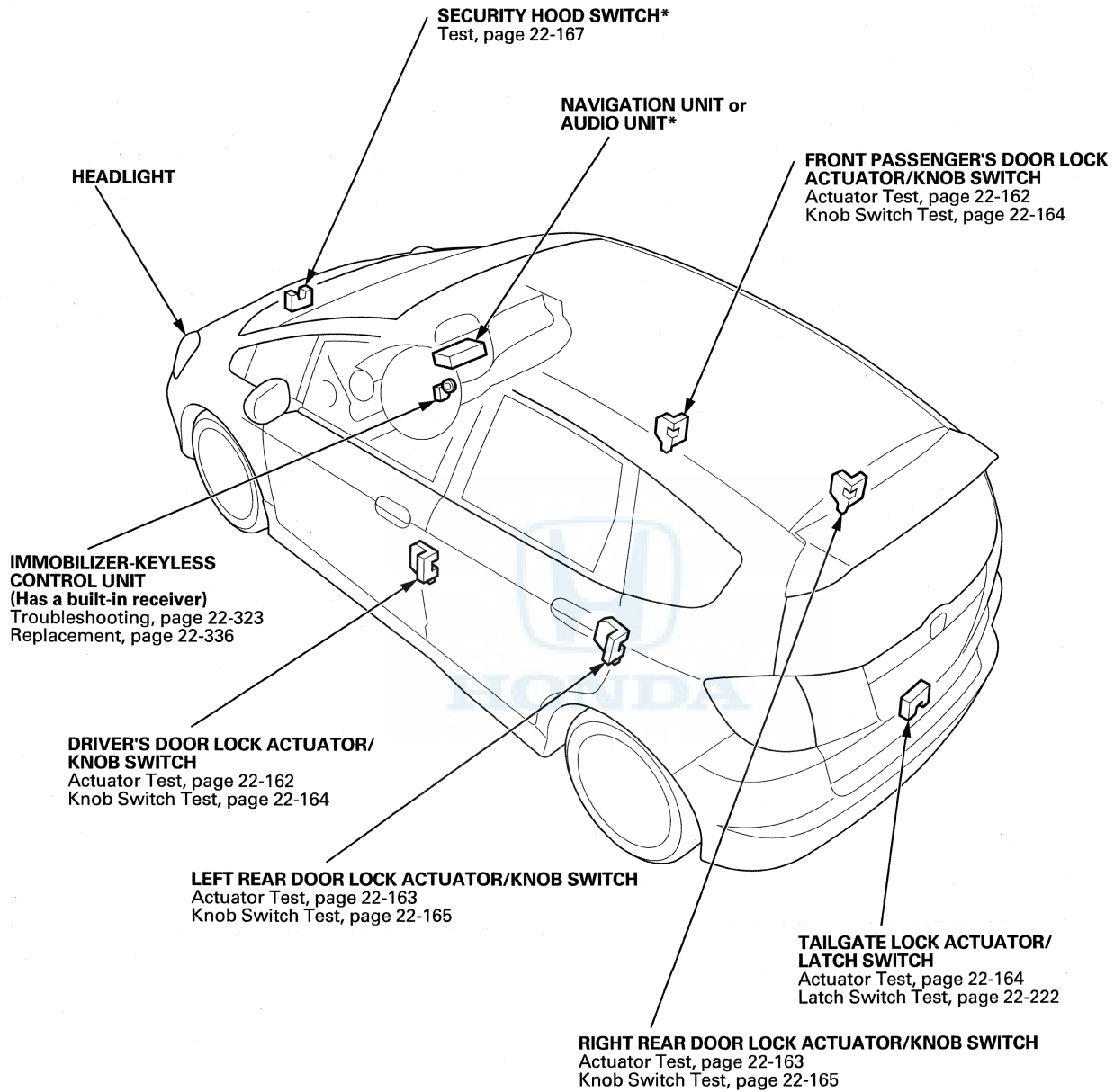
7. If multiple failures are found on more than one control unit, replace the under-dash fuse/relay box (includes the MICU).

- USA models (see page 22-65)
- Canada models (see page 22-66)

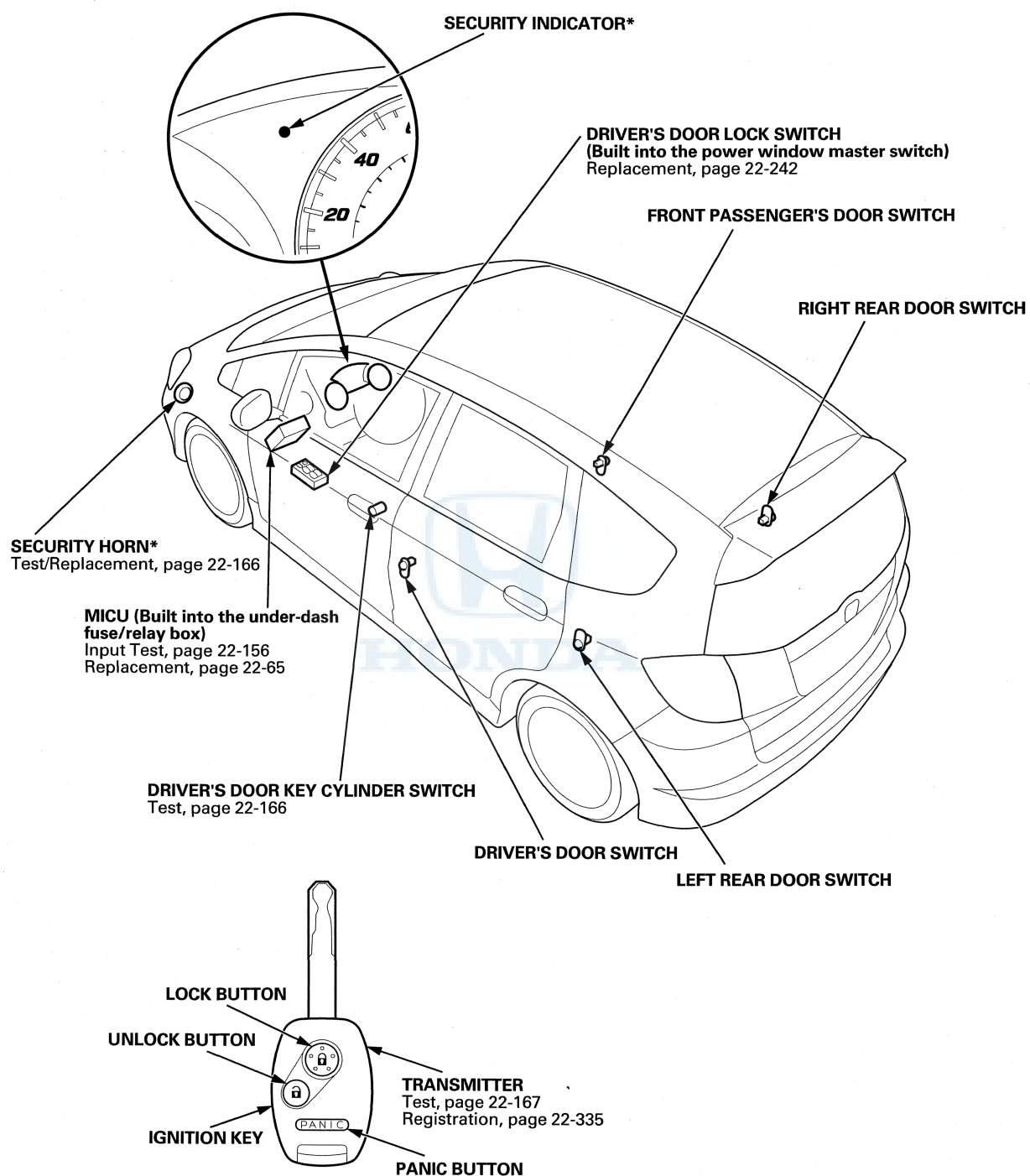
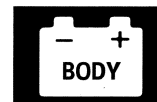
If input failures are related to a particular control unit, replace the control unit.

Keyless/Power Door Locks/Security System

Component Location Index



*: With security



*: With security

Keyless/Power Door Locks/Security System

System Description

Security Alarm

The security alarm system automatically arms after the doors, hood, and tailgate are closed and locked. For the system to arm, the ignition switch must be in the LOCK (0), the key must be removed from the ignition switch, and the MICU must receive inputs that the doors, hood, and tailgate are closed and locked. The alarm can be disarmed at any time by unlocking the driver door with the key or pressing the UNLOCK button on the transmitter.

When everything is closed and locked, the only inputs that are grounded, and have 0 V, are the driver's door lock knob switch (LOCK position) input and the audio unit or audio-navigation unit (if equipped) security input. In other words, all of the other switches are open, and have about 10 to 12 V, including the key cylinder switches. The security indicator in the gauge control module begins to flash immediately after the vehicle is completely closed and locked, and 15 seconds later, the security system arms. If the security indicator does not flash after the doors are locked, the system is not arming.

If one of the switches is misadjusted or shorted internally, or there is a short in one of the keyless/power door lock/security circuit, the security system will not arm. A switch that is slightly misadjusted can cause the alarm to sound for no apparent reason. In this case, a significant change in outside air temperature, the vibration of a passing truck, or someone bumping into the vehicle could cause the alarm to sound.

NOTE: There is no glass breakage or motion detection feature.

The system sounds the alarm when any of these occur:

- A door or the tailgate is forced open.
- A door is unlocked without using the key or the transmitter.
- The hood is opened.
- The audio unit or navigation unit (if equipped) is disconnected.
- The transmitter PANIC button is pressed.

When the system sounds the alarm, the horn sounds and the exterior lights flash for 2 minutes. The alarm can be stopped at any time by unlocking the driver's door by pressing any button on the transmitter.

Keyless Entry System

The keyless entry system is integrated with the multiplex integrated control system. The multiplex integrated control unit (MICU) receives LOCK, UNLOCK, and PANIC signals from the immobilizer-keyless control unit (keyless receiver).

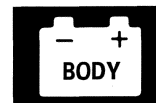
The keyless entry system allows you to lock and unlock the vehicle with the transmitter. When you press the LOCK button, all doors lock. When you press the UNLOCK button once, only the driver's door unlocks. The other doors will unlock when you press the button a second time. The doors will not lock with the transmitter if a door is not fully closed, or if the key is in the ignition switch.

When the switch for the ceiling light is in the middle (DOOR) position, it comes on when the UNLOCK button is pressed. If a door is not opened, the light goes off and the doors will relock in about 30 seconds. If the doors are locked with the transmitter within 30 seconds, the light goes off immediately.

Panic Mode

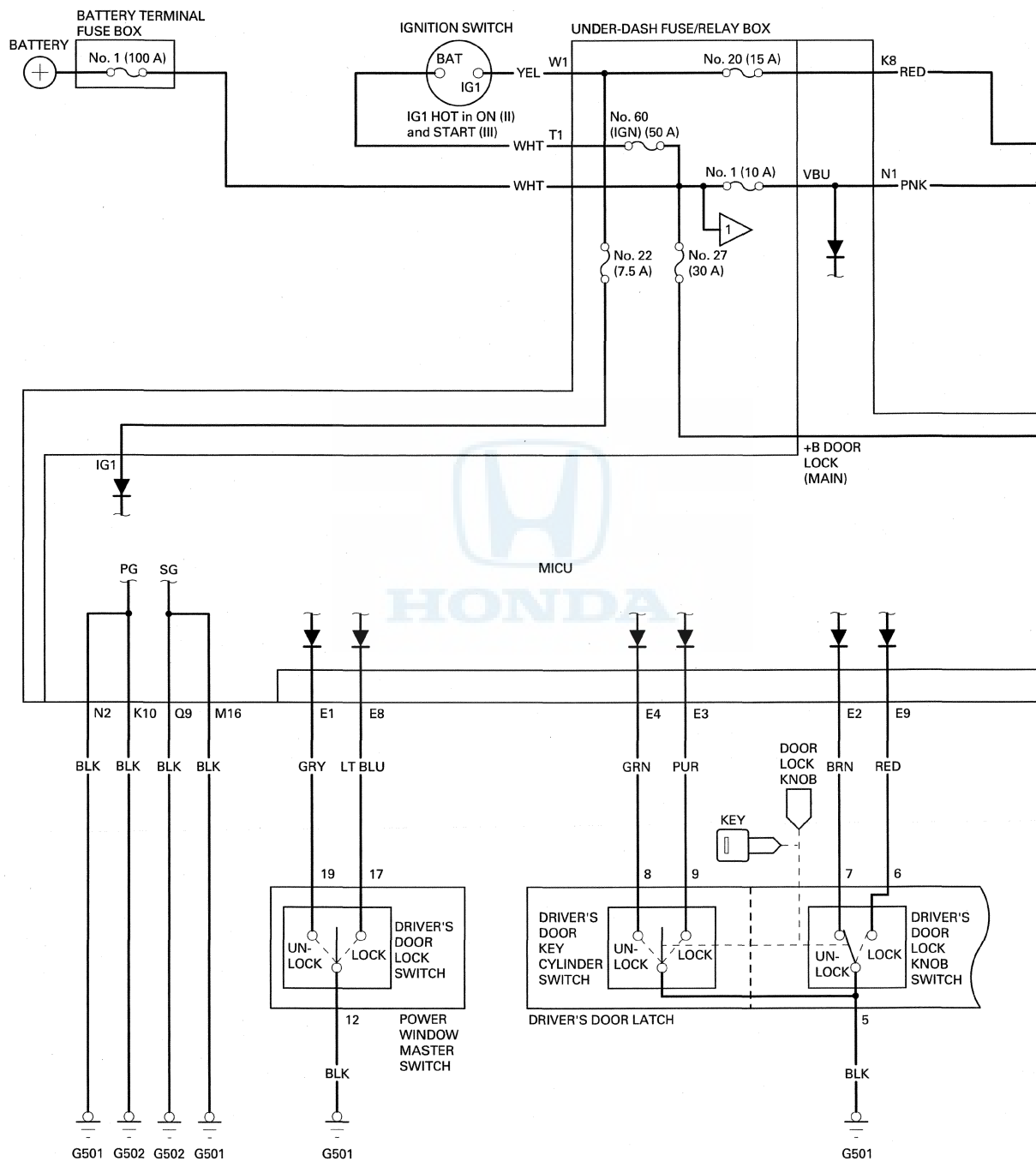
The panic mode sounds the alarm in order to attract attention. When the PANIC button on the transmitter is pressed and held for 2 seconds, the horns sound and the exterior lights flash for about 20 seconds.

The panic mode can be cancelled at anytime by pressing any button on the transmitter or by turning the ignition switch to ON (II). The panic mode will not function if the ignition switch is in ON (II).



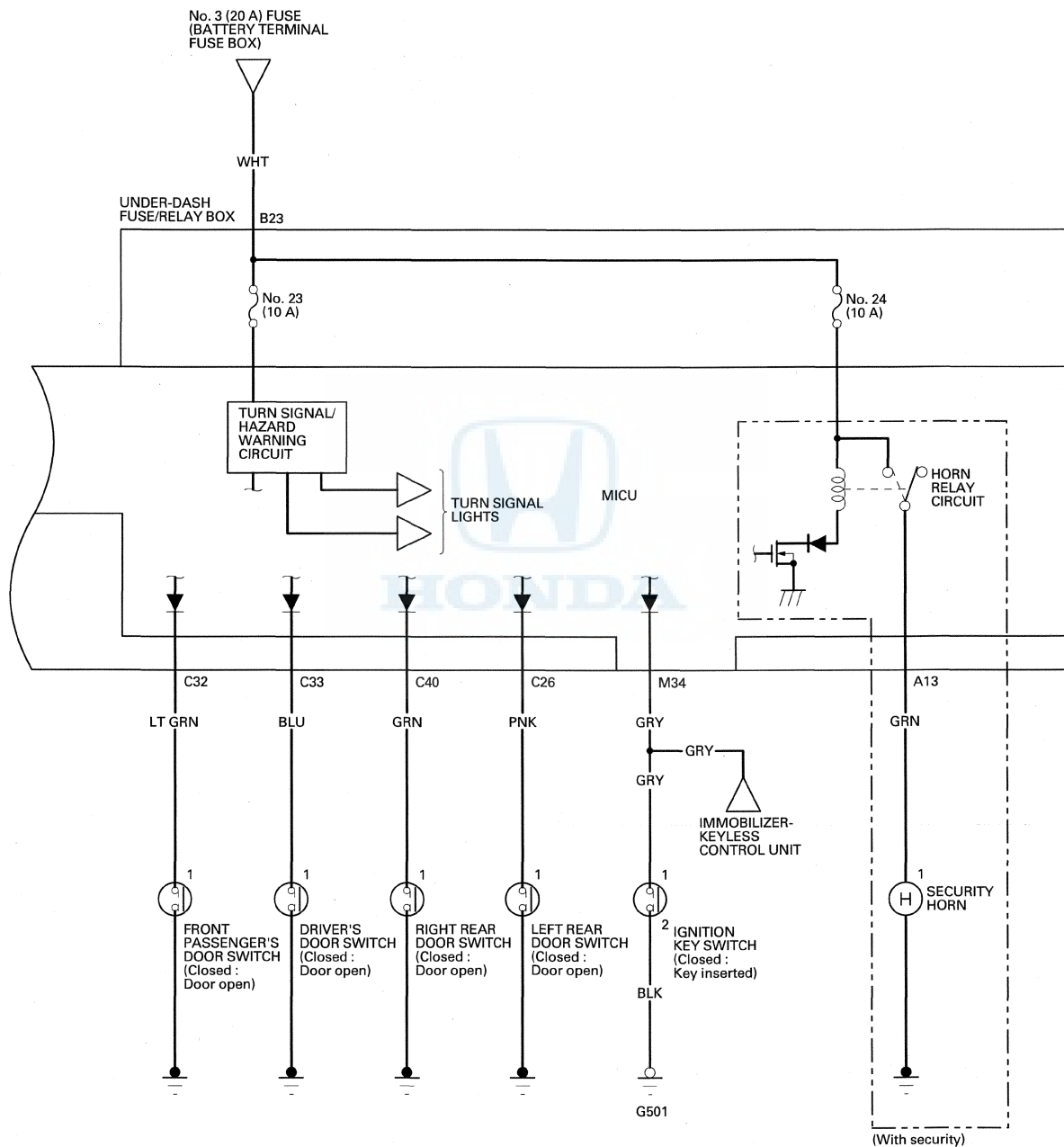
Keyless/Power Door Locks/Security System

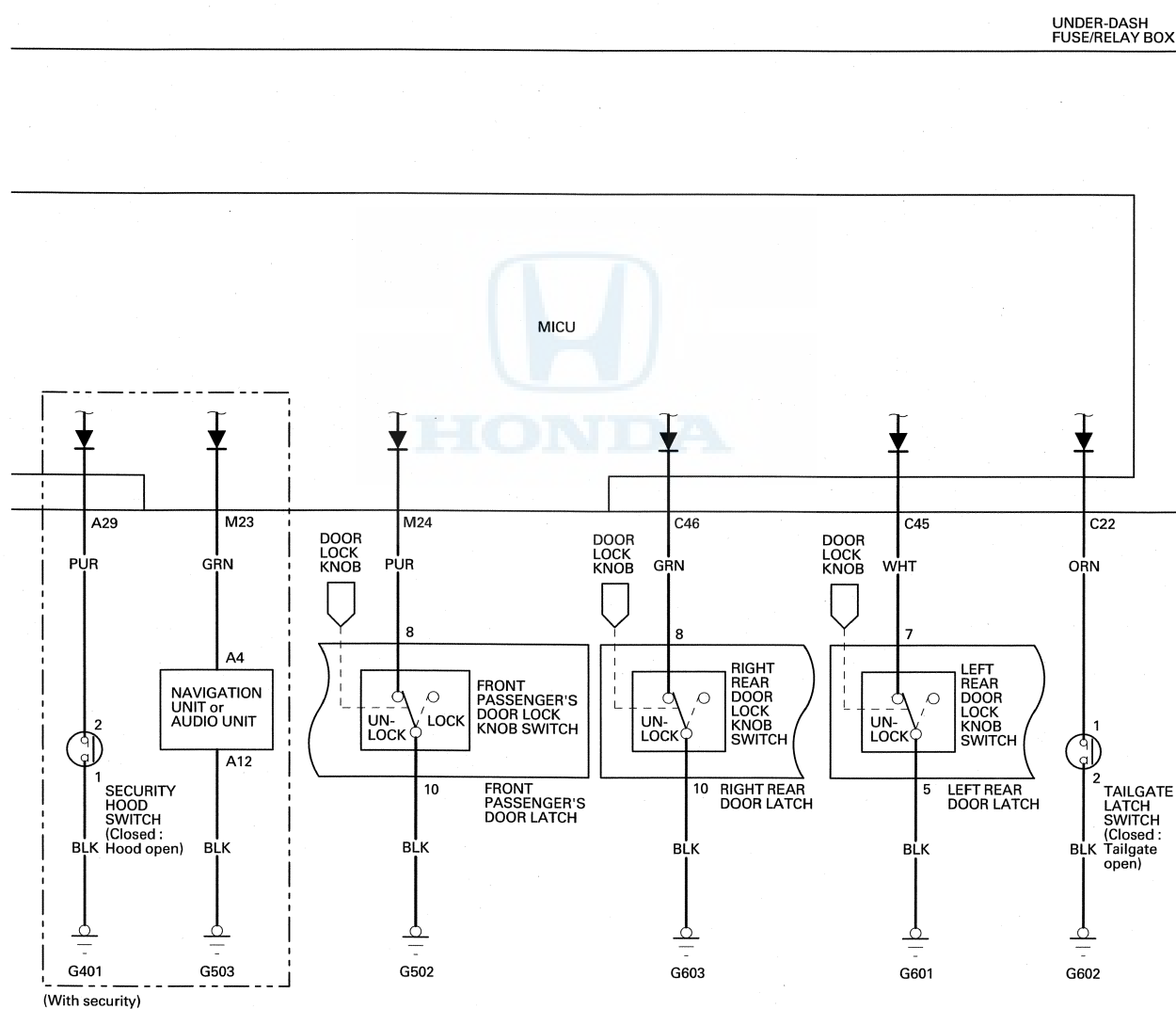
Circuit Diagram



Keyless/Power Door Locks/Security System

Circuit Diagram (cont'd)





Keyless/Power Door Locks/Security System

DTC Troubleshooting

DTC B1127: Driver's Door Key Cylinder Switch Malfunction

NOTE:

- If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).
- You will need two keys to do this troubleshooting.

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Insert the ignition key into the driver's door key cylinder, and turn the key to the LOCK and UNLOCK positions at least 10 times.
4. Check for DTCs with the HDS.

Is DTC B1127 indicated?

YES—Go to step 5.

NO—Intermittent failure, the driver's door key cylinder switch system is OK at this time. Check for loose or poor connections.■

5. With the driver's door key cylinder in the neutral position, select KEYLESS with the HDS, and enter the DATA LIST.
6. Check the ON/OFF information of the DRIVER'S DOOR KEY CYLINDER SWITCH (LOCK) and DRIVER'S DOOR KEY CYLINDER SWITCH (UNLOCK) in the DATA LIST.

Are both information indicators OFF?

YES—The MICU is faulty. Replace the under-dash fuse/relay box.■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Go to step 7.

7. Disconnect the driver's door lock actuator 10P connector.
8. Check the ON/OFF information of the DRIVER'S DOOR KEY CYLINDER SWITCH (LOCK) and DRIVER'S DOOR KEY CYLINDER SWITCH (UNLOCK) in the DATA LIST.

Are both information indicators OFF?

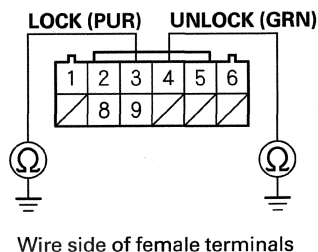
YES—Faulty driver's door key cylinder switch; replace the driver's door lock actuator.■

NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).

10. Disconnect under-dash fuse/relay box connector E (12P).
11. Check for continuity between under-dash fuse/relay box connector E (12P) terminals No. 4 (UNLOCK) and No. 3 (LOCK) and body ground individually.

UNDER-DASH FUSE/RELAY BOX CONNECTOR E (12P)



Is there continuity?

YES—Repair short to ground in the LOCK or UNLOCK wire.■

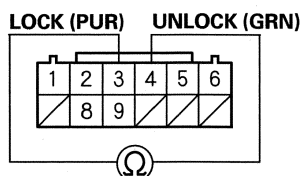
NO—Go to step 15.

12. Turn the ignition switch to LOCK (0).
13. Disconnect the driver's door lock actuator 10P connector.
14. Disconnect under-dash fuse/relay box connector E (12P).



15. Check for continuity between under-dash fuse/relay box connector E (12P) terminals No. 4 (UNLOCK) and No. 3 (LOCK).

UNDER-DASH FUSE/RELAY BOX CONNECTOR E (12P)



Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the LOCK and UNLOCK wires. ■

NO—Faulty MICU, replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

DTC B1128: Driver's door remote switch input Circuit Malfunction (Simultaneous input of lock and unlock signal)

NOTE: If you are troubleshooting multiple DTC's, be sure to follow the instruction in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Lock and unlock the driver's door several times with the driver's door lock switch.
4. Check for DTCs with the HDS.

Is DTC B1128 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

5. With the driver's door lock switch in the neutral position, select KEYLESS from the HDS and enter the DATA LIST.
6. Check the ON/OFF information of the DRIVER'S DOOR LOCK SWITCH (LOCK) and DRIVER'S DOOR LOCK SWITCH (UNLOCK) in the DATA LIST.

Are both information indicators OFF?

YES—The MICU is faulty. Replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Go to step 7.

7. Disconnect the power window master switch connector.
8. Check the ON/OFF information of the DRIVER'S DOOR LOCK SWITCH (LOCK) and DRIVER'S DOOR LOCK SWITCH (UNLOCK) in the DATA LIST.

Are both information indicators OFF?

YES—Faulty door lock switch; replace the power window master switch. ■

NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).
10. Disconnect under-dash fuse/relay box connector E (12P).

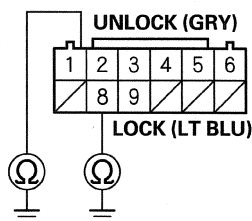
(cont'd)

Keyless/Power Door Locks/Security System

DTC Troubleshooting (cont'd)

11. Check for continuity between under-dash fuse/relay box connector E (12P) terminals No. 8 (LOCK) and No. 1 (UNLOCK) and body ground individually.

UNDER-DASH FUSE/RELAY BOX CONNECTOR E (12P)



Wire side of female terminals

Is there continuity?

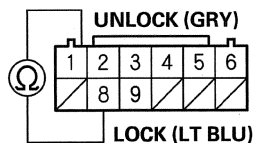
YES—Repair short to ground in the LOCK or UNLOCK wire. ■

NO—Go to step 15.

12. Turn the ignition switch to LOCK (0).
13. Disconnect the power window master switch connector.
14. Disconnect under-dash fuse/relay box connector E (12P).

15. Check for continuity between under-dash fuse/relay box connector E (12P) terminals No. 8 (LOCK) and No. 1 (UNLOCK).

UNDER-DASH FUSE/RELAY BOX CONNECTOR E (12P)



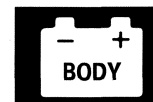
Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the LOCK and UNLOCK wires. ■

NO—Faulty MICU, replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)



DTC B1129: Driver's door knob switch input Circuit Malfunction (Simultaneous input of lock and unlock signal)

NOTE: If you are troubleshooting multiple DTC's, be sure to follow the instruction in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Operate the driver's door lock knob switch several times.
4. Check for DTCs with the HDS.

Is DTC B1129 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

5. Select KEYLESS from the BODY ELECTRICAL menu, and enter the DATA LIST.
6. Check the ON/OFF information of the DRIVER'S DOOR LOCK KNOB SWITCH (LOCK) and the DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK).

Are the DRIVER'S DOOR LOCK KNOB SWITCH (LOCK) information indicator ON and the DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK) information indicator OFF with the driver's door lock knob switch in LOCK position, and are the DRIVER'S DOOR LOCK KNOB SWITCH (LOCK) information indicator OFF and the DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK) information indicator ON with the driver's door lock knob switch in UNLOCK position?

YES—Faulty MICU, replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Go to step 7.

7. Disconnect the driver's door lock actuator 10P connector.

8. Check the ON/OFF information of the DRIVER'S DOOR LOCK KNOB SWITCH (LOCK) and DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

Are both information indicators OFF?

YES—Check for an open in the driver's door lock knob switch (LOCK) wire or the driver's door lock knob switch (UNLOCK) wire between the MICU and the driver's door lock knob switch. If OK, replace the driver's door lock actuator. ■

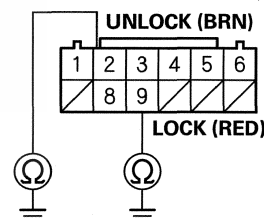
NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).

10. Disconnect under-dash fuse/relay box connector E (12P).

11. Check for continuity between under-dash fuse/relay box connector E (12P) terminals No. 2 (UNLOCK) and No. 9 (LOCK) and body ground individually.

UNDER-DASH FUSE/RELAY BOX CONNECTOR E (12P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the LOCK or UNLOCK wire. ■

NO—Go to step 12.

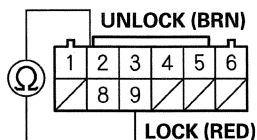
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Keyless/Power Door Locks/Security System

DTC Troubleshooting (cont'd)

12. Check for continuity between under-dash fuse/relay box connector E (12P) terminals No. 2 (UNLOCK) and No. 9 (LOCK).

UNDER-DASH FUSE/RELAY BOX CONNECTOR E (12P)



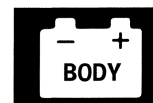
Wire side of female terminals

Is there continuity?

YES—Repair short in the wire between the LOCK wire and UNLOCK wire. ■

NO—Faulty MICU, replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)



Symptom Troubleshooting Index

Power Door Locks/Keyless

1. Check for B-CAN DTCs. If any B-CAN DTCs are indicated, refer to the B-CAN system diagnosis troubleshooting (see page 22-87), and troubleshoot the indicated DTC(s) first.
2. If the door lock system and the keyless operation do not work, troubleshoot the door locks first.

NOTE: The system does not function when the ignition switch is ON (II).

Symptom	Check Items	Also check for
The security system sounds randomly while the doors are locked.	Tripped sensor history (see page 22-170)	
All the doors will not lock or unlock.*	<ul style="list-style-type: none"> • Poor ground (G501, G502, G602) • Driver's door key cylinder switch test (see page 22-166) • Door switch test (check the door switch ON/OFF information with the HDS) • Door lock switch test (check the door switch ON/OFF information with the HDS) 	
Driver's and left rear doors will not lock or unlock.	<ul style="list-style-type: none"> • Poor ground (G501, G502) • Blown No. 27 (30 A) fuse in the under-dash fuse/relay box • Blown No. 36 (15 A) and/or No. 50 (15A) fuse in the under-dash fuse/relay box • MICU input test (see page 22-156) 	
Front passenger's and right rear doors, and tailgate will not lock or unlock.	<ul style="list-style-type: none"> • Poor ground (G501, G502) • Blown No. 27 (30 A) fuse in the under-dash fuse/relay box • Blown No. 35 (15 A) and/or No. 49 (15 A) fuse in the under-dash fuse/relay box • MICU input test (see page 22-156) 	
Keyless operation does not work (LOCK, UNLOCK, PANIC).	Symptom troubleshooting (see page 22-136)	
Doors automatically relock 30 seconds after being unlocked with the transmitter even though a door has been opened.	Symptom troubleshooting (see page 22-136)	
Only driver's door will unlock or door locks relock immediately after unlocking with the remote.	Driver's door lock knob switch test (see page 22-164)	
Keyless operation will work even though the ignition key is in the ignition switch.	Ignition key switch test (see page 22-228)	
The horn does not sound when PANIC button on the transmitter pressed.	Symptom troubleshooting (see page 22-137)	
Security alarm system will not arm	Symptom troubleshooting (see page 22-138)	

*: If only one door is not working properly, check that door's lock actuator first, then check the other items listed in this table.

Keyless/Power Door Locks/Security System

Symptom Troubleshooting

Doors automatically relock 30 seconds after being unlocked with the transmitter even though a door has been opened

NOTE: Before troubleshooting, check the B-CAN DTCs. If any DTC is indicated, refer to the B-CAN System Diagnosis Test Mode A (see page 22-107), and troubleshoot the indicated DTCs first.

1. Move the ceiling light switch in the DOOR position.
2. Turn the ignition switch to ON (II).
3. Watch the ceiling light and the door indicators on the gauge control module.

Do the ceiling light and door indicators come on when the door is open, and go off when the door is closed?

YES—Substitute a known-good under-dash fuse/relay box and recheck. If the symptom goes away, replace the original under-dash fuse/relay box.■

NO—Check for an open or high resistance in the wire between the MICU and each door switch. If the wire is OK, replace the door switch.■

Keyless operation does not work (LOCK, UNLOCK, PANIC)

NOTE:

- If the LOCK and UNLOCK buttons work OK, but the PANIC button does not, see the troubleshooting for The horn does not sound and/or the headlights do not flash when the PANIC button on the transmitter is pressed (see page 22-137).
- Before troubleshooting, check the B-CAN DTCs. If any DTC is indicated, refer to the B-CAN System Diagnosis Test Mode A (see page 22-107), and troubleshoot the indicated DTCs first.

1. Insert the key into the ignition switch, but leave the switch in LOCK (0).
2. Open the driver's door, and listen for the key-in reminder beeper.

Does the beeper sound?

YES—Go to step 3.

NO—Test the ignition key-in reminder circuit, and recheck.

3. Turn the ignition switch to ON (II).
4. Try to start the engine.

Does the engine start?

YES—The immobilizer system is OK, Go to step 5.

NO—Go to the immobilizer symptom troubleshooting.■ (see page 22-325)

5. Turn the ignition switch to LOCK (0).
6. Do the transmitter test (see page 22-167).

Is the transmitter OK?

YES—Replace the immobilizer-keyless control unit (see page 22-336).■

NO—Replace the transmitter.■



Doors will not unlock (or lock) with the transmitter, but will unlock (or lock) with the door lock switch and the door key cylinder switch

NOTE: Before troubleshooting, check the B-CAN DTCs. If any DTC is indicated, refer to the B-CAN System Diagnosis Test Mode A (see page 22-107), and troubleshoot the indicated DTCs first.

1. Turn the ignition switch to LOCK (0).
2. Remove the ignition key from the ignition switch.
3. Close and lock the doors.
4. Try to lock/unlock the doors with the keyless transmitter.

Do the door lock actuators work normally?

YES—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

NO—Go to step 5.

5. Open the driver's door.

Does the key-in reminder beeper sound?

YES—Faulty ignition key switch, or a short to ground on the ignition switch wire. Repair the wire as needed. ■

NO—Go to step 6.

6. Do the transmitter test. (see page 22-167)

Is the transmitter OK?

YES—Substitute a known-good immobilizer-keyless control unit, and recheck. If the problem goes away, replace the original immobilizer-keyless control unit (see page 22-336). ■

NO—Replace the transmitter. ■

The horn does not sound and/or the headlights do not flash when the PANIC button on the transmitter is pressed

NOTE: Before troubleshooting, check the B-CAN DTCs. If any DTC is indicated, refer to the B-CAN System Diagnosis Test Mode A (see page 22-107), and troubleshoot the indicated DTCs first.

1. Press the PANIC button.

Do the horns sound?

YES—Go to step 3.

NO—Go to step 2.

2. Press the horn button.

Do the horns sound?

YES—Go to step 3.

NO—Do the horn switch test (see page 22-175). ■

3. Turn the headlight switch ON.

Do the headlights come on?

YES—Go to step 4.

NO—Check the lighting circuit (see page 22-182). ■

4. Do the transmitter test (see page 22-167).

Is the transmitter OK?

YES—Substitute a known-good immobilizer-keyless control unit (see page 22-336) and recheck. If there is still a problem, substitute a known-good under-dash fuse/relay box (see page 22-65) and recheck. If the problem goes away, replace the original immobilizer-keyless control unit (see page 22-336) or under-dash fuse/relay box (see page 22-65). ■

NO—Replace the transmitter. ■

(cont'd)

Keyless/Power Door Locks/Security System

Symptom Troubleshooting (cont'd)

Security alarm system will not arm

NOTE: Before troubleshooting, check the B-CAN DTCs. If any DTC is indicated, refer to the B-CAN System Diagnosis Test Mode A (see page 22-107), and troubleshoot the indicated DTCs first.

1. Turn the ignition switch to ON (II).
2. Select SECURITY from the BODY ELECTRICAL menu, and enter the DATA LIST with the HDS.
3. Check the ON/OFF information in the DATA LIST when each switch is operating.
 - TRUNK LID/TAILGATE SWITCH
 - SECURITY HOOD SWITCH
 - DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK)
 - FRONT PASSENGER'S DOOR LOCK KNOB SWITCH (UNLOCK)
 - LEFT REAR DOOR LOCK KNOB SWITCH (UNLOCK)
 - RIGHT REAR DOOR LOCK KNOB SWITCH (UNLOCK)
 - DRIVER'S DOOR SWITCH
 - FRONT PASSENGER'S DOOR SWITCH
 - LEFT REAR DOOR SWITCH
 - RIGHT REAR DOOR SWITCH
 - DRIVER'S DOOR KEY CYLINDER SWITCH (LOCK)
 - DRIVER'S DOOR KEY CYLINDER SWITCH (UNLOCK)

Is each switch's information OK?

YES—Intermittent failure, the system is OK at this time. ■

NO—Troubleshoot the indicated circuit. ■

- Tailgate latch switch circuit troubleshooting (see page 22-138).
- Security hood switch circuit troubleshooting (see page 22-140).
- Driver's door lock knob switch circuit troubleshooting (see page 22-141).
- Passenger's door lock knob switch circuit troubleshooting (see page 22-143).
- Left rear door lock knob switch circuit troubleshooting (see page 22-145).
- Right rear door lock knob switch circuit troubleshooting (see page 22-147).
- Driver's door switch circuit troubleshooting (see page 22-149).
- Passenger's door switch circuit troubleshooting (see page 22-150).
- Left rear door switch circuit troubleshooting (see page 22-152).
- Right rear door switch circuit troubleshooting (see page 22-153).
- Driver's door key cylinder switch circuit troubleshooting (see page 22-155).

Tailgate latch switch circuit troubleshooting

1. Turn the ignition switch to ON (II).
2. With the tailgate closed, select SECURITY with the HDS, and enter the DATA LIST.
3. Check the ON/OFF information of the TRUNK LID/TAILGATE SWITCH in the DATA LIST.

Is the data list value indicated ON?

YES—Go to step 4.

NO—Go to step 8.

4. Disconnect the tailgate latch switch 2P connector.
5. Check the ON/OFF information of the TRUNK LID/TAILGATE SWITCH in the DATA LIST.

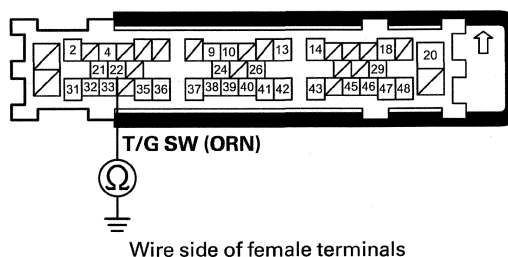
Is the data list value indicated OFF?

YES—Faulty tailgate latch switch, replace the tailgate latch (see page 20-161). ■

NO—Go to step 6.

6. Disconnect under-dash fuse/relay box connector C (49P).
7. Check for continuity between under-dash fuse/relay box connector C (49P) terminal No. 22 and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

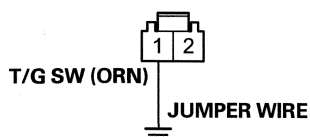
- USA models (see page 22-65)
- Canada models (see page 22-66)

8. Disconnect the tailgate latch switch 2P connector.



9. Connect tailgate latch switch 2P connector terminal No. 1 and body ground with a jumper wire.

TAILGATE LATCH SWITCH 2P CONNECTOR



Wire side of female terminals

10. Check the ON/OFF information of the TRUNK LID/TAIL GATE SWITCH in the DATA LIST.

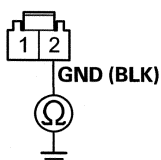
Is the data list value indicated ON?

YES—Go to step 11.

NO—Go to step 12.

11. Check for continuity between tailgate latch switch 2P connector terminal No. 2 and body ground.

TAILGATE LATCH SWITCH 2P CONNECTOR



Wire side of female terminals

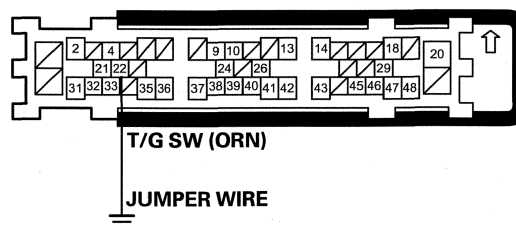
Is there continuity?

YES—Faulty tailgate latch switch; replace the tailgate latch (see page 20-161). ■

NO—Repair an open or high resistance in the wire or poor ground (G602). ■

12. Connect under-dash fuse/relay box connector C (49P) terminal No. 22 and body ground with a jumper wire.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



Wire side of female terminals

13. Check the ON/OFF information of the TRUNK LID/TAIL GATE SWITCH in the DATA LIST.

Is the data list value indicated ON?

YES—Repair an open or high resistance in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

(cont'd)

Keyless/Power Door Locks/Security System

Symptom Troubleshooting (cont'd)

Security hood switch circuit troubleshooting

1. Turn the ignition switch to ON (II).
2. With the hood closed, select SECURITY with the HDS, and enter the DATA LIST.

3. Check the ON/OFF information of the SECURITY HOOD SWITCH in the DATA LIST.

Is the data list value indicated ON?

YES—Go to step 4.

NO—Go to step 8.

4. Disconnect the security hood switch 2P connector.

5. Check the ON/OFF information of the SECURITY HOOD SWITCH in the DATA LIST.

Is the data list value indicated OFF?

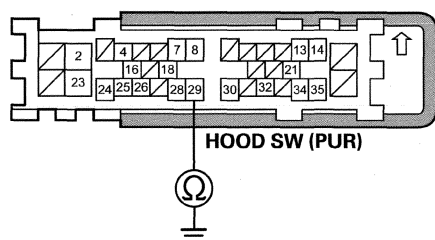
YES—Faulty security hood switch; replace the hood latch (see page 20-155). ■

NO—Go to step 6.

6. Disconnect under-dash fuse/relay box connector A (36P).

7. Check for continuity between under-dash fuse/relay box connector A (36P) terminal No. 29 and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR A (36P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire. ■

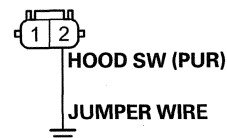
NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

8. Disconnect the security hood switch 2P connector.

9. Connect security hood switch 2P connector terminal No. 2 and body ground with a jumper wire.

SECURITY HOOD SWITCH 2P CONNECTOR



Wire side of female terminals

10. Check the ON/OFF information of the SECURITY HOOD SWITCH in the DATA LIST.

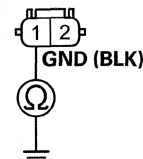
Is the data list value indicated ON?

YES—Go to step 11.

NO—Go to step 12.

11. Check for continuity between security hood switch 2P connector terminal No. 1 and body ground.

SECURITY HOOD SWITCH 2P CONNECTOR



Wire side of female terminals

Is there continuity?

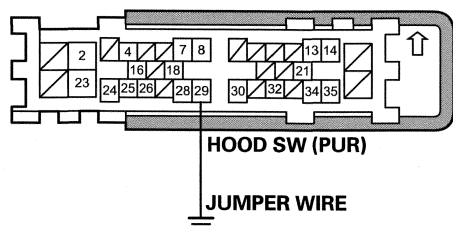
YES—Faulty security hood switch; replace the hood latch (see page 20-155). ■

NO—Repair an open or high resistance in the wire or poor ground (G401). ■



12. Connect under-dash fuse/relay box connector A (36P) terminal No. 29 and body ground with a jumper wire.

UNDER-DASH FUSE/RELAY BOX CONNECTOR A (36P)



Wire side of female terminals

13. Check the ON/OFF information of the SECURITY HOOD SWITCH in the DATA LIST.

Is the data list value indicated ON?

YES—Repair an open or high resistance in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

Driver's door lock knob switch circuit troubleshooting

1. Turn the ignition switch to ON (II).
2. With the driver's door lock knob switch in LOCK position, select SECURITY with the HDS, and enter the DATA LIST.
3. Check the ON/OFF information of the DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

Is the data list value indicated ON?

YES—Go to step 4.

NO—Go to step 8.

4. Disconnect the driver's door lock actuator/knob switch 10P connector.
5. Check the ON/OFF information of the DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

Is the data list value indicated OFF?

YES—Faulty driver's door lock knob switch; replace the driver's door latch (see page 20-11). ■

NO—Go to step 6.

6. Disconnect under-dash fuse/relay box connector E (12P).

7. Check the ON/OFF information of the DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

Is the data list value indicated OFF?

YES—Repair a short to ground in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

8. Disconnect the driver's door lock actuator/knob switch 10P connector.

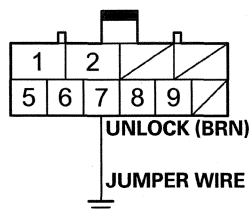
(cont'd)

Keyless/Power Door Locks/Security System

Symptom Troubleshooting (cont'd)

9. Connect driver's door lock actuator/knob switch 10P connector terminal No. 7 and body ground with a jumper wire.

DRIVER'S DOOR LOCK ACTUATOR/KNOB SWITCH 10P CONNECTOR



Wire side of female terminals

10. Check the ON/OFF information of the DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

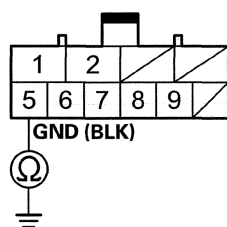
Is the data list value indicated ON?

YES—Go to step 11.

NO—Go to step 12.

11. Check for continuity between driver's door lock actuator/knob switch 10P connector terminal No. 5 and body ground.

DRIVER'S DOOR LOCK ACTUATOR/KNOB SWITCH 10P CONNECTOR



Wire side of female terminals

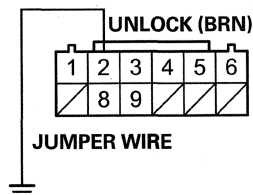
Is there continuity?

YES—Faulty driver's door lock knob switch; replace the driver's door latch (see page 20-11). ■

NO—Repair an open or high resistance in the wire or poor ground (G501). ■

12. Connect under-dash fuse/relay box connector E (12P) terminal No. 2 and body ground with a jumper wire.

UNDER-DASH FUSE/RELAY BOX CONNECTOR E (12P)



Wire side of female terminals

13. Check the ON/OFF information of the DRIVER'S DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

Is the data list value indicated ON?

YES—Repair an open or high resistance in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)



Passenger's door lock knob switch circuit troubleshooting

1. Turn the ignition switch to ON (II).
2. With the passenger's door lock knob switch in LOCK position, select SECURITY with the HDS, and enter the DATA LIST.
3. Check the ON/OFF information of the FRONT PASSENGER'S DOOR LOCK KNOB SW (UNLOCK) in the DATA LIST.

Is the data list value indicated ON?

YES—Go to step 4.

NO—Go to step 8.

4. Disconnect the passenger's door lock actuator/knob switch 10P connector.
5. Check the ON/OFF information of the FRONT PASSENGER'S DOOR LOCK KNOB SW (UNLOCK) in the DATA LIST.

Is the data list value indicated OFF?

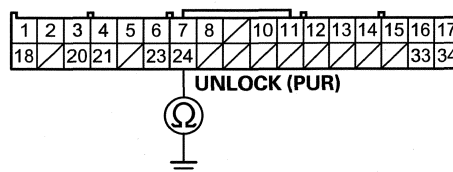
YES—Faulty passenger's door lock knob switch; replace the front passenger's door latch (see page 20-11). ■

NO—Go to step 6.

6. Disconnect under-dash fuse/relay box connector M (34P).

7. Check for continuity between under-dash fuse/relay box connector M (34P) terminal No. 24 and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR M (34P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

8. Disconnect the passenger's door lock actuator/knob switch 10P connector.

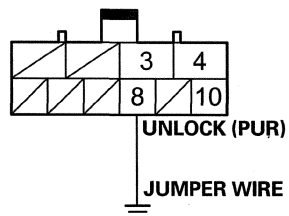
(cont'd)

Keyless/Power Door Locks/Security System

Symptom Troubleshooting (cont'd)

9. Connect passenger's door lock actuator/knob switch 10P connector terminal No. 8 and body ground with a jumper wire.

PASSENGER'S DOOR LOCK ACTUATOR/KNOB SWITCH 10P CONNECTOR



Wire side of female terminals

10. Check the ON/OFF information of the FRONT PASSENGER'S DOOR LOCK KNOB SW (UNLOCK) in the DATA LIST.

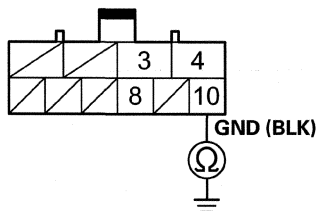
Is the data list value indicated ON?

YES—Go to step 11.

NO—Go to step 12.

11. Check for continuity between passenger's door lock actuator/knob switch 10P connector terminal No. 10 and body ground.

PASSENGER'S DOOR LOCK ACTUATOR/KNOB SWITCH 10P CONNECTOR



Wire side of female terminals

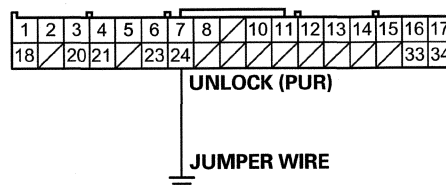
Is there continuity?

YES—Faulty passenger's door lock knob switch; replace the front passenger's door latch (see page 20-11). ■

NO—Repair an open or high resistance in the wire or poor ground (G502). ■

12. Connect under-dash fuse/relay box connector M (34P) terminal No. 24 and body ground with a jumper wire.

UNDER-DASH FUSE/RELAY BOX CONNECTOR M (34P)



Wire side of female terminals

13. Check the ON/OFF information of the FRONT PASSENGER'S DOOR LOCK KNOB SW (UNLOCK) in the DATA LIST.

Is the data list value indicated ON?

YES—Repair an open or high resistance in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)



Left rear door lock knob switch circuit troubleshooting

1. Turn the ignition switch to ON (II).
2. With the left rear door lock knob switch in LOCK position, select SECURITY with the HDS, and enter the DATA LIST.
3. Check the ON/OFF information of the DRIVER'S REAR DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

Is the data list value indicated ON?

YES—Go to step 4.

NO—Go to step 8.

4. Disconnect the left rear door lock actuator/knob switch 10P connector.
5. Check the ON/OFF information of the DRIVER'S REAR DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

Is the data list value indicated OFF?

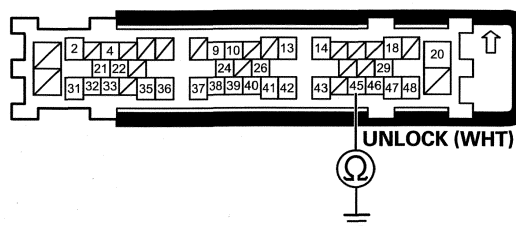
YES—Faulty left rear door lock knob switch; replace the left rear door latch (see page 20-23). ■

NO—Go to step 6.

6. Disconnect under-dash fuse/relay box connector C (49P).

7. Check for continuity between under-dash fuse/relay box connector C (49P) terminal No. 45 and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

8. Disconnect the left rear door lock actuator/knob switch 10P connector.

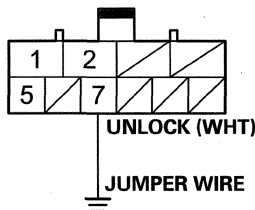
(cont'd)

Keyless/Power Door Locks/Security System

Symptom Troubleshooting (cont'd)

9. Connect left rear door lock actuator/knob switch 10P connector terminal No. 7 and body ground with a jumper wire.

LEFT REAR DOOR LOCK ACTUATOR/KNOB SWITCH 10P CONNECTOR



Wire side of female terminals

10. Check the ON/OFF information of the DRIVER'S REAR DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

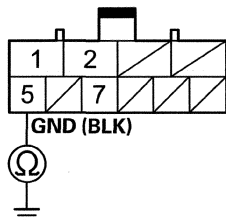
Is data list value indicated ON?

YES—Go to step 11.

NO—Go to step 12.

11. Check for continuity between left rear door lock actuator/knob switch 10P connector terminal No. 5 and body ground.

LEFT REAR DOOR LOCK ACTUATOR/KNOB SWITCH 10P CONNECTOR



Wire side of female terminals

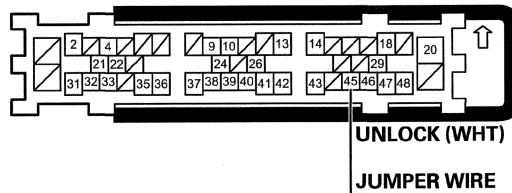
Is there continuity?

YES—Faulty left rear door lock knob switch; replace the left rear door latch (see page 20-23). ■

NO—Repair an open or high resistance in the wire or poor ground (G601). ■

12. Connect under-dash fuse/relay box connector C (49P) terminal No. 45 and body ground with a jumper wire.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



Wire side of female terminals

13. Check the ON/OFF information of the DRIVER'S REAR DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

Is the data list value indicated ON?

YES—Repair an open or high resistance in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)



Right rear door lock knob switch circuit troubleshooting

1. Turn the ignition switch to ON (II).
2. With the right rear door lock knob switch in LOCK position, select SECURITY with the HDS, and enter the DATA LIST.
3. Check the ON/OFF information of the PASSENGER'S REAR DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

Is the data list value indicated ON?

YES—Go to step 4.

NO—Go to step 8.

4. Disconnect the right rear door lock actuator/knob switch 10P connector.
5. Check the ON/OFF information of the PASSENGER'S REAR DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

Is the data list value indicated OFF?

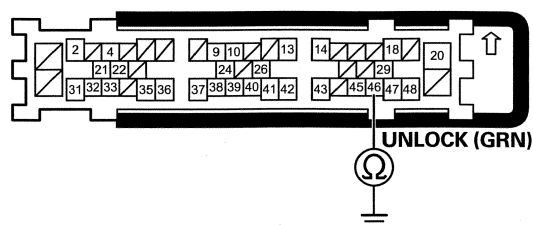
YES—Faulty right rear door lock knob switch; replace the right rear door latch (see page 20-23). ■

NO—Go to step 6.

6. Disconnect under-dash fuse/relay box connector C (49P).

7. Check for continuity between under-dash fuse/relay box connector C (49P) terminal No. 46 and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

8. Disconnect the right rear door lock actuator/knob switch 10P connector.

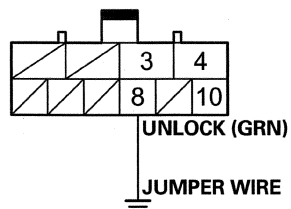
(cont'd)

Keyless/Power Door Locks/Security System

Symptom Troubleshooting (cont'd)

9. Connect right rear door lock actuator/knob switch 10P connector terminal No. 8 and body ground with a jumper wire.

RIGHT REAR DOOR LOCK ACTUATOR/KNOB SWITCH 10P CONNECTOR



Wire side of female terminals

10. Check the ON/OFF information of the PASSENGER'S REAR DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

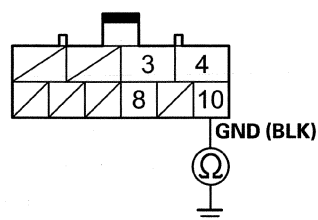
Is the data list value indicated ON?

YES—Go to step 11.

NO—Go to step 12.

11. Check for continuity between right rear door lock actuator/knob switch 10P connector terminal No. 10 and body ground.

RIGHT REAR DOOR LOCK ACTUATOR/KNOB SWITCH 10P CONNECTOR



Wire side of female terminals

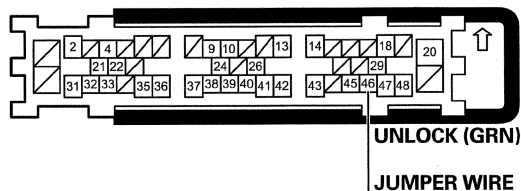
Is there continuity?

YES—Faulty right rear door lock knob switch; replace the right rear door latch (see page 20-23). ■

NO—Repair an open or high resistance in the wire or poor ground (G603). ■

12. Connect under-dash fuse/relay box connector C (49P) terminal No. 46 and body ground with a jumper wire.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



Wire side of female terminals

13. Check the ON/OFF information of the PASSENGER'S REAR DOOR LOCK KNOB SWITCH (UNLOCK) in the DATA LIST.

Is the data list value indicated ON?

YES—Repair an open or high resistance in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)



Driver's door switch circuit troubleshooting

1. Turn the ignition switch to ON (II).
2. With the driver's door closed, select SECURITY with the HDS, and enter the DATA LIST.
3. Check the ON/OFF information of the DRIVER'S DOOR SWITCH in the DATA LIST.

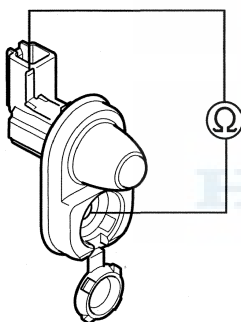
Is the data list value indicated ON?

YES—Go to step 4.

NO—Go to step 9.

4. Remove the driver's door switch.
5. Disconnect the driver's door switch 1P connector.
6. Check for continuity between driver's door switch 1P connector and switch ground.

DRIVER'S DOOR SWITCH



Is there no continuity when the switch is pushed and is there continuity when the switch is released?

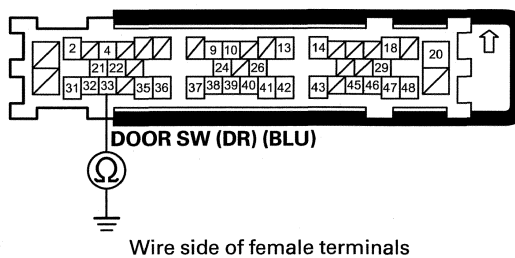
YES—Go to step 7.

NO—Faulty driver's door switch; replace the driver's door switch.■

7. Disconnect under-dash fuse/relay box connector C (49P).

8. Check for continuity between under-dash fuse/relay box connector C (49P) terminal No. 33 and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



Is there continuity?

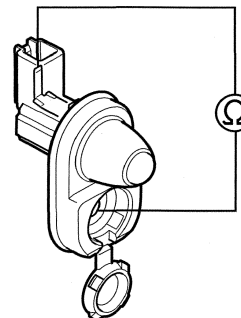
YES—Repair a short to ground in the wire.■

NO—Faulty MICU; replace the under-dash fuse/relay box.■

- USA models (see page 22-65)
- Canada models (see page 22-66)

9. Remove the driver's door switch.
10. Disconnect the driver's door switch 1P connector.
11. Check for continuity between the driver's door switch 1P connector and switch ground.

DRIVER'S DOOR SWITCH



Is there no continuity when the switch is pushed and is there continuity when the switch is released?

YES—Go to step 12.

NO—Faulty driver's door switch; replace the driver's door switch.■

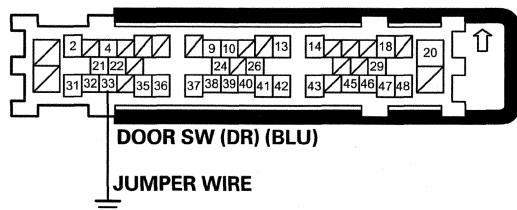
(cont'd)

Keyless/Power Door Locks/Security System

Symptom Troubleshooting (cont'd)

12. Connect under-dash fuse/relay box connector C (49P) terminal No. 33 and body ground with a jumper wire.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



Wire side of female terminals

13. Check the ON/OFF information of the DRIVER'S DOOR SWITCH in the DATA LIST.

Is the data list value indicated ON?

YES—Repair an open or high resistance in the wire. ■

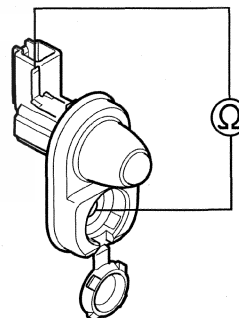
NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

Passenger's door switch circuit troubleshooting

1. Turn the ignition switch to ON (II).
2. With the passenger's door closed, select SECURITY with the HDS, and enter the DATA LIST.
3. Check the ON/OFF information of the FRONT PASSENGER'S DOOR SWITCH in the DATA LIST.
Is the data list value indicated ON?
YES—Go to step 4.
NO—Go to step 9.
4. Remove the passenger's door switch.
5. Disconnect the passenger's door switch 1P connector.
6. Check for continuity between passenger's door switch 1P connector and switch ground.

PASSENGER'S DOOR SWITCH

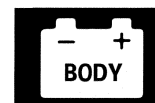


Is there no continuity when the switch is pushed and is there continuity when the switch is released?

YES—Go to step 7.

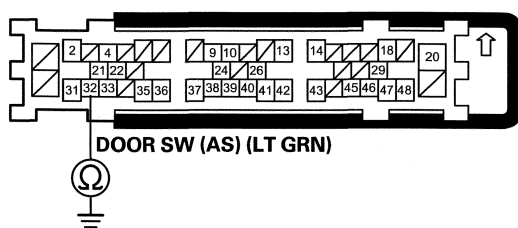
NO—Faulty passenger's door switch; replace the passenger's door switch. ■

7. Disconnect under-dash fuse/relay box connector C (49P).



8. Check for continuity between under-dash fuse/relay box connector C (49P) terminal No. 32 and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

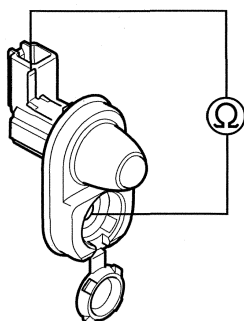
- USA models (see page 22-65)
- Canada models (see page 22-66)

9. Remove the passenger's door switch.

10. Disconnect the passenger's door switch 1P connector.

11. Check for continuity between passenger's door switch 1P connector and switch ground.

PASSENGER'S DOOR SWITCH



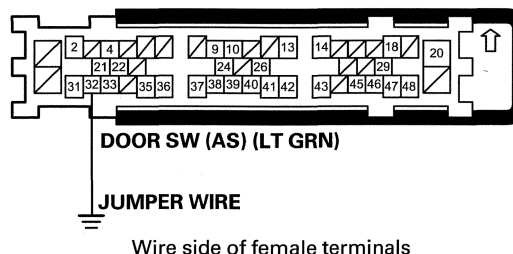
Is there no continuity when the switch is pushed and is there continuity when the switch is released?

YES—Go to step 12.

NO—Faulty passenger's door switch; replace the passenger's door switch. ■

12. Connect under-dash fuse/relay box connector C (49P) terminal No. 32 and body ground with a jumper wire.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



13. Check the ON/OFF information of the FRONT PASSENGER'S DOOR SWITCH in the DATA LIST.

Is the data list value indicated ON?

YES—Repair an open or high resistance in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-155)

(cont'd)

Keyless/Power Door Locks/Security System

Symptom Troubleshooting (cont'd)

Left rear door switch circuit troubleshooting

1. Turn the ignition switch to ON (II).
2. With the left rear door closed, select SECURITY with the HDS, and enter the DATA LIST.
3. Check the ON/OFF information of the DRIVER'S REAR DOOR SWITCH in the DATA LIST.

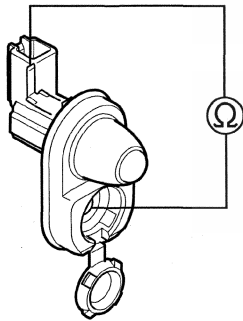
Is the data list value indicated ON?

YES—Go to step 4.

NO—Go to step 9.

4. Remove the left rear door switch.
5. Disconnect the left rear door switch 1P connector.
6. Check for continuity between left rear door switch 1P connector and switch ground.

LEFT REAR DOOR SWITCH



Is there no continuity when the switch is pushed and is there continuity when the switch is released?

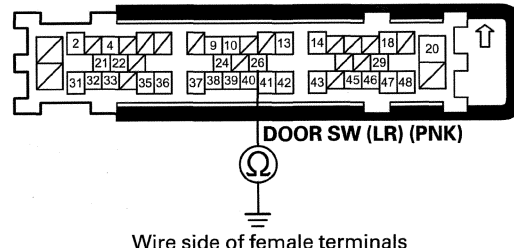
YES—Go to step 7.

NO—Faulty left rear door switch; replace the left rear door switch.■

7. Disconnect under-dash fuse/relay box connector C (49P).

8. Check for continuity between under-dash fuse/relay box connector C (49P) terminal No. 26 and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



Is there continuity?

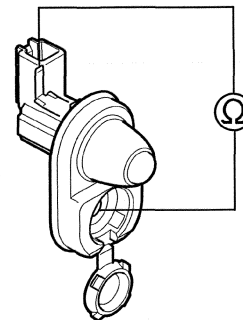
YES—Repair a short to ground in the wire.■

NO—Faulty MICU; replace the under-dash fuse/relay box.■

- USA models (see page 22-65)
- Canada models (see page 22-66)

9. Remove the left rear door switch.
10. Disconnect the left rear door switch 1P connector.
11. Check for continuity between the left rear door switch 1P connector and switch ground.

LEFT REAR DOOR SWITCH



Is there no continuity when the switch is pushed and is there continuity when the switch is released?

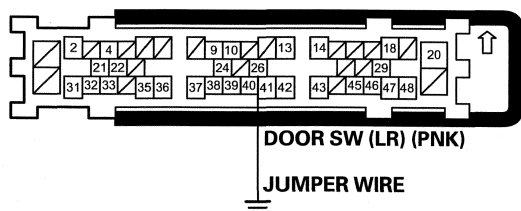
YES—Go to step 12.

NO—Faulty left rear door switch; replace the left rear door switch.■



12. Connect under-dash fuse/relay box connector C (49P) terminal No. 26 and body ground with a jumper wire.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



Wire side of female terminals

13. Check the ON/OFF information of the DRIVER'S REAR DOOR SWITCH in the DATA LIST.

Is the data list value indicated ON?

YES—Repair an open or high resistance in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

Right rear door switch circuit troubleshooting

1. Turn the ignition switch to ON (II).
2. With the right rear door closed, select SECURITY with the HDS, and enter the DATA LIST.
3. Check the ON/OFF information of the PASSENGER'S REAR DOOR SWITCH in the DATA LIST.

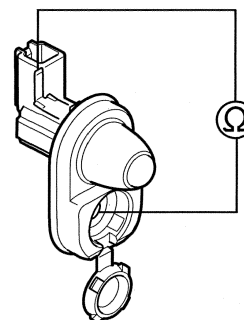
Is the data list value indicated ON?

YES—Go to step 4.

NO—Go to step 9.

4. Remove the right rear door switch.
5. Disconnect the right rear door switch 1P connector.
6. Check for continuity between right rear door switch 1P connector and switch ground.

RIGHT REAR DOOR SWITCH



Is there no continuity when the switch is pushed and is there continuity when the switch is released?

YES—Go to step 7.

NO—Faulty right rear door switch; replace the right rear door switch. ■

7. Disconnect under-dash fuse/relay box connector C (49P).

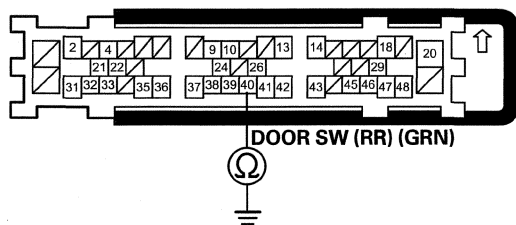
(cont'd)

Keyless/Power Door Locks/Security System

Symptom Troubleshooting (cont'd)

8. Check for continuity between under-dash fuse/relay box connector C (49P) terminal No. 40 and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

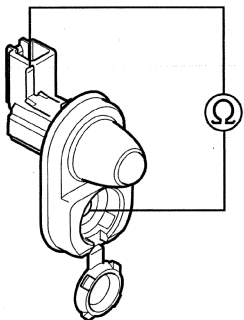
- USA models (see page 22-65)
- Canada models (see page 22-66)

9. Remove the right rear door switch.

10. Disconnect the right rear door switch 1P connector.

11. Check for continuity between the right rear door switch 1P connector and switch ground.

RIGHT REAR DOOR SWITCH



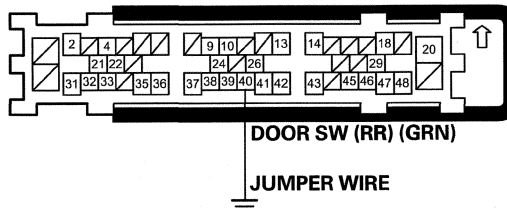
Is there no continuity when the switch is pushed and is there continuity when the switch is released?

YES—Go to step 12.

NO—Faulty right rear door switch; replace the right rear door switch. ■

12. Connect under-dash fuse/relay box connector C (49P) terminal No. 40 and body ground with a jumper wire.

UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)



Wire side of female terminals

13. Check the ON/OFF information of the PASSENGER'S REAR DOOR SWITCH in the DATA LIST.

Is the data list value indicated ON?

YES—Repair an open or high resistance in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

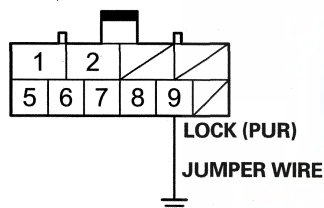


Driver's door key cylinder switch circuit troubleshooting

NOTE: Before troubleshooting, check the B-CAN DTCs. If any DTC is indicated, refer to the B-CAN System Diagnosis Test Mode A (see page 22-107), and troubleshoot the indicated DTCs first.

1. Turn the ignition switch to ON (II).
2. Disconnect the 10P connector from the driver's door lock actuator/knob switch.
3. Connect driver's door lock actuator/knob switch 10P connector terminal No. 9 and body ground with a jumper wire.

DRIVER'S DOOR LOCK ACTUATOR/KNOB SWITCH 10P CONNECTOR



Wire side of female terminals

4. Select SECURITY with the HDS, and enter the DATA LIST.
5. Check the ON/OFF information of the DRIVER'S DOOR KEY CYLINDER SWITCH (LOCK) in the DATA LIST.

Is data list value indicated ON?

YES—Go to step 6.

NO—Go to step 8.

6. Test the door key cylinder switch (see page 22-166).

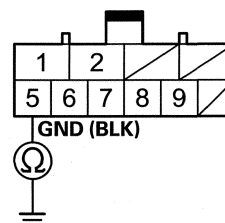
Is the switch OK?

YES—Go to step 7.

NO—Faulty driver's door key cylinder switch; replace the driver's door latch (see page 20-11). ■

7. Check for continuity between driver's door lock actuator/knob switch 10P connector terminal No. 5 and body ground.

DRIVER'S DOOR LOCK ACTUATOR/KNOB SWITCH 10P CONNECTOR



Wire side of female terminals

Is there continuity?

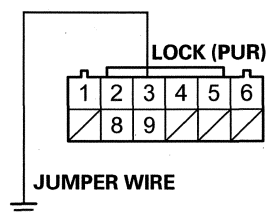
YES—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Repair an open or high resistance in the wire or poor ground (G501). ■

8. Connect under-dash fuse/relay box connector E (12P) terminal No. 3 and body ground with a jumper wire.

UNDER-DASH FUSE/RELAY BOX CONNECTOR E (12P)



Wire side of female terminals

9. Check the ON/OFF information of the DRIVER'S DOOR KEY CYLINDER SWITCH (LOCK) in the DATA LIST.

Is data list value indicated ON?

YES—Repair an open or high resistance in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

Keyless/Power Door Locks/Security System

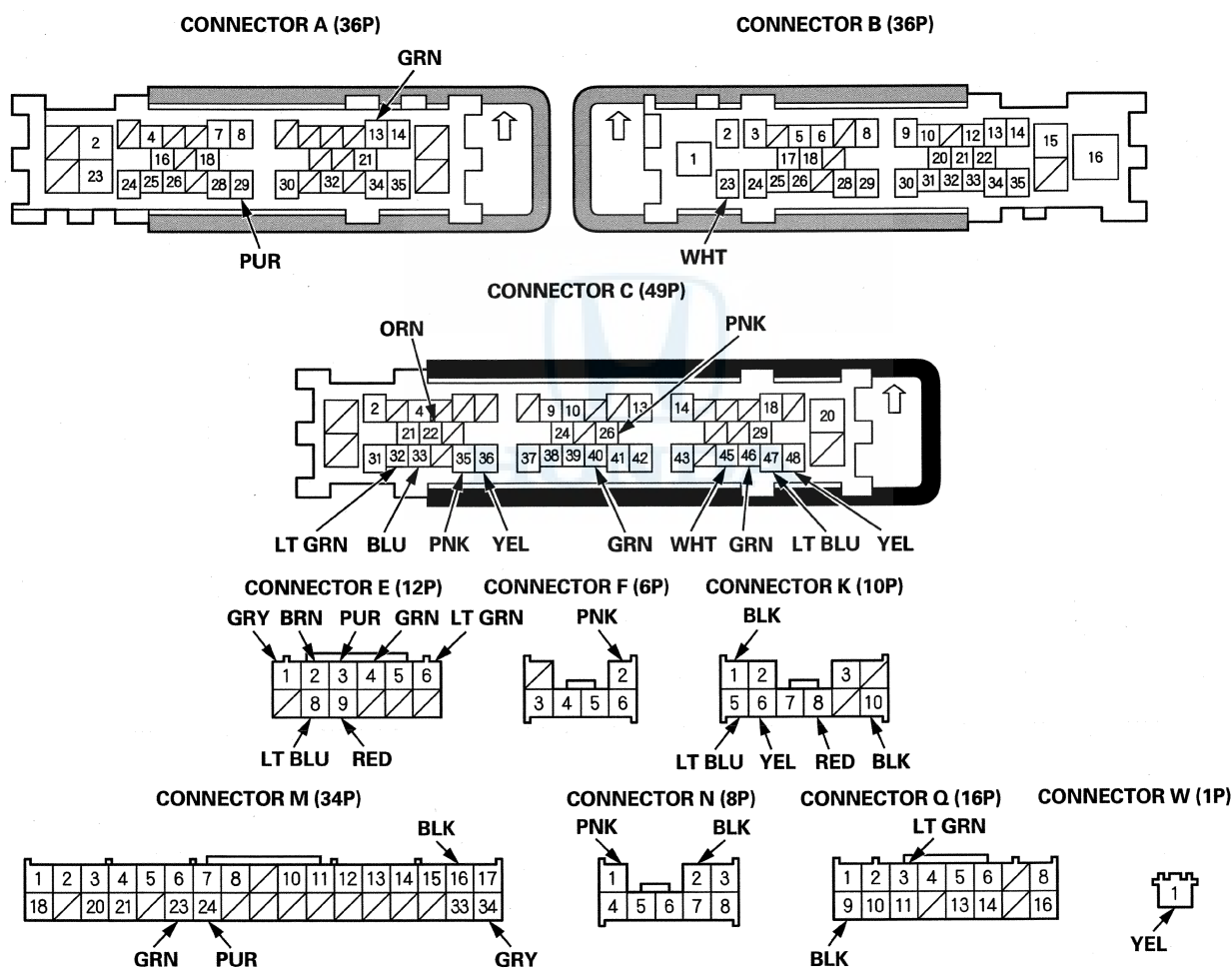
MICU Input Test

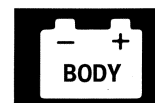
NOTE:

- Before testing, check the No. 1 (10 A), No. 20 (15 A), No. 22 (7.5 A), No. 27 (30 A), No. 35 (10 A), No. 36 (15 A), No. 38 (15A), No. 49 (15 A), No. 50 (15 A), and No. 60 (50 A) fuses in the under-dash fuse/relay box.
- There are two pairs of fuses in the same circuit (No. 35 and No. 49 fuses, No. 36 and No. 50 fuses). If one of the fuses is blown, check the another fuse in the same circuit. If necessary, replace the damaged fuse(s).

1. Turn the ignition switch to LOCK (0).
2. Remove the fuse access panel (see page 20-97).
3. Disconnect under-dash fuse/relay box connectors A, B, C, E, F, K, M, N, Q, and W.

NOTE: All connector views are shown from wire side of female terminals.





4. Inspect the connector and socket terminals to be sure they are all making good contact.
 - If the terminals are bent, loose, or corroded, repair them as necessary and recheck the system.
 - If the terminals look OK, go to step 5.
5. With the connectors still disconnected, do these input tests at the following connectors.
 - If any test indicates a problem, find and correct the cause, then recheck the system.
 - If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
E6	LT GRN	Connect the battery positive terminal to terminal E6 (F2), and terminal F2 (E6) to body ground	Check actuator operation: The driver's door lock actuator should unlock (or lock).	<ul style="list-style-type: none"> • Faulty driver's door lock actuator • An open or high resistance in the wire
F2	PNK			
K5	LT BLU	Connect the battery positive terminal to terminal K5 (K6), and terminal K6 (K5) to body ground	Check actuator operation: The front passenger's door lock actuator should lock (or unlock).	<ul style="list-style-type: none"> • Faulty front passenger's door lock actuator • An open or high resistance in the wire
K6	YEL			
C35	PNK	Connect the battery positive terminal to terminal C35 (C36), and terminal C36 (C35) to body ground	Check actuator operation: The left rear door lock actuator should lock (or unlock).	<ul style="list-style-type: none"> • Faulty left rear door lock actuator • An open or high resistance in the wire
C36	YEL			
C47	LT BLU	Connect the battery positive terminal to terminal C47 (C48), and terminal C48 (C47) to body ground	Check actuator operation: The right rear door lock actuator and the tailgate lock actuator should lock (or unlock).	<ul style="list-style-type: none"> • Faulty right rear door lock actuator • Faulty tailgate lock actuator • An open or high resistance in the wire
C48	YEL			
A13*	GRN	Under all conditions	Connect terminal A13 and terminal B23 with a jumper wire: The horn should sound.	<ul style="list-style-type: none"> • Faulty security horn • An open or high resistance in the wire • Poor ground

*: With security

(cont'd)

Keyless/Power Door Locks/Security System

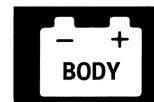
MICU Input Test (cont'd)

6. Reconnect the connectors to the under-dash fuse/relay box, and do these input tests at the following connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the MICU must be faulty; replace the under-dash fuse/relay box. (see page 22-65)

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
K10	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) or an open in the ground wire • An open or high resistance in the wire
Q9	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) or an open in the ground wire • An open or high resistance in the wire
M16	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) or an open in the ground wire • An open or high resistance in the wire
N2	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) or an open in the ground wire • An open or high resistance in the wire
M23*	GRN	Under all conditions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G503) or an open in the ground wire • Faulty audio unit • An open or high resistance in the wire
B23	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 3 (20 A) fuse in the battery terminal fuse box • An open or high resistance in the wire
W1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 1 (100 A) fuse in the battery terminal fuse box • Blown No. 60 (IGN) (50 A) fuse in the under-dash fuse/relay box • Faulty ignition switch • An open or high resistance in the wire

*: With security



Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C33	BLU	Driver's door open	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Faulty driver's door switch An open or high resistance in the wire
		Driver's door closed	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty driver's door switch A short to ground in the wire
C32	LT GRN	Front passenger's door open	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Faulty front passenger's door switch An open or high resistance in the wire
		Front passenger's door closed	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty front passenger's door switch A short to ground in the wire
C26	PNK	Left rear door open	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Faulty left rear door switch An open or high resistance in the wire
		Left rear door closed	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty left rear door switch A short to ground in the wire
C40	GRN	Right rear door open	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Faulty right rear door switch An open or high resistance in the wire
		Right rear door closed	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty right rear door switch A short to ground in the wire
C22	ORN	Tailgate open	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Faulty tailgate latch switch Poor ground (G602) or an open in the ground wire An open or high resistance in the wire
		Tailgate closed	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty tailgate latch switch A short to ground in the wire
A29*	PUR	Hood open	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Faulty hood switch Poor ground (G401) or an open in the ground wire An open or high resistance in the wire
		Hood closed	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty hood switch A short to ground in the wire

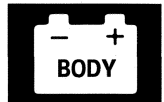
*: With security

(cont'd)

Keyless/Power Door Locks/Security System

MICU Input Test (cont'd)

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
E9	RED	Driver's door lock knob switch in LOCK	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G501) or an open in the ground wire Faulty driver's door lock knob switch An open or high resistance in the wire
		Driver's door lock knob switch in UNLOCK	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty driver's door switch lock knob switch A short to ground in the wire
E2	BRN	Driver's door lock knob switch in UNLOCK	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G501) or an open in the ground wire Faulty driver's door lock knob switch An open or high resistance in the wire
		Driver's door lock knob switch in LOCK	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty driver's door lock knob switch A short to ground in the wire
M24	PUR	Front passenger's door lock knob switch in UNLOCK	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G502) or an open in the ground wire Faulty front passenger's door lock knob switch An open or high resistance in the wire
		Front passenger's door lock knob switch in LOCK	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty front passenger's door lock knob switch A short to ground in the wire
C45	WHT	Left rear door lock knob switch in UNLOCK	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G601) or an open in the ground wire Faulty left rear door lock knob switch An open or high resistance in the wire
		Left rear door lock knob switch in LOCK	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty left rear door lock knob switch A short to ground in the wire
C46	GRN	Right rear door lock knob switch in UNLOCK	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G603) or an open in the ground wire Faulty right rear door lock knob switch An open or high resistance in the wire
		Right rear door lock knob switch in LOCK	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty right rear door lock knob switch A short to ground in the wire



Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
M34	GRY	Ignition key inserted into the ignition switch	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G501) or an open in the ground wire Faulty ignition key switch An open or high resistance in the wire
		Ignition switch LOCK (0), and the ignition key removed from the ignition switch	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty ignition key switch A short to ground in the wire
E3	PUR	Driver's door key cylinder switch in LOCK	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G501) or an open in the ground wire Faulty driver's door key cylinder switch An open or high resistance in the wire
		Driver's door key cylinder switch in neutral or UNLOCK	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty driver's door key cylinder switch A short to ground in the wire
E4	GRN	Driver's door key cylinder switch in UNLOCK	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G501) or an open in the ground wire Faulty driver's door key cylinder switch An open or high resistance in the wire
		Driver's door key cylinder switch in neutral or LOCK	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty driver's door key cylinder switch A short to ground in the wire
E8*	LT BLU	Driver's door lock switch in LOCK	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G501) or an open in the ground wire Faulty door lock switch An open or high resistance in the wire
		Driver's door lock switch in neutral or UNLOCK	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty door lock switch A short to ground in the wire
E1*	GRY	Driver's door lock switch in UNLOCK	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G501) or an open in the ground wire Faulty door lock switch An open or high resistance in the wire
		Driver's door lock switch in neutral or LOCK	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty door lock switch A short to ground in the wire

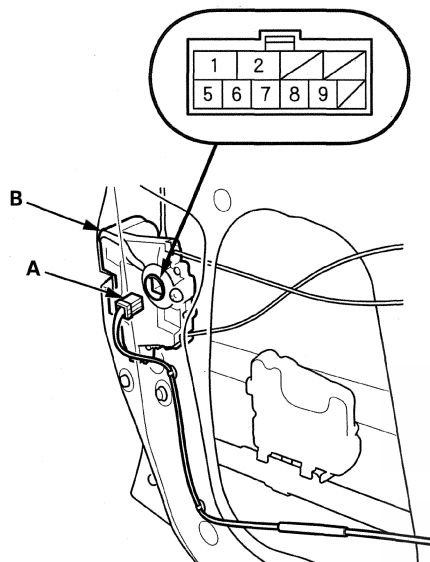
*: With driver's door lock switch

Keyless/Power Door Locks/Security System

Door Lock Actuator Test

Driver's Door

- 1. Remove the driver's door panel (see page 20-6).
- 2. Disconnect the 10P connector (A) from the door latch (B).



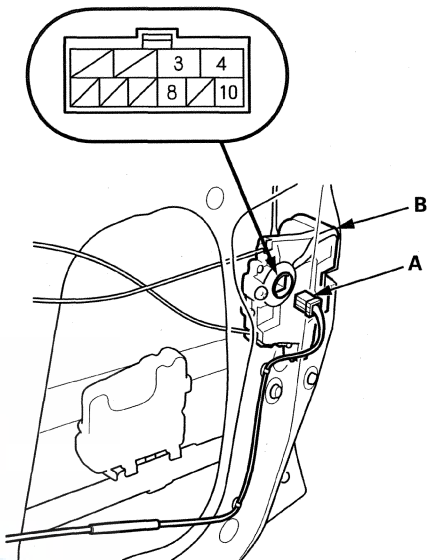
- 3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

Terminal	1	2
Position		
LOCK	⊕	⊖
UNLOCK	⊖	⊕

- 4. If the actuator does not operate as specified, the actuator is faulty; replace the front door latch (see page 20-11).

Front Passenger's Door

- 1. Remove the front passenger's door panel (see page 20-6).
- 2. Disconnect the 10P connector (A) from the door latch (B).



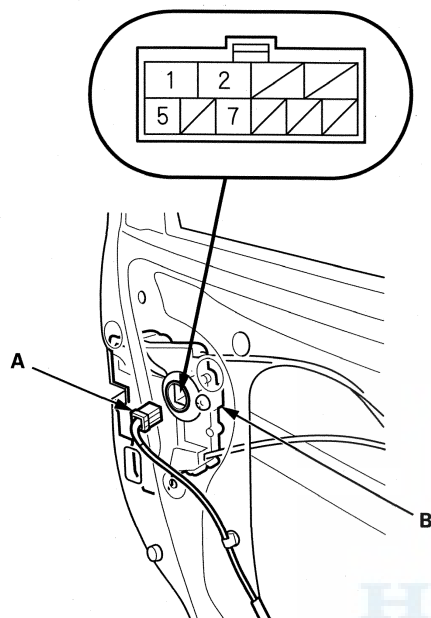
- 3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

Terminal	3	4
Position		
LOCK	⊕	⊖
UNLOCK	⊖	⊕

- 4. If the actuator does not operate as specified, the actuator is faulty; replace the front door latch (see page 20-11).

Left Rear Door

1. Remove the left rear door panel (see page 20-18).
2. Disconnect the 10P connector (A) from the door latch (B).



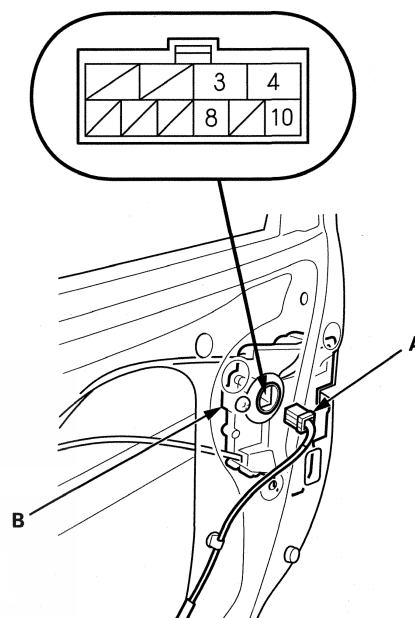
3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

Terminal	1	2
Position		
LOCK	⊕	⊖
UNLOCK	⊖	⊕

4. If the actuator does not operate as specified, the actuator is faulty; replace the rear door latch (see page 20-23).

Right Rear Door

1. Remove the right rear door panel (see page 20-18).
2. Disconnect the 10P connector (A) from the door latch (B).



3. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

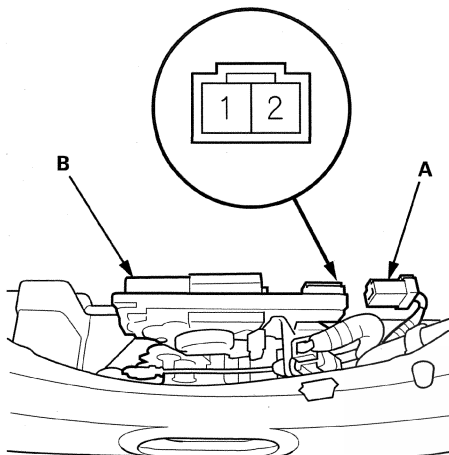
Terminal	3	4
Position		
LOCK	⊕	⊖
UNLOCK	⊖	⊕

4. If the actuator does not operate as specified, the actuator is faulty; replace the rear door latch (see page 20-23).

Keyless/Power Door Locks/Security System

Tailgate Lock Actuator Test

1. Open the tailgate.
2. Remove the tailgate lower trim panel (see page 20-78).
3. Disconnect the 2P connector (A) from the tailgate lock latch (B).



4. Check actuator operation by connecting power and ground according to the table. To prevent damage to the actuator, apply battery voltage only momentarily.

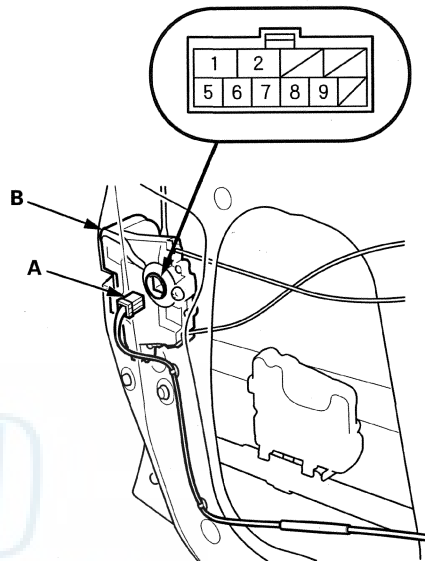
Position	Terminal	
	1	2
LOCK	⊕	⊖
UNLOCK	⊖	⊕

5. If the actuator does not work, the tailgate lock actuator is faulty; replace the tailgate latch (see page 20-161).

Door Lock Knob Switch Test

Driver's Door

1. Remove the driver's door panel (see page 20-6).
2. Disconnect the 10P connector (A) from the door latch (B).



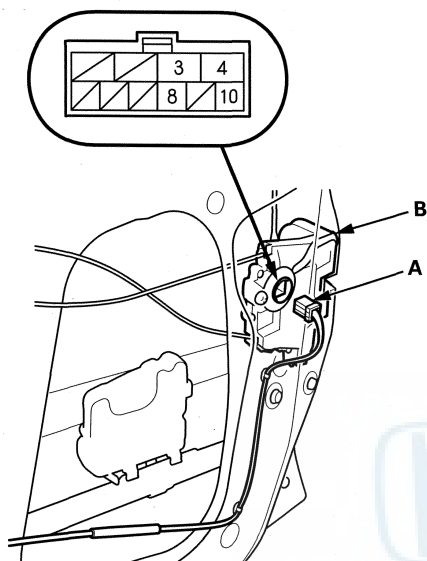
3. Check for continuity between the terminals.

- There should be continuity between terminals No. 6 and No. 5 when the door lock knob switch is in the LOCK position and no continuity when the switch is in the UNLOCK position.
- There should be continuity between terminals No. 7 and No. 5 when the door lock knob switch is in the UNLOCK position and no continuity when the switch is in the LOCK position.

4. If the continuity is not as specified, the switch is faulty; replace the front door latch (see page 20-11).

Front Passenger's Door

1. Remove the passenger's door panel (see page 20-6).
2. Disconnect the 10P connector (A) from the door latch (B).



3. Check for continuity between the terminals.

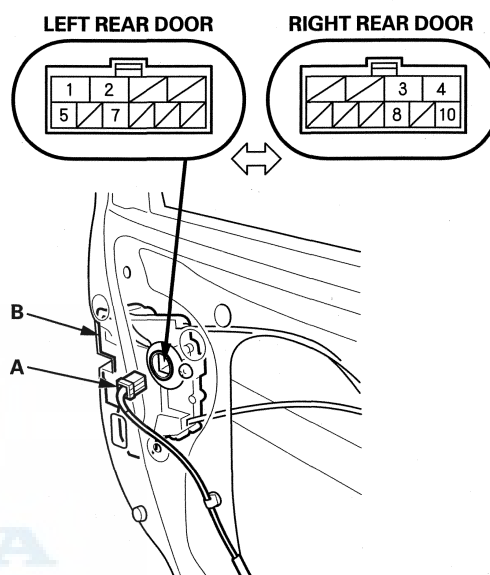
There should be continuity between terminals No. 8 and No. 10 when the door lock knob switch is in the UNLOCK position and no continuity when the switch is in the LOCK position.

4. If the continuity is not as specified, the switch is faulty; replace the front door latch (see page 20-11).

Rear Door

1. Remove the left or right rear door panel (see page 20-18).
2. Disconnect the 10P connector (A) from the door latch (B).

NOTE: The illustration shows the left rear door.



3. Check for continuity between the terminals.

There should be continuity between terminals No. 7 [No. 8] and No. 5 [No. 10] when the door lock knob switch is UNLOCK position and no continuity when the switch is in the LOCK position.

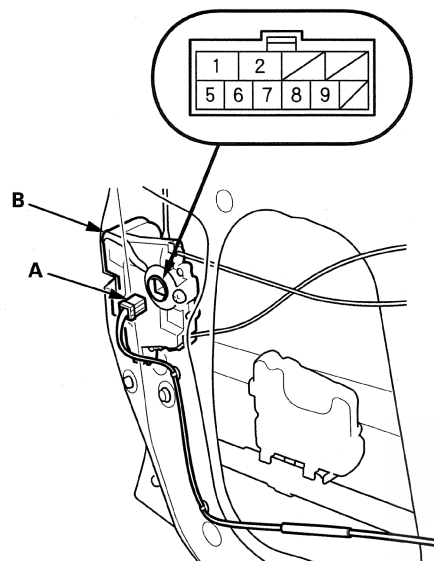
[]: Right rear door

4. If the continuity is not as specified, the switch is faulty; replace the rear door latch (see page 20-23).

Keyless/Power Door Locks/Security System

Door Key Cylinder Switch Test

1. Remove the driver's door panel (see page 20-6).
2. Disconnect the 10P connector (A) from the door latch (B).

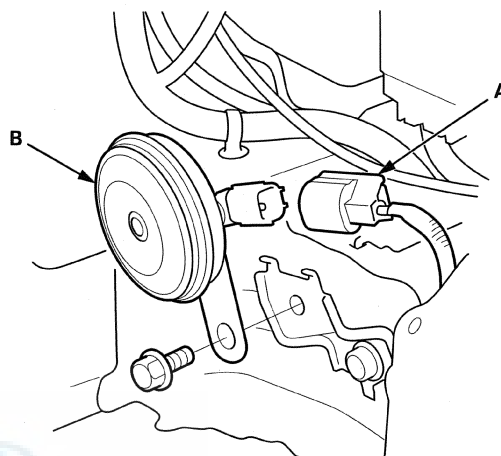


3. Check for continuity between the terminals.
 - There should be continuity between terminals No. 7 and No. 5 when the door key cylinder switch is in UNLOCK position.
 - There should be no continuity between terminals No. 7 and No. 5 when the door key cylinder switch is in the neutral or LOCK position.
 - There should be continuity between terminals No. 6 and No. 5 when the door key cylinder switch is in LOCK position.
 - There should be no continuity between terminals No. 6 and No. 5 when the door key cylinder switch is in the neutral or UNLOCK position.
4. If the continuity is not as specified, the switch is faulty; replace the front door latch (see page 20-11).

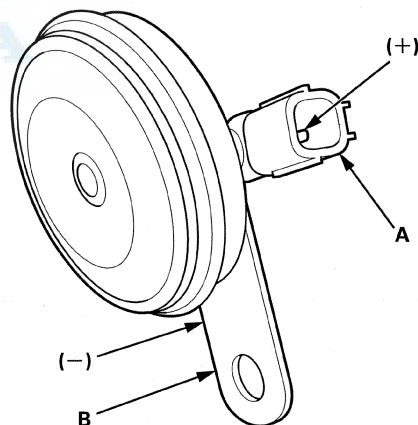
Security Horn Test/Replacement

With security

1. Remove the front bumper (see page 20-144).
2. Disconnect the 1P connector (A) from horn (B).



3. Test the horn by connecting battery power to the terminal (A) and grounding the bracket (B). The horn should sound.



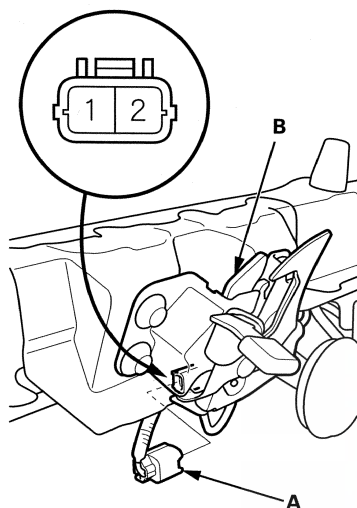
4. If it fails to sound, replace it.



Security Hood Switch Test

With security

1. Open the hood.
2. Remove the front grille cover (see page 20-166).
3. Disconnect the 2P connector (A) from the hood switch (B).



4. Check for continuity between the terminals.
 - There should be continuity between terminals No. 1 and No. 2 when the hood is opened (lever released).
 - There should be no continuity between terminals No. 1 and No. 2 when the hood is closed (lever pushed down).
5. If the continuity is not as specified, the switch is faulty; replace the hood latch (see page 20-155).

Transmitter Test

NOTE:

- If the doors unlock or lock with the transmitter, but the LED on the transmitter does not come on, the LED is faulty; replace the transmitter.
- If any door or the tailgate is open, you cannot lock the doors with the transmitter.
- If you unlocked the doors or the tailgate with the transmitter, but do not open any of the doors within 30 seconds, the doors relock automatically.
- The doors do not lock or unlock with the transmitter if the ignition key is inserted in the ignition switch.

With HDS

1. Press the transmitter lock or unlock button at least 10 times to reset the transmitter.
 - If the locks work, the transmitter is OK.
 - If any of the transmitter buttons do not work, replace the transmitter, then do the transmitter programming (see page 22-335).
 - If the locks don't work, go to step 2.
2. Connect the HDS to the data link connector(DLC).
3. Select KEYLESS TRANSMITTER from the BODY ELECTRICAL , next select INSPECTION then enter the KEYLESS CHECK.
4. Follow the screen prompts to check each button operation.

NOTE: The door lock actuators may or may not cycle when receiving input from the transmitter.

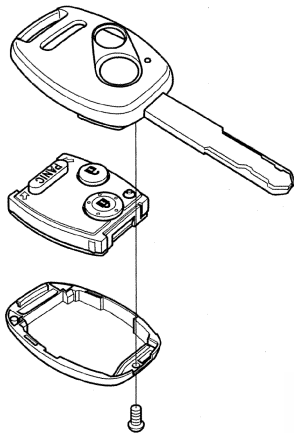
- If KEYLESS ENTRY TRANSMITTER CODE WAS RECEIVED is indicated, the transmitter is OK.
- If DIFFERENT KEYLESS ENTRY TRANSMITTER CODE WAS RECEIVED is indicated, the transmitter is working but not registered to the vehicle. If necessary, reprogram and register the transmitter (see page 22-335).
- If KEYLESS ENTRY TRANSMITTER CODE WAS NOT RECEIVED is indicated, go to step 5.

(cont'd)

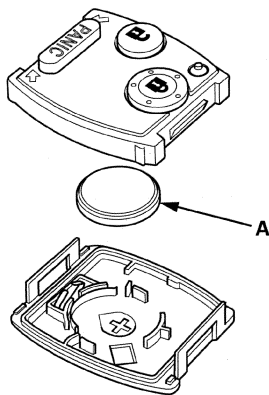
Keyless/Power Door Locks/Security System

Transmitter Test (cont'd)

5. Open the transmitter and check for water damage.
- If you find any water damage, replace the transmitter, then register the new transmitter (see page 22-335).
 - If there is no water damage, go to step 6.



6. Replace the transmitter battery (A) with a new one, and press the lock or unlock button and check the response on the screen of the HDS.
- If KEYLESS ENTRY TRANSMITTER CODE WAS RECEIVED is indicated, the transmitter is OK.
 - If KEYLESS ENTRY TRANSMITTER CODE WAS NOT RECEIVED is indicated, go to step 7.



7. Use a known-good keyless transmitter assembly and repeat steps 3 and 4.

NOTE: The keyless transmitter does not need to be programmed to the vehicle for this test.

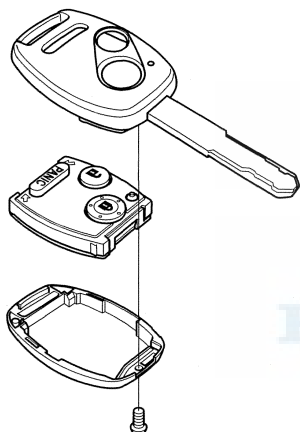
- If (DIFFERENT) KEYLESS ENTRY TRANSMITTER CODE IS RECEIVED is indicated, replace the keyless transmitter and do the immobilizer system registration (see page 22-335).
- If KEYLESS ENTRY TRANSMITTER CODE IS NOT RECEIVED is indicated, the immobilizer-keyless control unit is faulty, replace it and do the immobilizer system registration (see page 22-335).

NOTE: The keyless transmitter is combined with the immobilizer transponder, so when the transponder is registered by the HDS, the keyless transmitter programming is completed automatically.

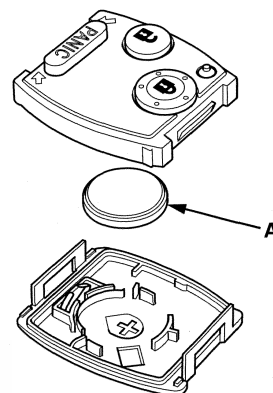


Without HDS

1. Start the engine.
 - If the engine does not start, go to the immobilizer system troubleshooting (see page 22-326).
 - If the engine starts, go to step 2.
2. Press the transmitter lock or unlock button at least 10 times to reset the transmitter.
 - If the locks work, the transmitter is OK.
 - If the locks don't work, go to step 3.
3. Open the transmitter and check for water damage.
 - If you find any water damage, replace the transmitter and register the new transmitter.
 - If there is no water damage, go to step 4.



4. Replace the transmitter battery (A) with a new one, and try to lock and unlock the doors with the transmitter by pressing the lock or unlock button at least 10 times.
 - If the doors lock and unlock, the transmitter is OK.
 - If the doors don't lock and unlock, go to step 5.



5. Reprogram and register the transmitter (see page 22-335), then try to lock and unlock the doors.
 - If the doors lock and unlock, the transmitter is OK.
 - If the doors do not lock and unlock, substitute a known-good transmitter register it and recheck (see page 22-335). If still not operating, replace the immobilizer-keyless control unit (see page 22-336).

Keyless/Power Door Locks/Security System

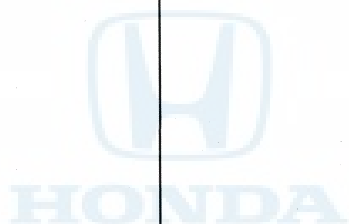
Tripped Sensor History

The security system stores information on the last tripped sensor if the security system has been actuated. The information can be retrieved using the HDS.

To retrieve the last tripped sensor data:

1. Select HISTORY DATA from the security system test mode menu.
2. Scroll through the data list.
 - Sensors that were actuated will indicate ON.
 - Sensors that were not actuated will indicate NONE.
3. Inspect the ON circuit for these problems:
 - Misadjusted or damaged switch.
 - Loose or corroded connections.
 - Intermittent short to ground.

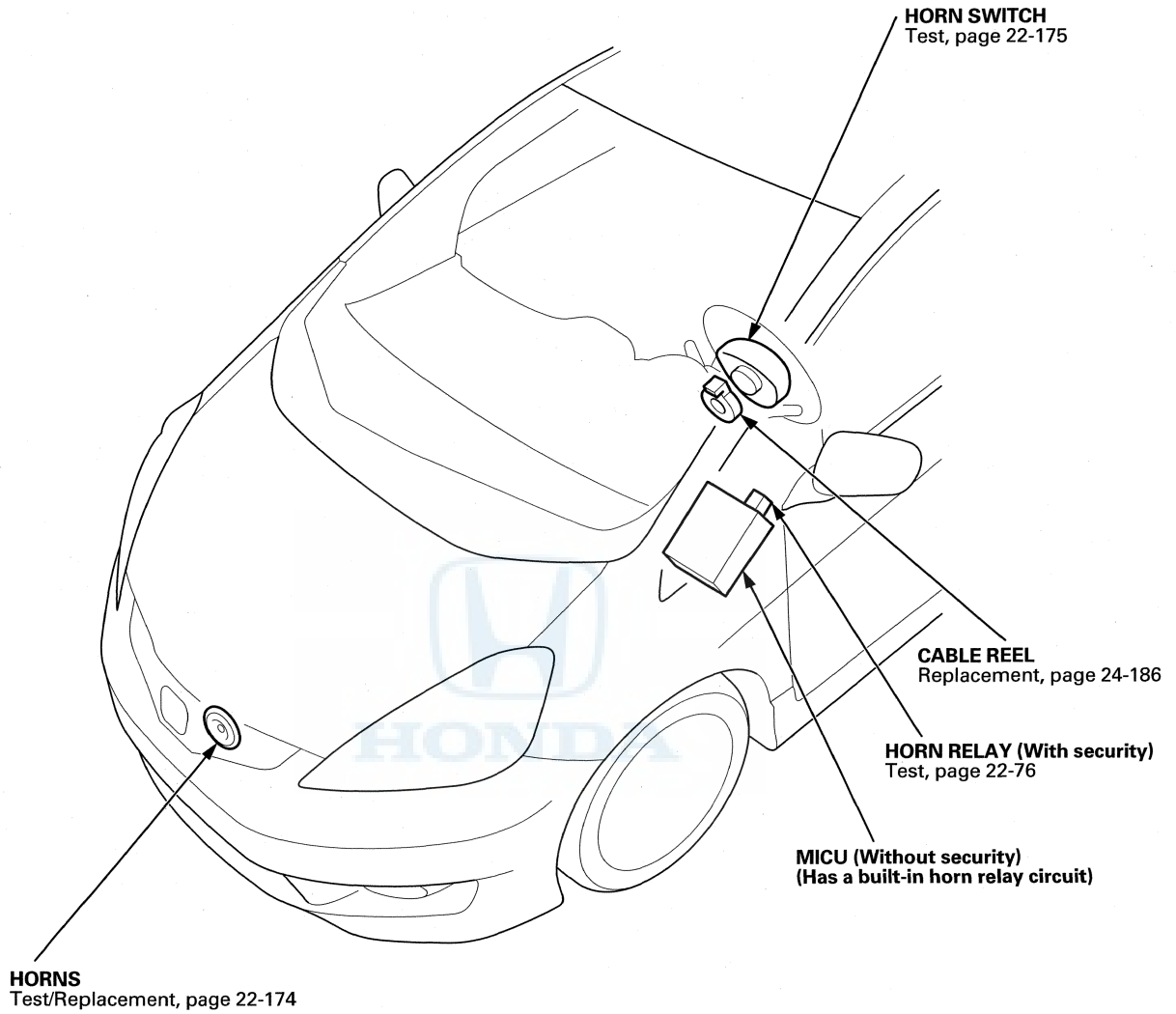
NOTE: If PANIC Frame Reception is indicated ON, inform the customer that it could have been set by something pressing the panic button of one of the registered remotes while in a pocket or purse, under a stack of papers, etc.



Horns



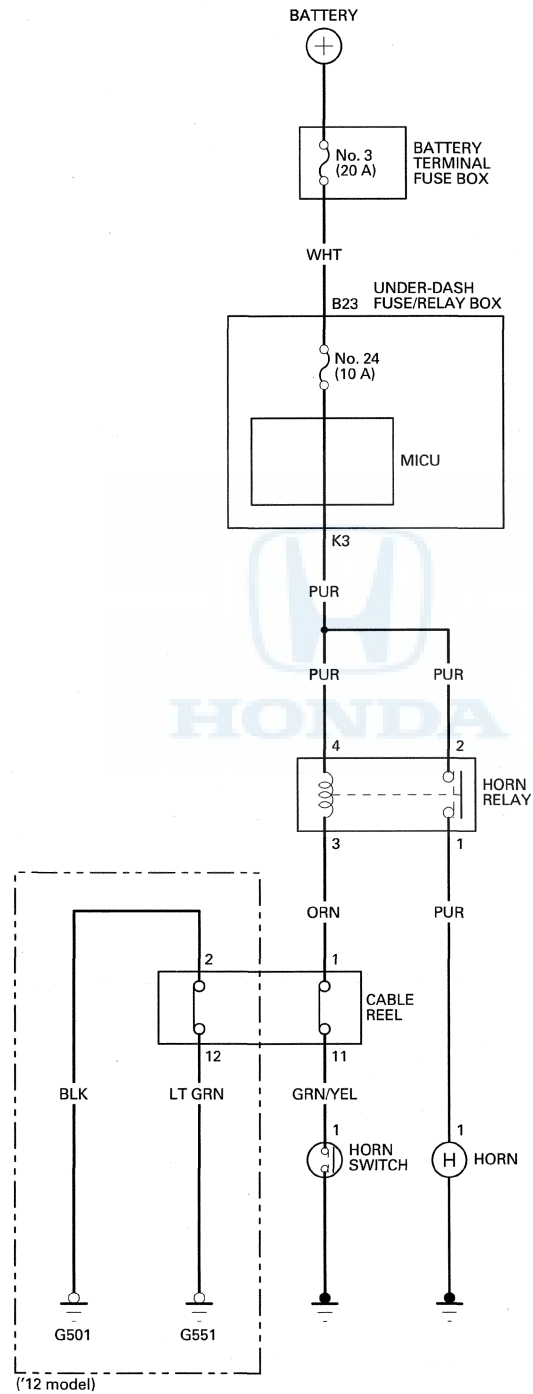
Component Location Index

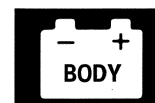


Horns

Circuit Diagram

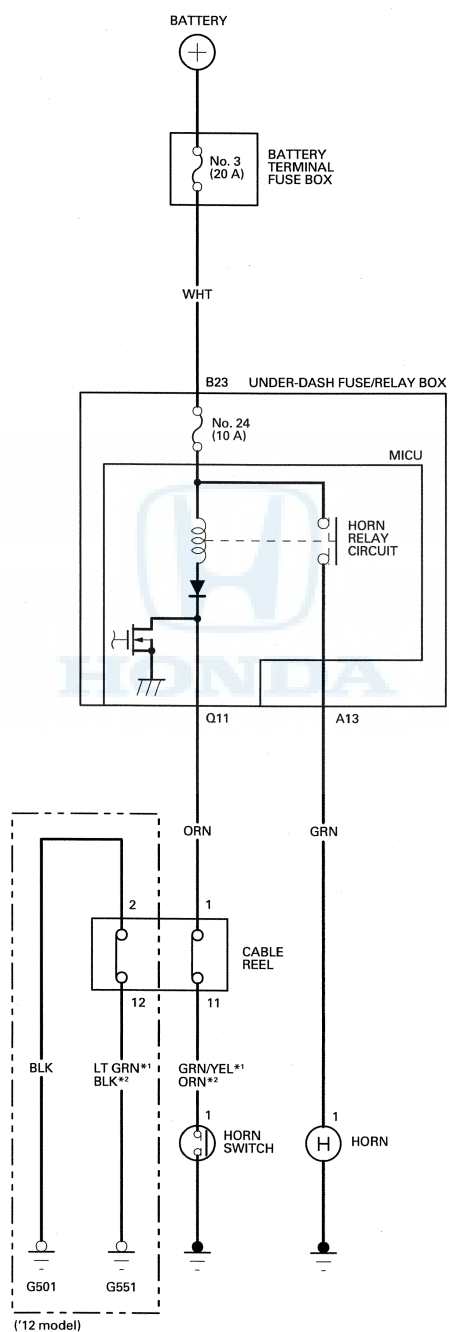
With Security System





Without Security System

*1 : With cruise control
*2 : Without cruise control

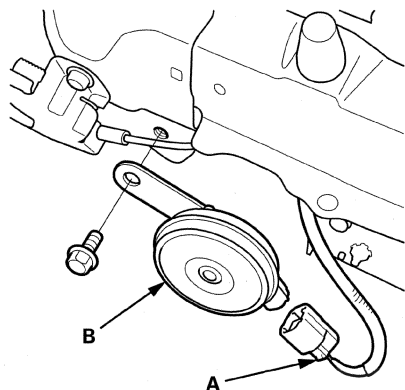


Horns

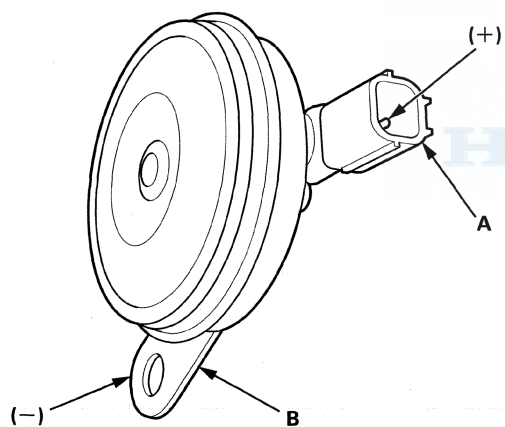
Horn Test/Replacement

'09-11 models

1. Remove the front grille cover (see page 20-166).
2. Disconnect the 1P connector (A) from the horn (B).



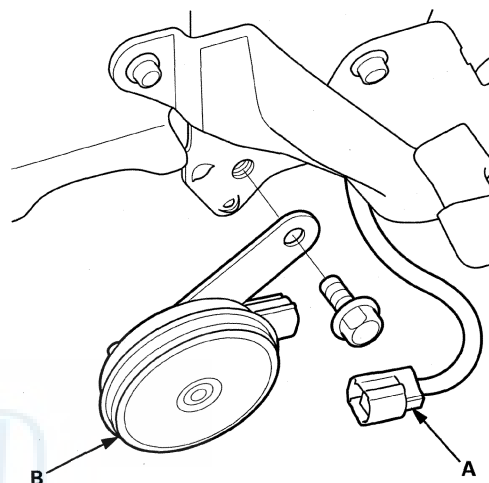
3. Connect the terminal (A) to battery power, and the bracket (B) to body ground.



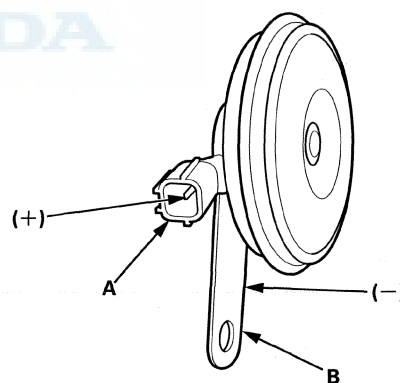
4. If the horn does not sound, replace it.

'12 model

1. Remove the front grille cover (see page 20-166).
2. Disconnect the 1P connector (A) from the horn (B).



3. Connect the terminal (A) to battery power, and the bracket (B) to body ground.



4. If the horn does not sound, replace it.

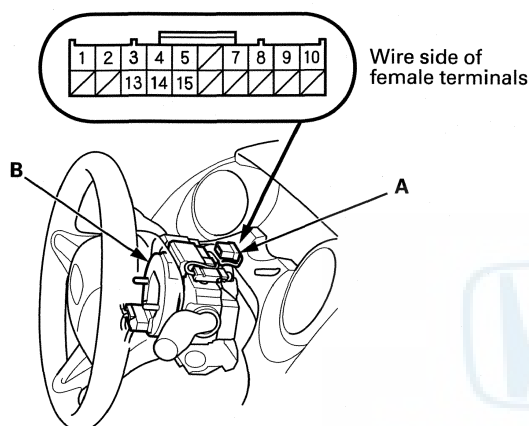


Horn Switch Test

'09-11 models

NOTE: SRS components are located in this area. Review the SRS component locations (see page 24-13), and precautions and procedures (see page 24-15) before doing repairs or servicing.

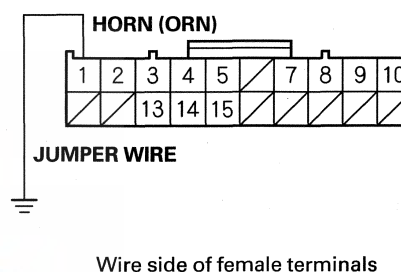
1. Remove the steering column covers (see page 20-105).
2. Disconnect the dashboard wire harness 20P connector (A) from the cable reel (B).



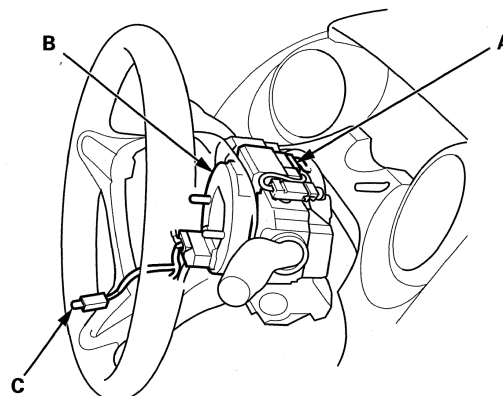
3. Using a jumper wire, connect the dashboard wire harness 20P connector terminal No. 1 to body ground. The horn should sound.

- If the horn sounds, go to step 4.
- If the horn does not sound, check these items:
 - Battery terminal fuse box No. 3 (20A) fuse.
 - No. 24 (10 A) fuse in the under-dash fuse/relay box.
 - Horn (see page 22-174).
 - Horn relay (with security) (see page 22-76).
 - MICU(without security).
 - An open in the wire.

DASHBOARD WIRE HARNESS 20P CONNECTOR



4. Reconnect the dashboard wire harness 20P connector (A) to the cable reel (B).



5. Remove the driver's airbag assembly (see page 24-171), and disconnect the horn switch 1P positive terminal (C) from the driver's airbag.

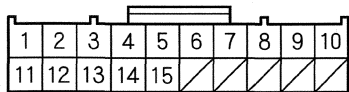
(cont'd)

Horns

Horn Switch Test (cont'd)

6. Check for continuity between the dashboard wire harness 20P connector terminal No. 1 and the steering wheel switch 20P connector terminal No. 11.
- If there is continuity, go to step 7.
 - If there is no continuity, replace the cable reel (see page 24-186).

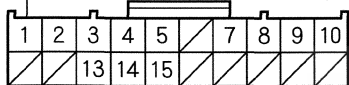
STEERING WHEEL SWITCH 20P CONNECTOR
Wire side of female terminals



HORN (GRN/YEL)*1, (ORN)*2



HORN (ORN)

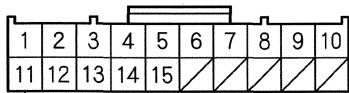


DASHBOARD WIRE HARNESS 20P CONNECTOR
Wire side of female terminals

- *1: With cruise control
*2: Without cruise control

7. Check for continuity between the steering wheel switch 20P connector terminal No. 11 and the horn switch 1P positive terminal.
- If there is continuity, check the installation of the driver's airbag assembly and the steering wheel. If OK, replace the driver's airbag assembly.
 - If there is no continuity, repair an open in the wire.

STEERING WHEEL SWITCH 20P CONNECTOR
Wire side of female terminals



HORN
(GRN/YEL)*1,
(ORN)*2



HORN (GRN/YEL)



HORN SWITCH 1P POSITIVE TERMINAL
Wire side of female terminals

- *1: With cruise control
*2: Without cruise control

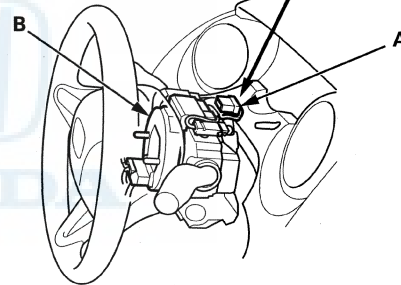
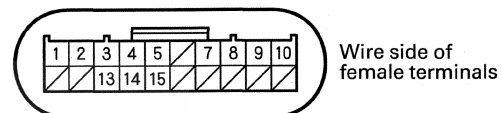
'12 model

NOTE:

- SRS components are located in this area. Review the SRS component locations (see page 24-13), and precautions and procedures (see page 24-15) before doing repairs or servicing.
- Before testing, check the No. 24 (10 A) fuse in the under-dash fuse/relay box. If the fuse is blown, repair a short to ground in the No. 24 (10 A) fuse circuit.

1. Remove the steering column covers (see page 20-105).

2. Disconnect the dashboard wire harness 20P connector (A) from the cable reel (B).



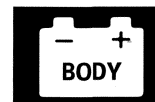
3. Connect dashboard wire harness 20P connector terminal No. 1 and No. 2 with a jumper wire. The horn should sound.

- If the horn sounds, go to step 7.
- If the horn does not sound, go to step 4.

4. Remove the jumper wire from the dashboard wire harness 20P connector.

5. Check for continuity between dashboard wire harness 20P connector terminal No. 2 and body ground. There should be continuity.

- If there is continuity, go to step 6.
- If there is no continuity, repair an open or high resistance in the wire, or poor ground (G501).



6. Measure the voltage between dashboard wire harness 20P connector terminal No. 1 and body ground. There should be battery voltage.

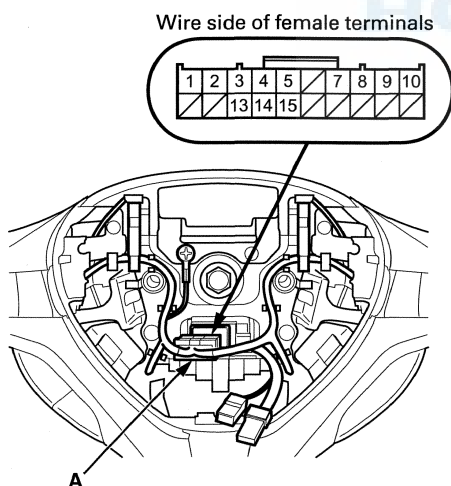
- If there is battery voltage, check these items:
 - Faulty horn.
 - Faulty horn relay (with security).
 - Faulty MICU (without security).
 - An open or high resistance in the wire between the horn and the under-dash fuse relay box.
- If there is no battery voltage, check for continuity between the cable reel and the under-dash fuse relay box.

7. Reconnect dashboard wire harness 20P connector to the cable reel, then remove the driver's airbag assembly (see page 24-171).

8. Connect cable reel subharness 20P connector terminals No. 11 and No. 12 with a jumper wire. The horn should sound.

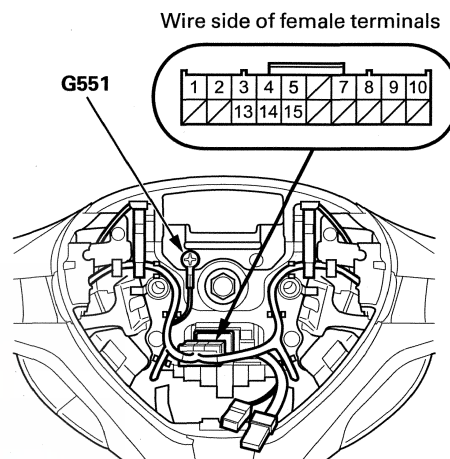
- If the horn sounds, go to step 9.
- If the horn does not sound, replace the cable reel (see page 24-186).

9. Disconnect the cable reel subharness 20P connector (A).



10. Check for continuity between ground terminal (G551) and cable reel subharness 20P connector terminal No. 12. There should be continuity.

- If there is continuity, go to step 11.
- If there is no continuity, check for:
 - An open or high resistance in the wire, replace the cable reel subharness.
 - Poor ground (G551).

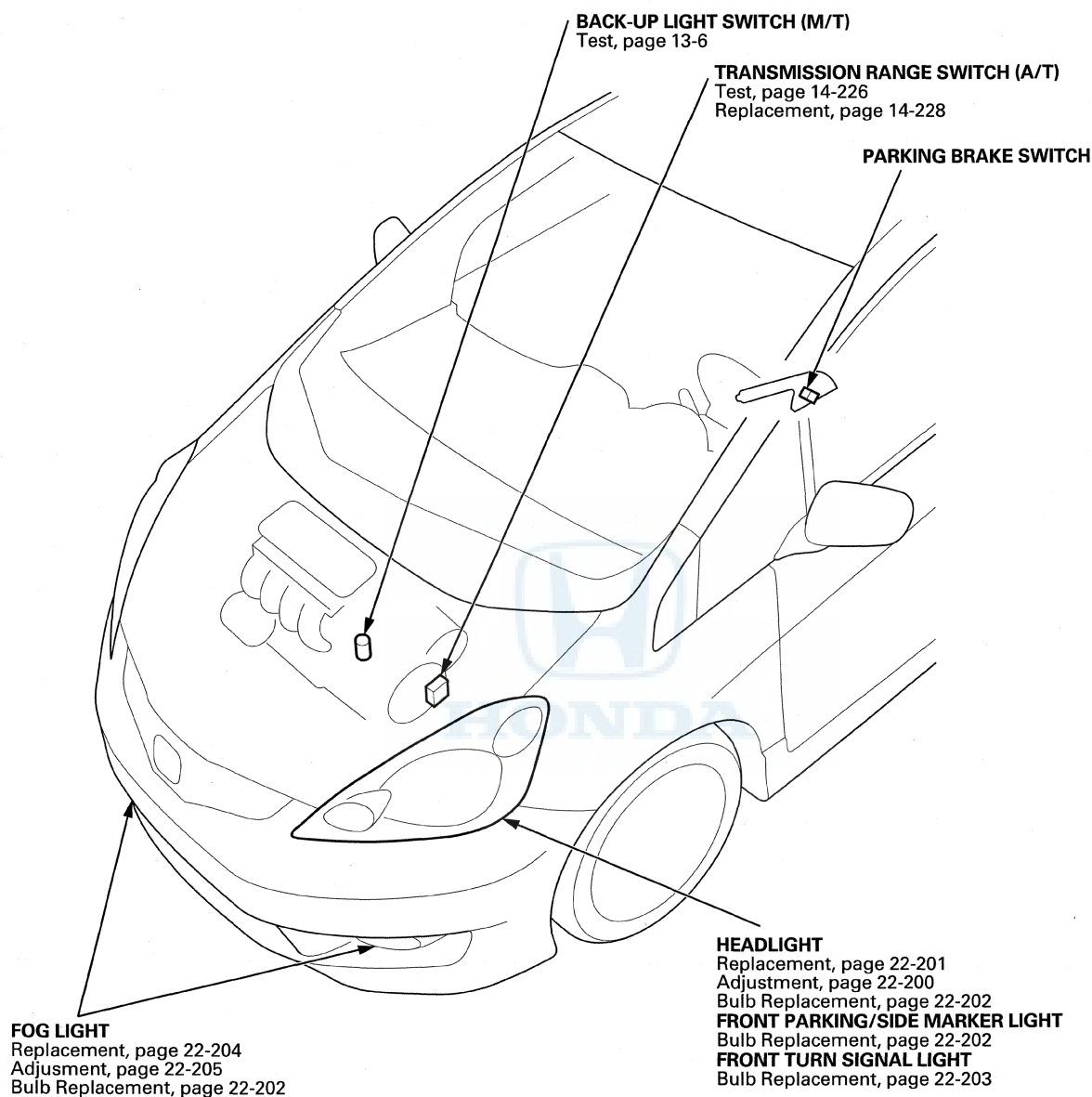


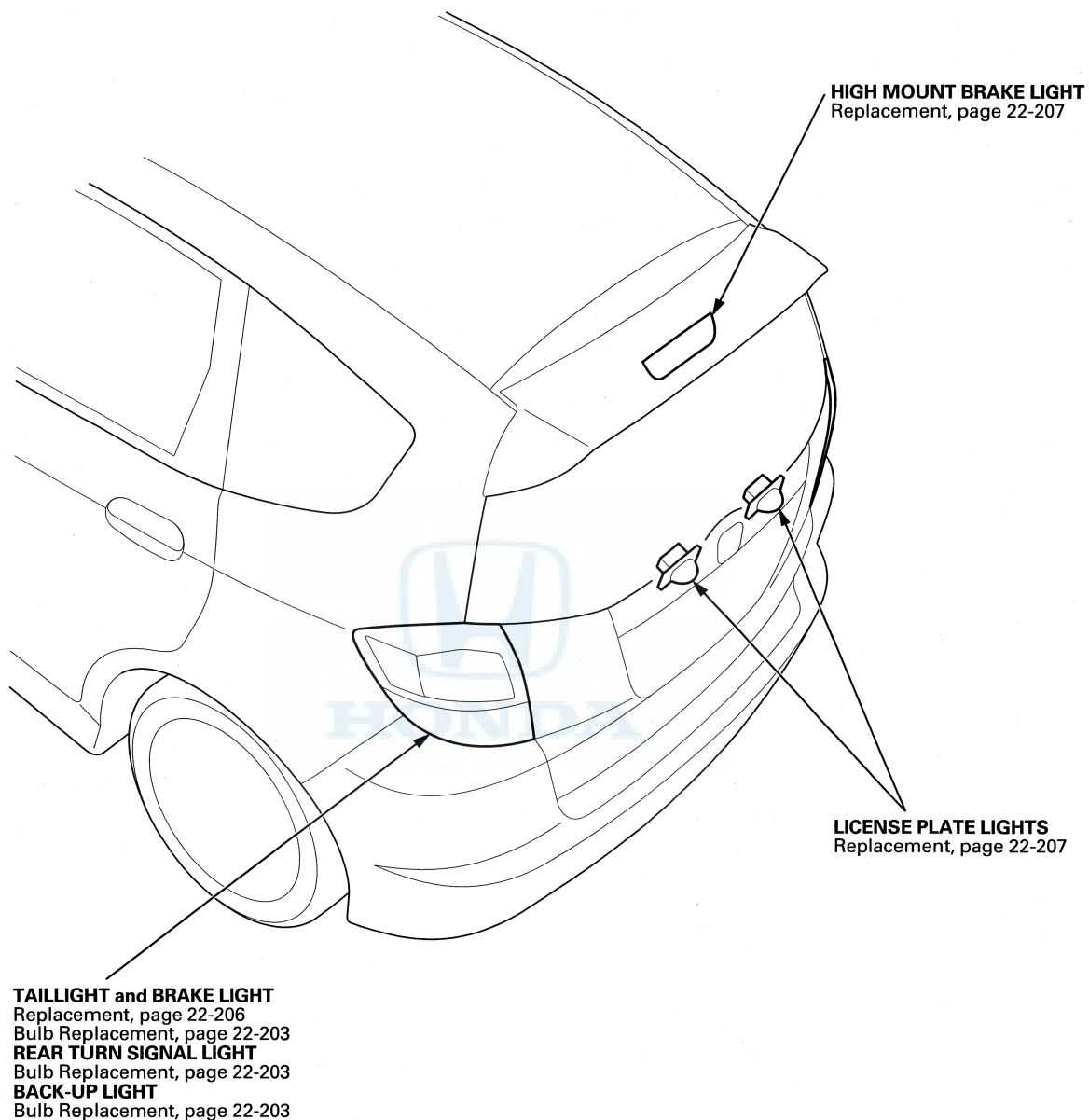
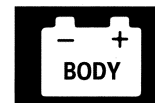
11. Check for continuity between cable reel subharness 20P connector terminal No. 11 and horn switch positive terminal 1P. There should be continuity.

- If there is continuity, check or adjust the installation of the driver's airbag and the horn switch plate or replace the driver's airbag assembly.
- If there is no continuity, repair an open in the wire, or replace the cable reel subharness (see page 17-7).

Exterior Lights

Component Location Index

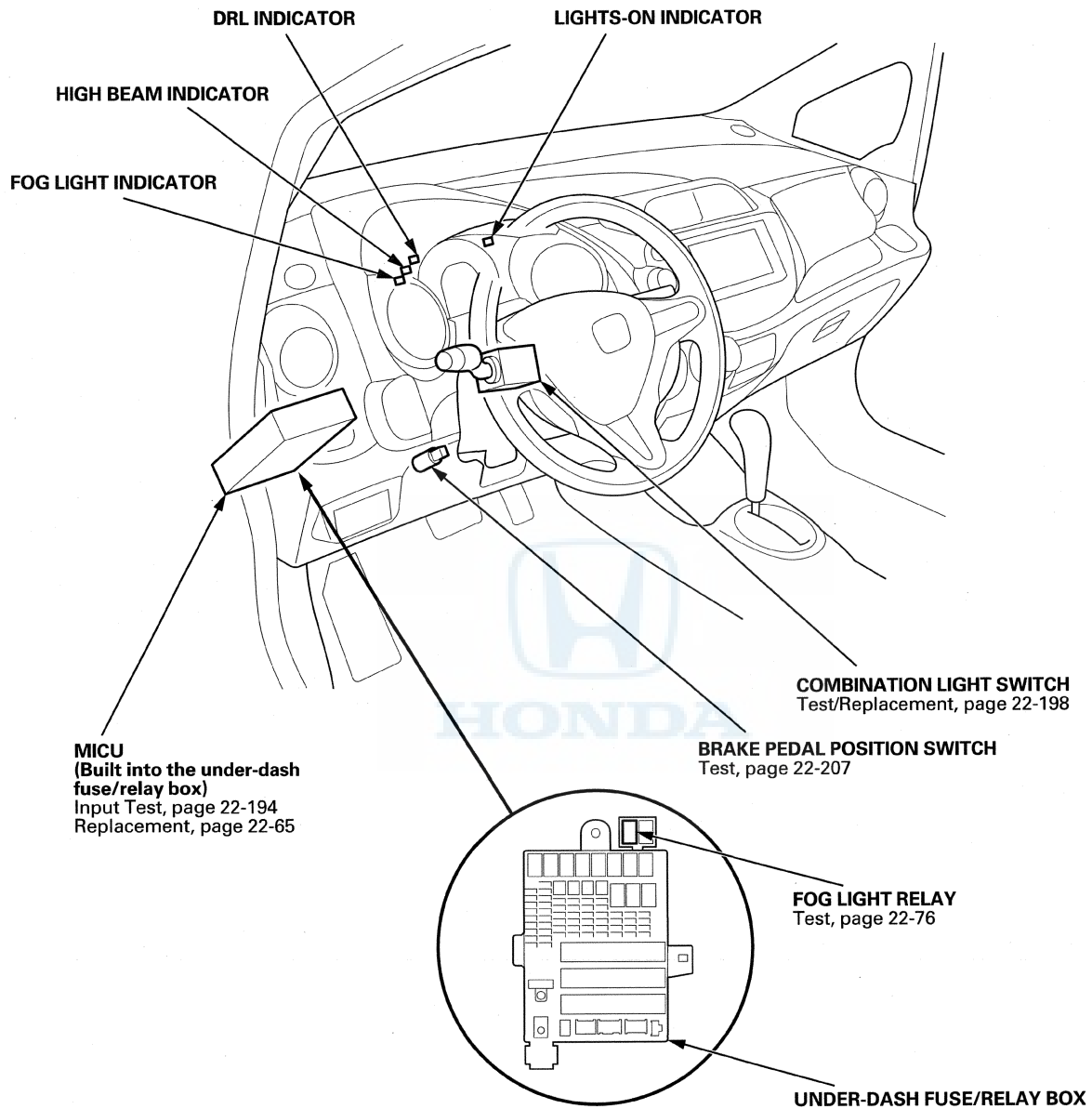


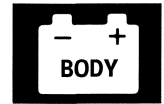


(cont'd)

Exterior Lights

Component Location Index (cont'd)





System Description

Headlights SystemDescription

The headlight system is composed of the MICU, the headlight and dimmer/flash-to-pass switches (inside the combination light switch), the left and right headlights, and the high beam indicator.

The MICU controls the front parking/side marker lights, headlights, taillights and license plate lights.

Low Beams

When you move the headlight switch to the ON position and the dimmer/flash-to-pass switch to the low position, a ground signal is supplied to terminal No.5 of under-dash fuse/relay box connector M (34P). The MICU then energizes the low beam control circuit, supplying battery voltage to the low beam of the headlights, turning them on.

NOTE: If there is a B-CAN communication failure, the headlight back-up circuit commands the right low beam to come on when the ignition is on and the headlight switch is in the headlight position. The right high beam does not come on if there is a B-CAN system failure.

High Beams

When you turn the headlight switch to the ON position and the dimmer/flash-to-pass switch to the high position, ground signals are supplied to terminals No. 3 and No. 5 of under-dash fuse/relay box connector M (34P). The MICU then energizes the high beam headlight control circuits, supplying battery voltage to the high beam headlights, turning them on.

Flash-to-Pass

When you pull the dimmer/flash-to-pass switch to the passing position, a ground signal is supplied to under-dash fuse/relay box (MICU) connector M (34P) terminal No. 4. The MICU then energizes the high beam control circuits for as long as the switch is held, supplying battery voltage to the high beam headlights, turning them on.

Daytime Running Lights System Description

The daytime running lights system includes the MICU, the left and right high beam headlights, the parking brake switch, and the DRL indicator on the gauge control module. The daytime running lights operate with the ignition switch turned to ON (II), the headlights off (headlight switch OFF or in the parking position), and the parking brake released.

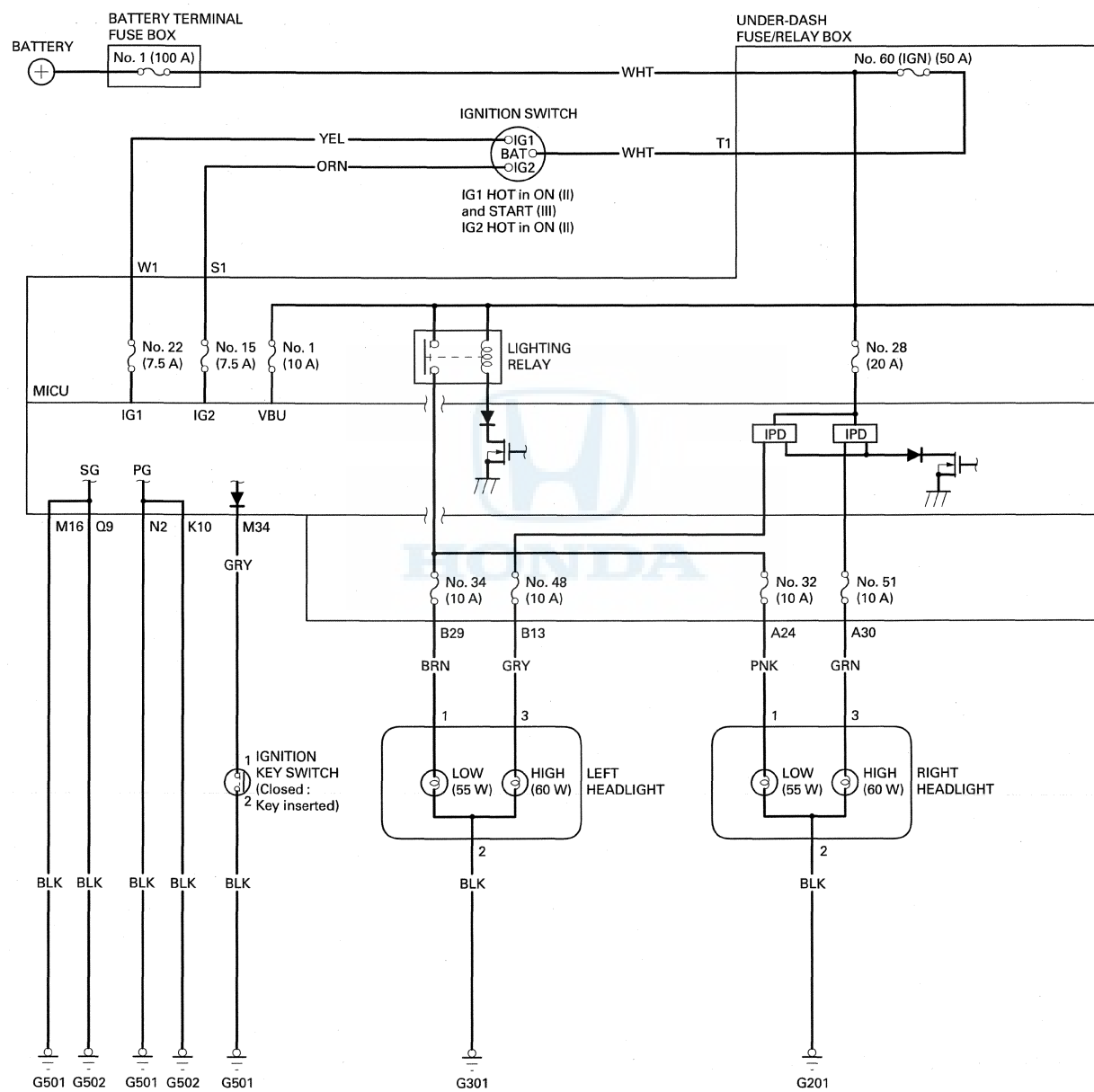
When the daytime running lights are on, the MICU turns the high beam headlight control circuit on and off (duty cycle), which provides a reduced voltage (approximately 4–8 volts) to the high beam headlights (via the No. 48 and No. 51 fuses in the under-dash fuse/relay box; the high beam headlights come on with reduced brightness. The MICU also sends a signal to the gauge control module, and the DRL indication is indicated on the gauge.

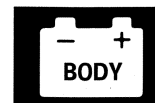
NOTE:

- The daytime running lights are disabled when the ignition switch is turned to LOCK (0). To keep the daytime running lights from coming on, apply the parking brake switch while the ignition switch is in LOCK (0) position. When you then turn the ignition switch back to ON (II), the daytime running lights will not come on until the parking brake is released.
- The headlights revert to normal operation when you turn them on with the headlight switch.

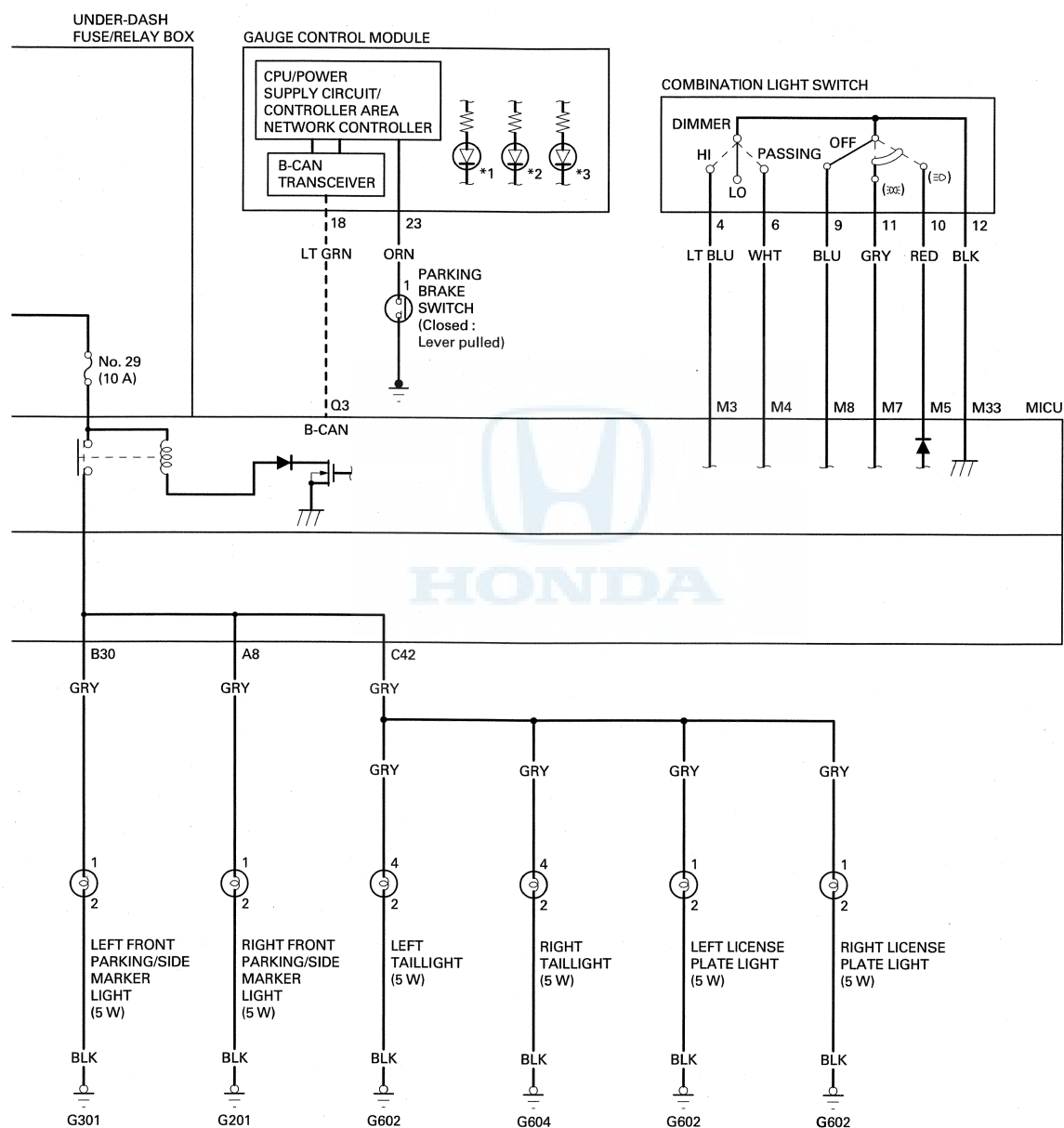
Exterior Lights

Circuit Diagram



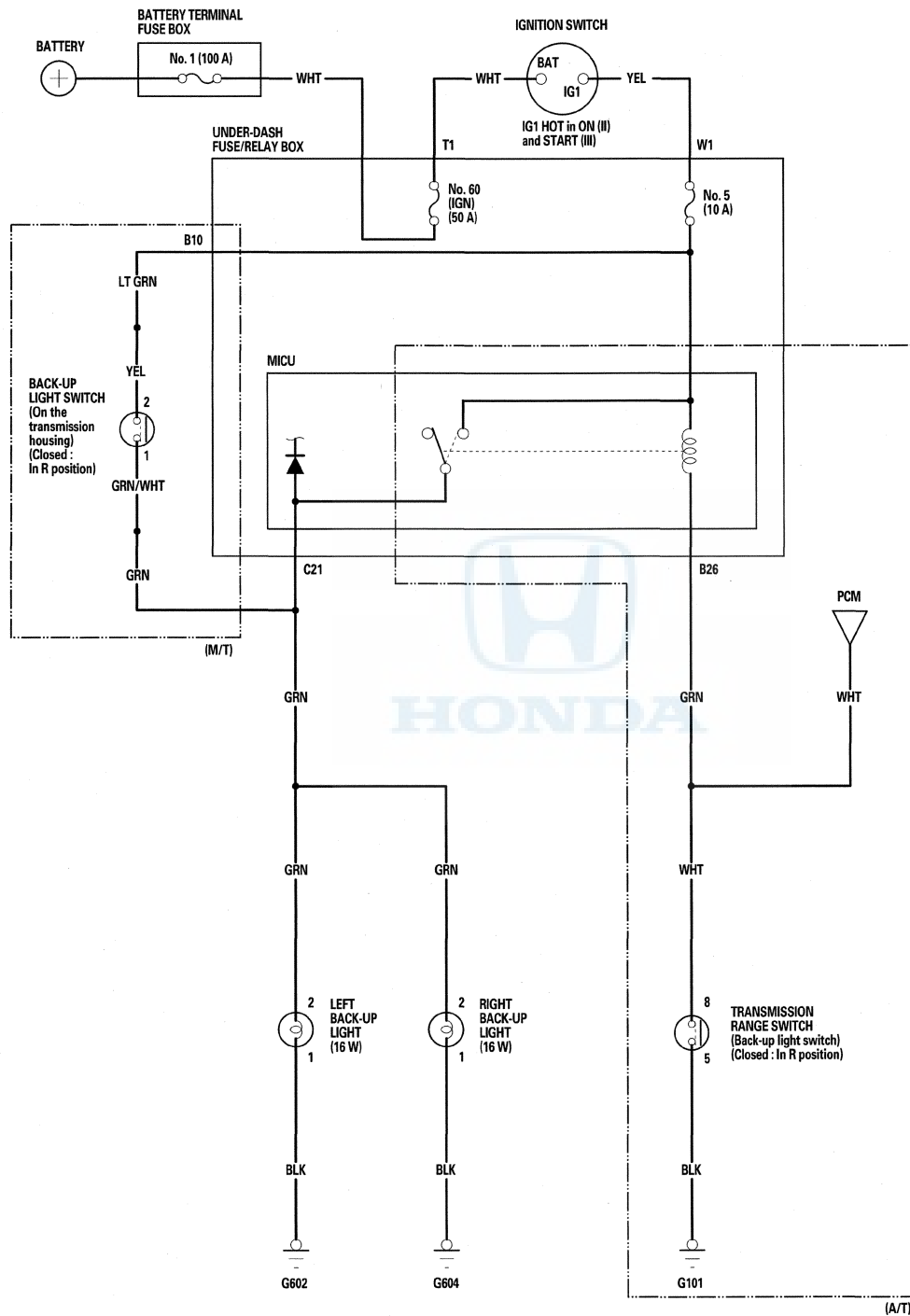


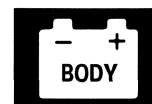
- *1 : HIGH BEAM INDICATOR (LED)
- *2 : LIGHT-ON INDICATOR (LED)
- *3 : DRL INDICATOR (LED)
- : B-CAN line



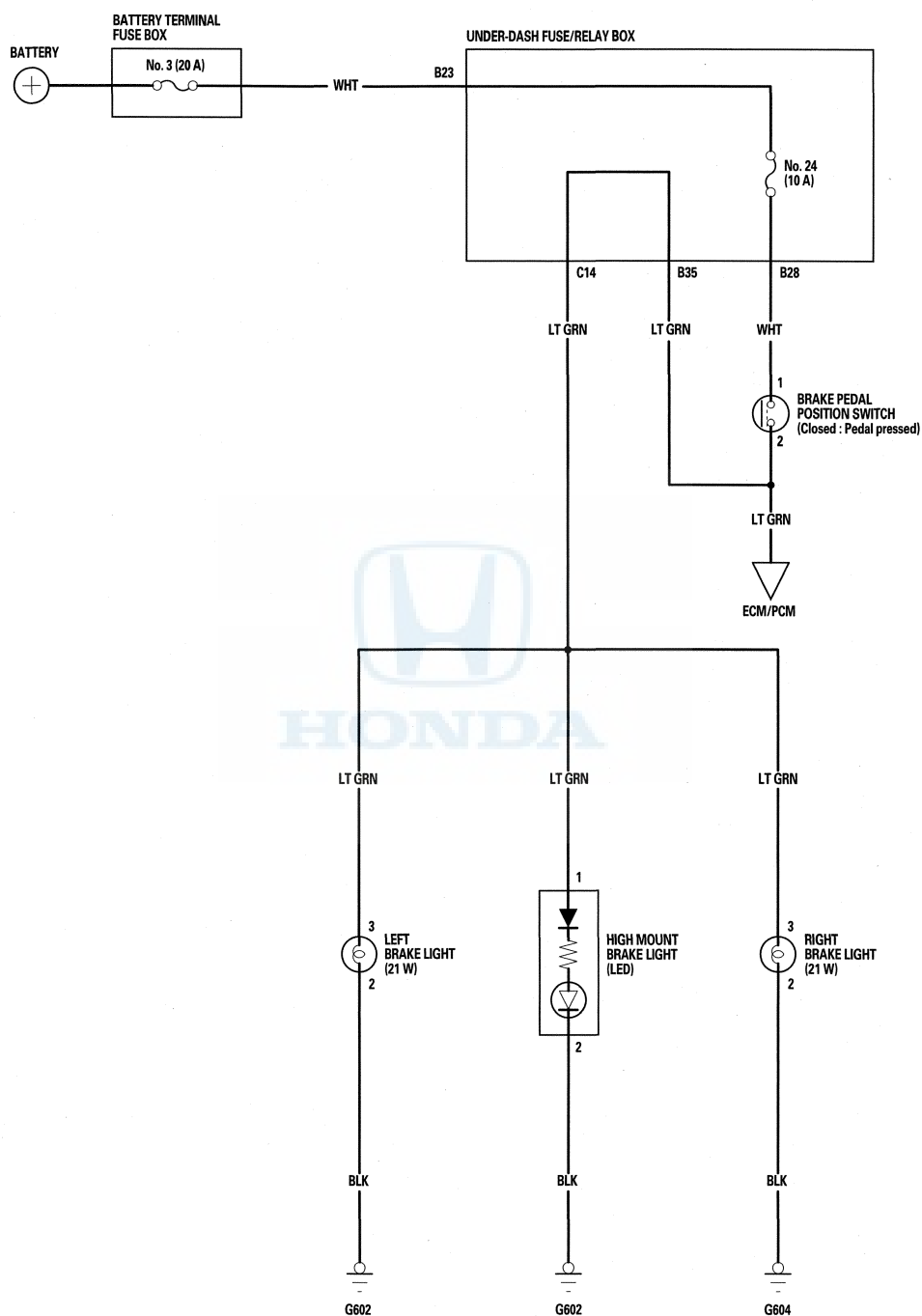
Exterior Lights

Circuit Diagram - Back-up Lights



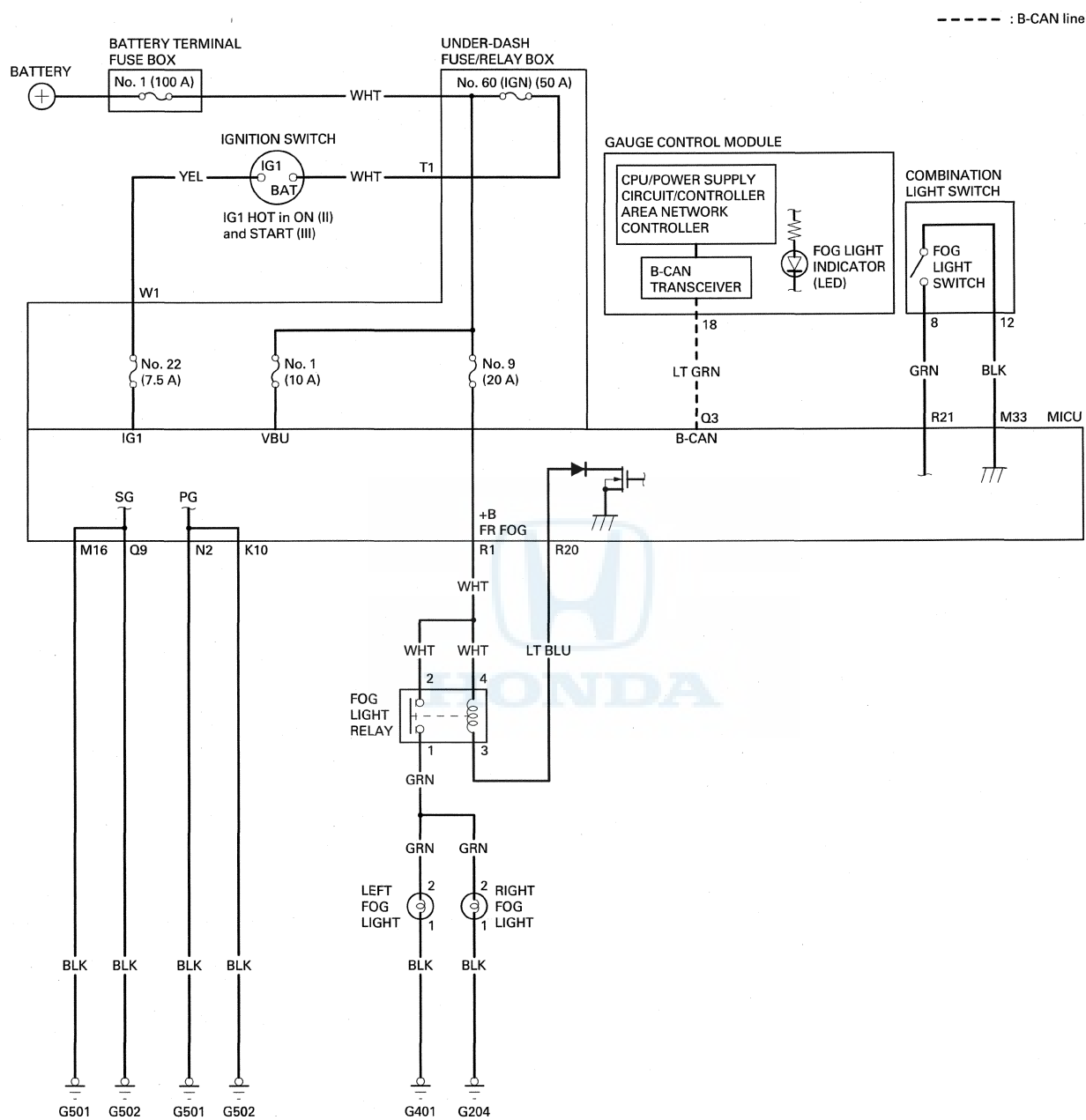


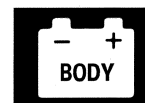
Circuit Diagram - Brake Lights



Exterior Lights

Circuit Diagram - Fog Lights





DTC Troubleshooting

DTC B1078: Daytime Running Light for Canada Circuit Malfunction

DTC B1079: Daytime Running Light for USA Circuit Malfunction

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Turn the ignition switch to ON (II).
2. Pull the parking brake lever.
3. Clear the DTCs with the HDS.
4. Release the parking brake lever.
5. Turn the ignition switch to LOCK (0), and then back to ON (II).
6. Check for DTCs with the HDS.

Is DTC B1078 or B1079 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time.
Check for loose or poor connections. ■

7. Turn the headlight switch ON (high beam).

Do both headlights (high beam) come on?

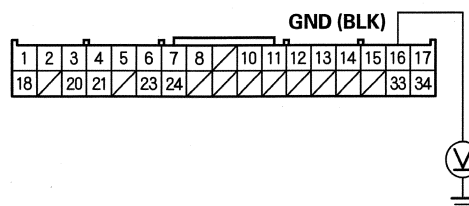
YES—Go to step 8.

NO—Go to step 11.

8. Turn the ignition switch to LOCK (0).

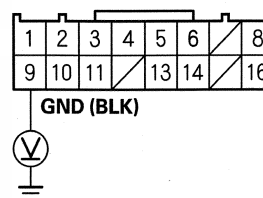
9. Measure the voltage between body ground and under-dash fuse/relay box connector M (34P) terminal No. 16, and between body ground and under-dash fuse/relay box connector Q (16P) terminal No. 9.

UNDER-DASH FUSE/RELAY BOX CONNECTOR M (34P)



Wire side of female terminals

UNDER-DASH FUSE/RELAY BOX CONNECTOR Q (16P)



Wire side of female terminals

Is there less than 0.1 V?

YES—Go to step 10.

NO—Repair an open or high resistance in the wire or poor ground (G501, G502). ■

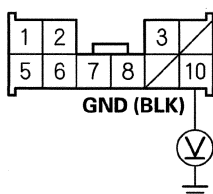
(cont'd)

Exterior Lights

DTC Troubleshooting (cont'd)

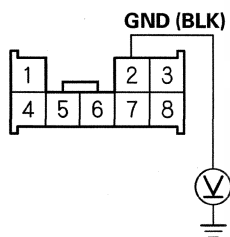
10. Measure the voltage between body ground and under-dash fuse/relay box connector K (10P) terminal No. 10, and body ground and under-dash fuse/relay box connector N (8P) terminal No. 2.

UNDER-DASH FUSE/RELAY BOX CONNECTOR K (10P)



Wire side of female terminals

UNDER-DASH FUSE/RELAY BOX CONNECTOR N (8P)



Wire side of female terminals

Is there less than 0.1 V?

YES—Faulty MICU; replace the under-dash fuse/relay box.■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Repair an open or high resistance in the wire or poor ground (G501, G502).■

11. Turn the ignition switch to LOCK (0) and turn the headlight switch OFF.

12. Check the No. 28 (20A), No. 48 (10A) and No. 51 (10A) fuses in the under-dash fuse/relay box.

Are all fuses OK?

YES—Go to step 13.

NO—Replace the blown fuse and recheck. If the No. 28 (20 A) fuse is blown again, replace the under-dash fuse/relay box. If the No. 48 (10 A) or No. 51 (10 A) fuse is blown again, repair a short in the wire between the under-dash fuse/relay box and appropriate headlight (high beam).■

13. Check the headlight bulbs.

Are the headlight bulbs OK?

YES—Go to step 14.

NO—Replace the bulb and recheck.■

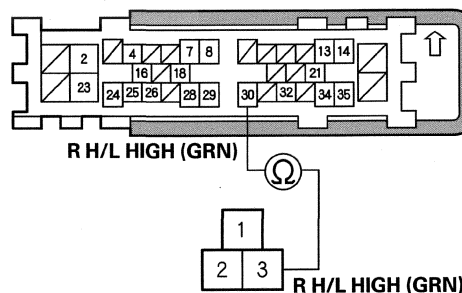
14. Disconnect under-dash fuse/relay box connectors A (36P) and B (36P).

15. Disconnect both of the headlight 3P connectors.

16. Check for continuity between the right headlight 3P connector terminal No. 3 and under-dash fuse/relay box connector A (36P) terminal No. 30.

UNDER-DASH FUSE/RELAY BOX CONNECTOR A (36P)

Wire side of female terminals



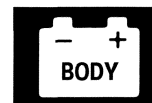
RIGHT HEADLIGHT 3P CONNECTOR

Wire side of female terminals

Is there continuity?

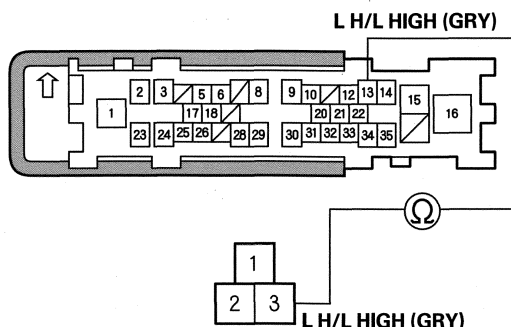
YES—Go to step 17.

NO—Repair open in the wire between the right headlight (high beam) and the under-dash fuse/relay box.■



17. Check for continuity between the left headlight 3P connector terminal No. 3 and under-dash fuse/relay box connector B (36P) terminal No. 13.

UNDER-DASH FUSE/RELAY BOX CONNECTOR B (36P)
Wire side of female terminals



LEFT HEADLIGHT 3P CONNECTOR
Wire side of female terminals

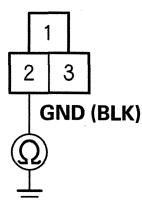
Is there continuity?

YES—Go to step 18.

NO—Repair open in the wire between the left headlight (high beam) and the under-dash fuse/relay box. ■

18. Check for continuity between each headlight 3P connector terminal No. 2 and body ground.

HEADLIGHT 3P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Repair an open or high resistance in the BLK wire or poor ground (G201-right side, G301-left side). ■

DTC B1275: Head Light Switch OFF Position Circuit Malfunction

DTC B1276: Head Light Switch Parking Position Circuit Malfunction

DTC B1278: Head Light ON Position Circuit Malfunction

NOTE: If you are troubleshooting multiple DTC's, be sure to follow the instruction in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Turn the combination light switch to the PARKING and ON (low beam) positions for at least 6 seconds in each position, and then to the OFF position.
4. Check for DTCs with the HDS.

Are DTC's B1275, B1276, and / or B1278 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

5. Select LIGHTING from the BODY ELECTRICAL system select menu, and enter DATA LIST.

(cont'd)

Exterior Lights

DTC Troubleshooting (cont'd)

6. Check each combination light switch position value with the DATA LIST menu.

When the combination light switch is turned OFF:

Data List	Value
Headlight Switch (OFF)	ON
Headlight Switch (PARKING)	OFF
Headlight Switch (HEADLIGHT)	OFF

When the combination light switch is turned to PARKING:

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (PARKING)	ON
Headlight Switch (HEADLIGHT)	OFF

When the combination light switch is turned ON (HEADLIGHT):

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (PARKING)	ON
Headlight Switch (HEADLIGHT)	ON

Are all data list values correct?

YES—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).
8. Disconnect the combination light switch 12P connector.
9. Turn the ignition switch to ON (II).
10. Select LIGHTING from the BODY ELECTRICAL system select menu, and enter DATA LIST.
11. Check each combination light switch position value with the DATA LIST menu.

When the combination light switch is turned OFF:

Data List	Value
Headlight Switch (OFF)	OFF
Headlight Switch (PARKING)	OFF
Headlight Switch (HEADLIGHT)	OFF

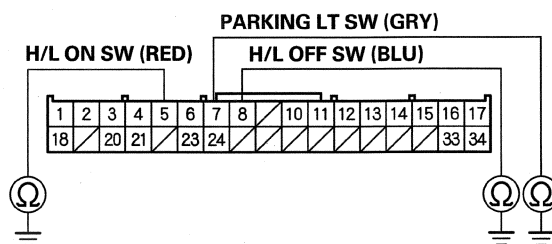
Are all data list values indicated OFF?

YES—Go to step 15.

NO—Go to step 12.

12. Turn the ignition switch to LOCK (0).
13. Disconnect under-dash fuse/relay box connector M (34P).
14. Check for continuity between under-dash fuse/relay box connector M (34P) terminals No. 5, No. 7, and No. 8 and body ground individually.

UNDER-DASH FUSE/RELAY BOX CONNECTOR M (34P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wires. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

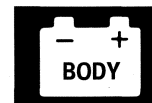
- USA models (see page 22-65)
- Canada models (see page 22-66)

15. Turn the ignition switch to LOCK (0).
16. Do the combination light switch test (see page 22-198).

Is the combination light switch OK?

YES—Go to step 17.

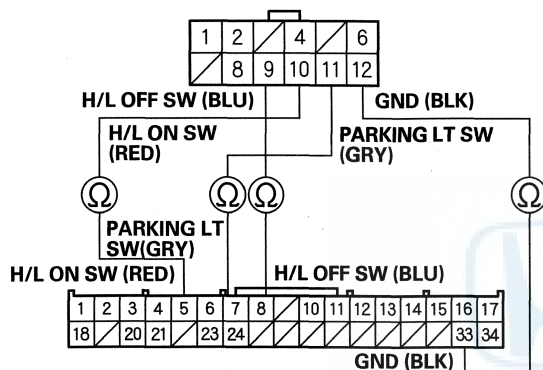
NO—Replace the combination light switch.■
17. Disconnect under-dash fuse/relay box connector M (34P).



18. Check for continuity between under-dash fuse/relay box connector M (34P) terminals and the combination light switch 12P connector terminals as shown:

Under-dash fuse/relay box connector M (34P)	Combination light switch 12P connector
5	10
7	11
8	9
33	12

COMBINATION LIGHT SWITCH 12P CONNECTOR
Wire side of female terminals



UNDER-DASH FUSE/RELAY BOX CONNECTOR M (34P)
Wire side of female terminals

Is there continuity?

YES—Go to step 19.

NO—Repair open in the wires. ■

19. Check for continuity between under-dash fuse/relay box connector M (34P) terminals as shown:

From terminal	To terminal
8	3, 4, 7, 5
7	3, 4, 5

Is there continuity?

YES—Repair short between the wires. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

DTC B1279: Dimmer Switch Circuit Malfunction

NOTE: If you are troubleshooting multiple DTC's, be sure to follow the instruction in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Turn the combination light (headlight) switch ON.
4. Change the dimmer switch from low beam to high beam.
5. Turn the combination light switch OFF and then to the passing position, and wait for at least 6 seconds.

6. Check for DTCs with the HDS.

Is DTC B1279 indicated?

YES—Go to step 7.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

7. Select LIGHTING from the BODY ELECTRICAL system select menu, then enter the DATA LIST.
8. Check each combination light switch position value with the DATA LIST menu.

When the passing switch is operated

Data List	Value
Headlight Switch (PASSING)	ON
Headlight Switch (High beam)	OFF

When the headlight switch is turned ON, and the dimmer switch changed from low beam to high beam

Data List	Value
Headlight Switch (PASSING)	OFF
Headlight Switch (High beam)	ON
Headlight Switch (HEADLIGHT)	ON

Are all data list values correct?

YES—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Go to step 9.

(cont'd)

Exterior Lights

DTC Troubleshooting (cont'd)

9. Turn the ignition switch to LOCK (0).
10. Disconnect the combination light switch 12P connector.
11. Turn the ignition switch to ON (II).
12. Select LIGHTING from the BODY ELECTRICAL system select menu, then enter the DATA LIST.
13. Check each combination light switch position value with the DATA LIST menu.

When the combination light switch is turned OFF

Data List	Value
Headlight Switch (PASSING)	OFF
Headlight Switch (High beam)	OFF
Headlight Switch (HEADLIGHT)	OFF

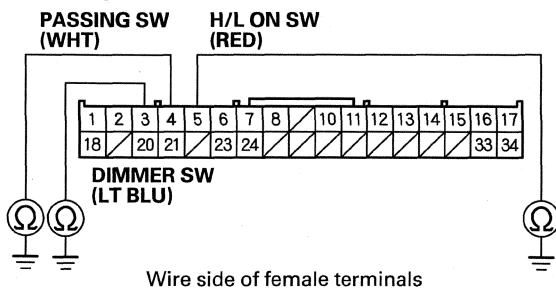
Are all data list values indicated OFF?

YES—Go to step 17.

NO—Go to step 14.

14. Turn the ignition switch to LOCK (0).
15. Disconnect under-dash fuse/relay box connector M (34P).
16. Check for continuity between under-dash fuse/relay box connector M (34P) terminals No. 3, No. 4, and No. 5 and body ground individually.

UNDER-DASH FUSE/RELAY BOX CONNECTOR M (34P)



Is there continuity?

YES—Repair short to ground in the wires.■

NO—Faulty MICU; replace the under-dash fuse/relay box.■

- USA models (see page 22-65)
- Canada models (see page 22-66)

17. Turn the ignition switch to LOCK (0).
18. Do the combination light switch test (see page 22-198).

Is the combination light switch OK?

YES—Go to step 19.

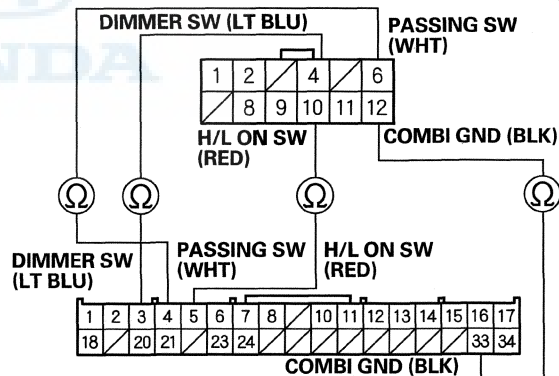
NO—Replace the combination light switch.■

19. Disconnect under-dash fuse/relay box connector M (34P).
20. Check for continuity between the under-dash fuse/relay box connector M (34P) terminals and the combination light switch 12P connector terminals as shown:

Under-dash fuse/relay box connector M (34P)	Combination light switch 12P connector
3	4
4	6
5	10
33	12

COMBINATION LIGHT SWITCH 12P CONNECTOR

Wire side of female terminals



UNDER-DASH FUSE/RELAY BOX CONNECTOR M (34P)

Wire side of female terminals

Is there continuity?

YES—Go to step 21.

NO—Repair open in the wire.■



21. Check for continuity between under-dash fuse/relay box connector M (34P) terminals as shown:

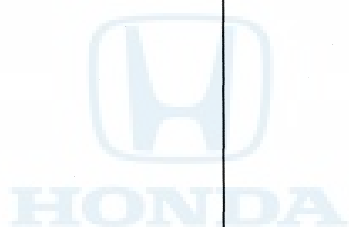
From terminal	To terminal
5	3, 4, 7, 8
7	3, 4, 8
8	3, 4

Is there continuity?

YES—Repair short between the wires.■

NO—Faulty MICU; replace the under-dash fuse/relay box.■

- USA models (see page 22-65)
- Canada models (see page 22-66)



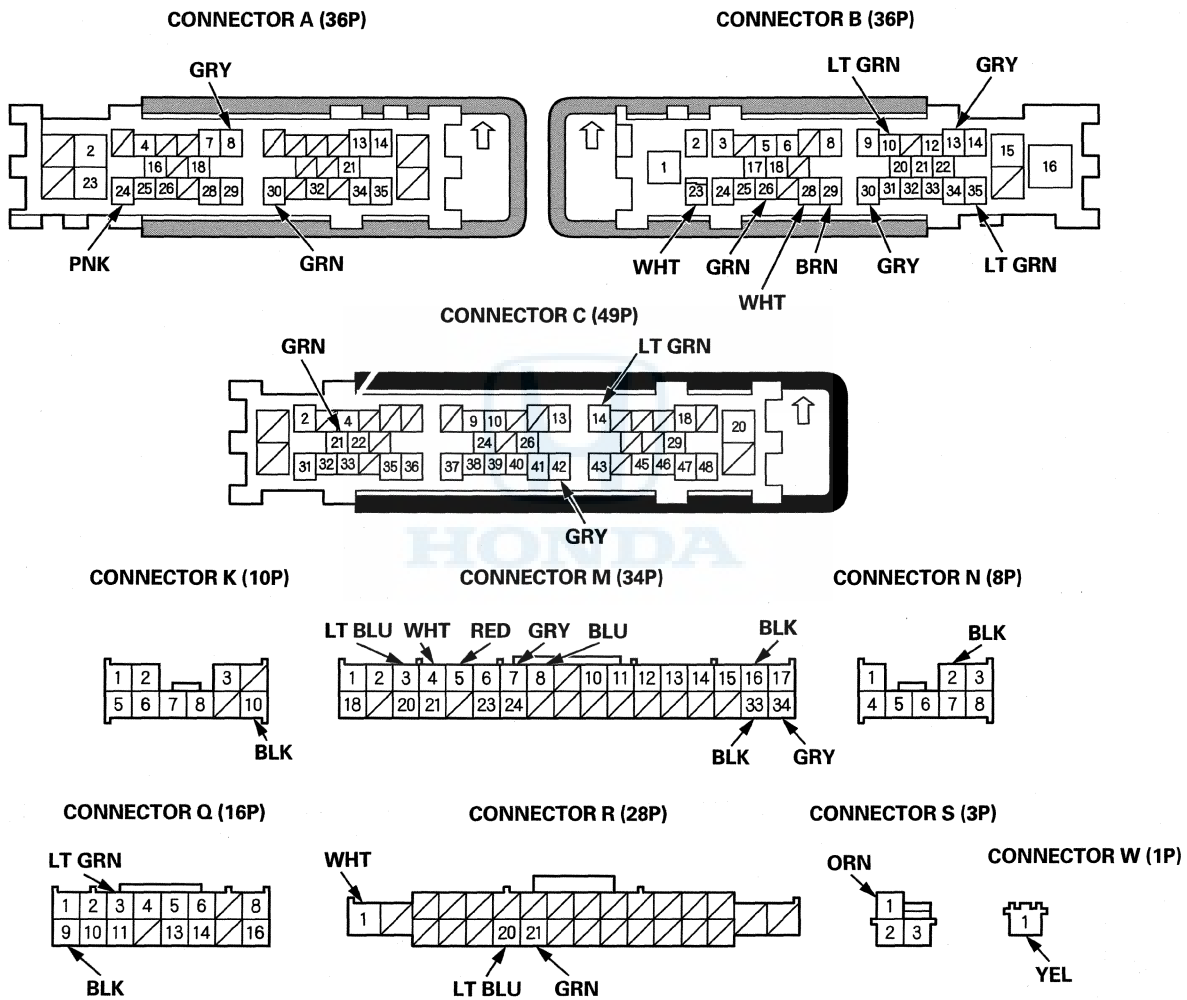
Exterior Lights

MICU Input Test

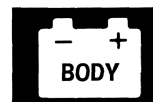
NOTE: Before performing the input tests, check the No. 1, No. 5, No. 15, No. 22, No. 24, No. 28, No. 29, No. 32, No. 34, No. 48, and No. 51 fuses in the under-dash fuse/relay box.

1. Turn the ignition switch to LOCK (0).
2. Remove the fuse access panel (see page 20-97).
3. Disconnect under-dash fuse/relay box connectors A, B, C, K, M, N, Q, R, S, and W.

NOTE: All connector views are wire side of female terminals.



4. Inspect the connector and socket terminals to be sure they are all making good contact.
 - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
 - If the terminals look OK, go to step 5.



5. With the connectors still disconnected, do these input tests at the following connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 7.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
A24	PNK	Ignition switch ON (II)	Connect terminals W1 and A24 with a jumper wire: The right headlight (low beam) should come on.	<ul style="list-style-type: none"> • Blown bulb • Poor ground (G201) or an open in the ground wire • An open or high resistance in the wire
A30	GRN	Ignition switch ON (II)	Connect terminals W1 and A30 with a jumper wire: The right headlight (high beam) should come on.	<ul style="list-style-type: none"> • Blown bulb • Poor ground (G201) or an open in the ground wire • An open or high resistance in the wire
B29	BRN	Ignition switch ON (II)	Connect terminals W1 and B29 with a jumper wire: The left headlight (low beam) should come on.	<ul style="list-style-type: none"> • Blown bulb • Poor ground (G301) or an open in the ground wire • An open or high resistance in the wire
B13	GRY	Ignition switch ON (II)	Connect terminals W1 and B13 with a jumper wire: The left headlight (high beam) should come on.	<ul style="list-style-type: none"> • Blown bulb • Poor ground (G301) or an open in the ground wire • An open or high resistance in the wire
A8	GRY	Ignition switch ON (II)	Connect terminals W1 and A8 with a jumper wire: The right front parking/side marker light should come on.	<ul style="list-style-type: none"> • Blown bulb • Poor ground (G201) or an open in the ground wire • An open or high resistance in the wire
B30	GRY	Ignition switch ON (II)	Connect terminals W1 and B30 with a jumper wire: The left front parking/side marker light should come on.	<ul style="list-style-type: none"> • Blown bulb • Poor ground (G301) or an open in the ground wire • An open or high resistance in the wire
C42	GRY	Ignition switch ON (II)	Connect terminals W1 and C42 with a jumper wire: The taillights and license plate lights should come on.	<ul style="list-style-type: none"> • Blown bulb • Poor ground (G602, G604) or an open in the ground wire • An open or high resistance in the wire
C21	GRN	Ignition switch ON (II)	Connect terminals W1 and C21 with a jumper wire: The back-up lights should come on.	<ul style="list-style-type: none"> • Blown bulb • Poor ground (G602, G604) or an open in the ground wire • An open or high resistance in the wire

(cont'd)

Exterior Lights

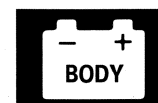
MICU Input Test (cont'd)

6. Turn the ignition switch to LOCK (0).

7. Reconnect the connectors to the under-dash fuse/relay box, and do these input tests at the following connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the MICU must be faulty; replace the under-dash fuse/relay box (see page 22-65).

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
N2	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
K10	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) • An open or high resistance in the wire
M16	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
Q9	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) • An open or high resistance in the wire
M8 M33	BLU BLK	Combination light switch OFF	Measure the voltage between terminals M8 and M33: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty combination light switch • An open or high resistance in the wire
		Combination light switch in any other position than OFF	Measure the voltage between terminals M8 and M33: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty combination light switch • A short in the wire
M7 M33	GRY BLK	Combination light switch (parking position) ON	Measure the voltage between terminals M7 and M33: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty combination light switch • An open or high resistance in the wire
		Combination light switch OFF	Measure the voltage between terminals M7 and M33: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty combination light switch • A short in the wire
M5 M33	RED BLK	Combination light switch (headlight) ON	Measure the voltage between terminals M5 and M33: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty combination light switch • An open or high resistance in the wire
		Combination light switch OFF	Measure the voltage between terminals M5 and M33: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty combination light switch • A short in the wire

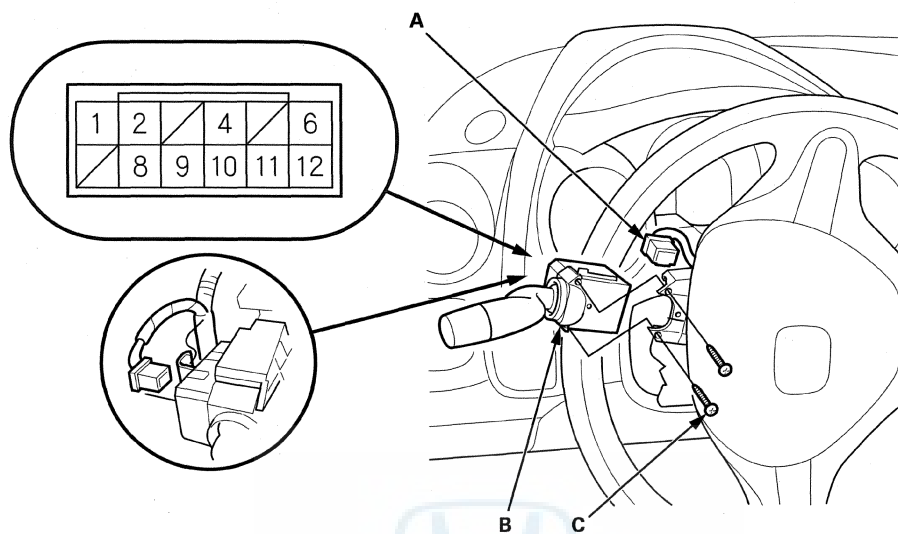


Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
M4 · M33	WHT · BLK	Combination light switch lever pulled (Passing)	Measure the voltage between terminals M4 and M33: There should be less than 0.2 V.	<ul style="list-style-type: none"> Faulty combination light switch An open or high resistance in the wire
		Combination light switch lever released (OFF)	Measure the voltage between terminals M4 and M33: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty combination light switch A short in the wire
M3 · M33	LT BLU · BLK	Combination light switch (Dimmer) in high beam position	Measure the voltage between terminals M3 and M33: There should be less than 0.2 V.	<ul style="list-style-type: none"> Faulty combination light switch An open or high resistance in the wire
		Combination light switch (Dimmer) in low beam position	Measure the voltage between terminals M3 and M33: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty combination light switch A short in the wire
C21	GRN	Ignition switch ON (II) and shift lever in R position	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> Faulty back-up light switch (M/T) Faulty MICU Blown No. 5 (10 A) fuse in the under-dash fuse/relay box An open or high resistance in the wire
B26 (A/T)	GRN	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> Faulty MICU Blown No. 60 (50 A) fuse in the under-dash fuse/relay box Blown No. 5 (10 A) fuse in the under-dash fuse/relay box An open or high resistance in the wire
R21 · M33	GRN · BLK	Fog light switch ON	Measure the voltage between terminals R21 and M33: There should be less than 0.2 V.	<ul style="list-style-type: none"> Faulty combination light switch An open or high resistance in the wire
		Fog light switch OFF	Measure the voltage between terminals R21 and M33: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty combination light switch A short in the wire
R20	LT BLU	Under all condition	Connect the terminal R20 and body ground: The fog lights should come on.	<ul style="list-style-type: none"> Faulty fog light relay Blown No. 9 (20 A) fuse in the under-dash fuse/relay box Blown bulb An open or high resistance in the wire

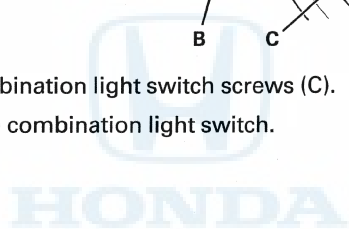
Exterior Lights

Combination Light Switch Test/Replacement

1. Remove the steering column covers (see page 20-105).
2. Disconnect the 12P connector (A) from the combination light switch (B).



3. Turn the steering wheel to access the combination light switch screws (C).
4. Remove the two screws, then slide out the combination light switch.





5. Inspect the connector terminals to be sure they are all making good contact.

- If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
- If the terminals look OK, check for continuity between the terminals in each switch position according to the tables.

Light switch

Terminal		4	9	10	6	12	11
Position							
Headlight switch	OFF		○			○	
	⏻					○	○
	LOW			○		○	○
	⦿ HIGH	○		○		○	○
Passing switch	OFF					○	
	ON				○	○	

Turn signal switch

Terminal	1	2	12
Position			
LEFT		○	○
Neutral			
RIGHT	○		○

Fog light switch

Terminal	8	12
Position		
OFF		
ON	○	○

6. If all the continuity is not as specified, remove the two screws and replace the switch.

7. Install the parts in the reverse order of removal.

Exterior Lights

Headlight Adjustment

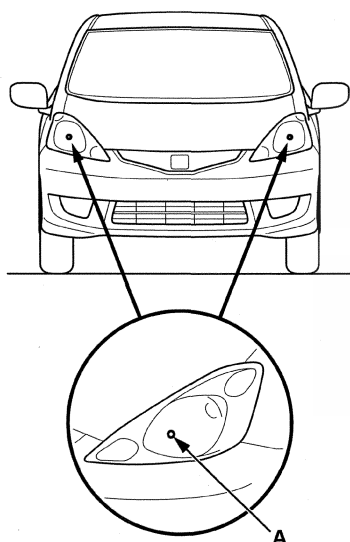
⚠ CAUTION

Headlights become very hot during use; do not touch them or any attaching hardware immediately after they have been turned off.

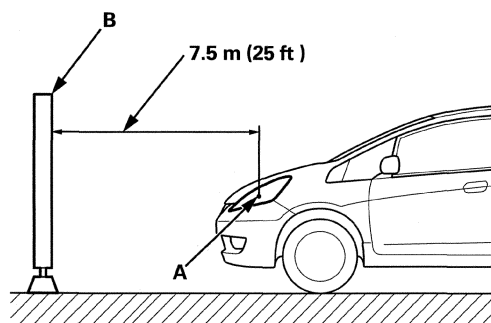
Before adjusting the headlights:

- Park the vehicle on a level surface.
- Make sure the tire pressures are correct.
- The driver or someone who weighs the same should sit in the driver's seat (or an equivalent amount of weight).

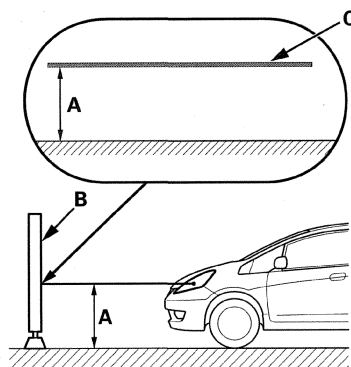
1. Clean the outer lens so that you can see the center mark (A) of the headlights.



2. Park the vehicle so that the center mark of the headlight (A) is 7.5 m (25 ft) away from a wall or screen (B).

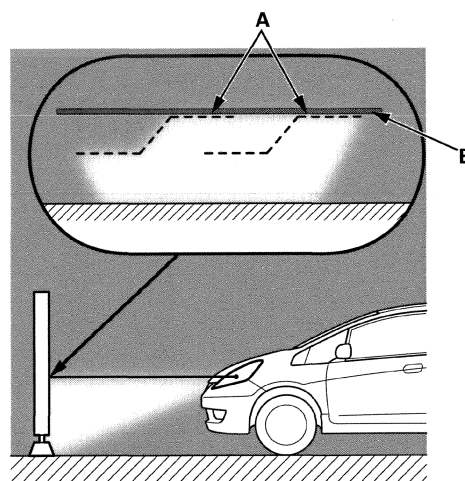


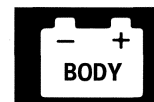
3. Measure the height of the headlight's center mark (A), then on the wall or screen (B), mark the same height of the headlights with masking tape in a straight horizontal line (C).



4. Turn on the low beam headlights.
5. To see if the headlights are adjusted properly, observe the beams of light projected on the wall or screen. The highest edge or "cut line" (A) of the headlights should be equal with the masking tape (B).

NOTE: To help determine which headlight is out of adjustment, block one of the beams with a large piece of cardboard or equivalent, and observe the other beam on the wall or screen. Repeat this for the other headlight.

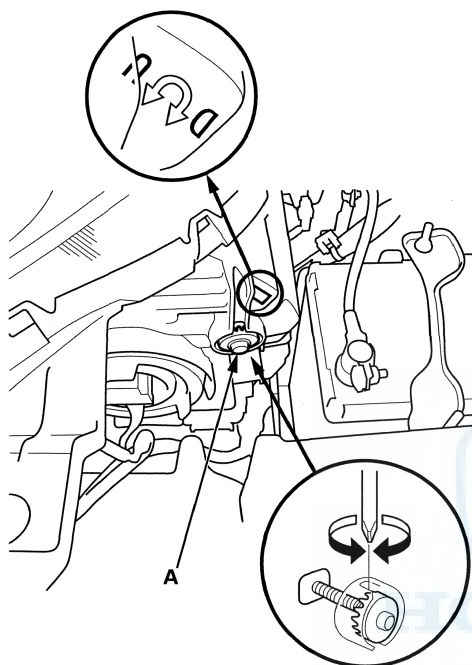




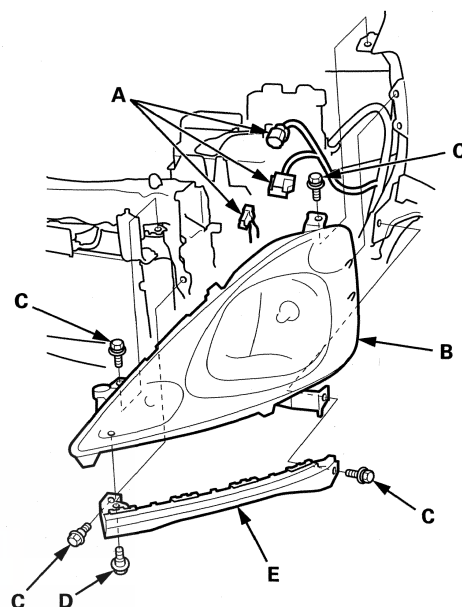
Headlight Replacement

6. If necessary, open the hood and adjust the headlights by turning the vertical adjuster (A).

NOTE: The R and L adjusters are not applicable for U. S. models. The headlights can only be adjusted up and down.



1. Remove the front bumper (see page 20-144).
2. Disconnect the connectors (A) from the headlight (B).



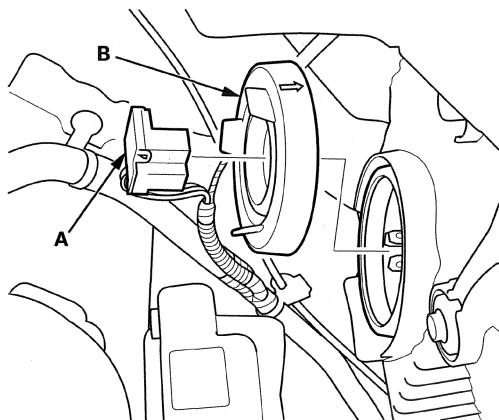
3. Remove the four mounting bolts (C) from the headlight.
4. Remove the bolt (D) and the front bumper upper beam (E).
5. Install the parts in the reverse order of removal.
6. After replacement, adjust the headlights (see page 22-200).

Exterior Lights

Bulb Replacement

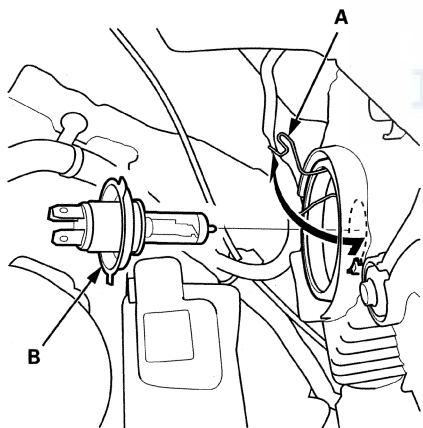
Headlight

1. Disconnect the 3P connector (A), then remove the rubber cap (B) from the headlight.



2. Pull the retaining spring (A) away from the bulb (B), then remove the bulb.

Headlight: 55/60 W

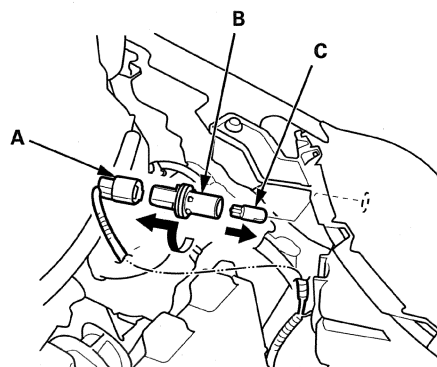


3. Install a new bulb in the reverse order of removal.

Front Parking/Side marker Light

1. Disconnect the 2P connector (A) from the front parking/side marker light.

Front Parking/Side marker Light: 5 W



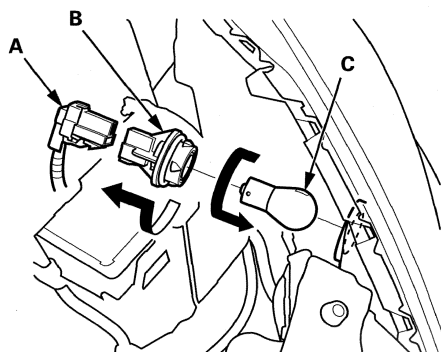
2. Turn the bulb socket (B) 45 ° counterclockwise to remove the bulb (C) from the headlight housing.
3. Install a new bulb in the reverse order of removal.



Front Turn Signal Light

1. Disconnect the 2P connector (A) from the front turn signal light.

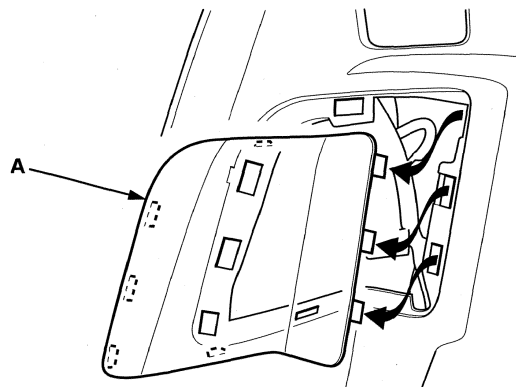
Front Turn Signal Light: 21 W



2. Turn the bulb socket (B) 45 ° counterclockwise to remove the bulb (C) from the headlight housing.
3. Install a new bulb in the reverse order of removal.

Taillights

1. Open the tailgate and remove the maintenance lid (A).

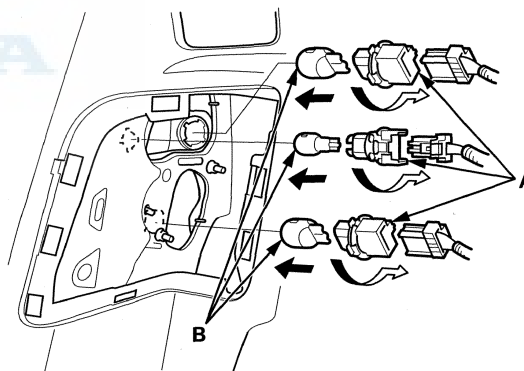


2. Disconnect the connectors from the lights.
3. Turn the bulb socket (A) 45 ° counterclockwise to remove the bulb (B).

Brake Light/Taillight: 21/5 W

Rear Turn Signal Light: 21 W

Back-up Light: 16 W



4. Install new bulb(s) in the reverse order of removal, and tighten the nuts to 5 N·m (0.5 kgf·m, 4 lbf·ft).

(cont'd)

Exterior Lights

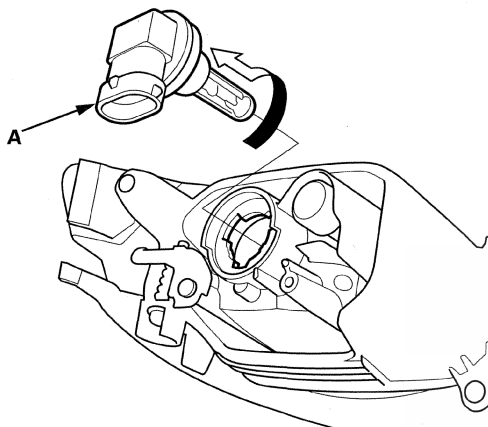
Bulb Replacement (cont'd)

Fog Light

1. Remove the fog light from the front bumper (see page 22-204).
2. Turn the bulb socket (A) 45 ° counterclockwise to remove it from the housing.

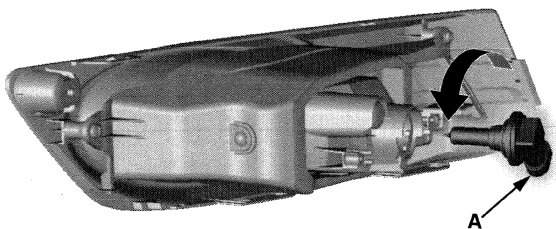
Fog Light: 55 W

'09-11 models



The illustration shows the left side.

'12 model



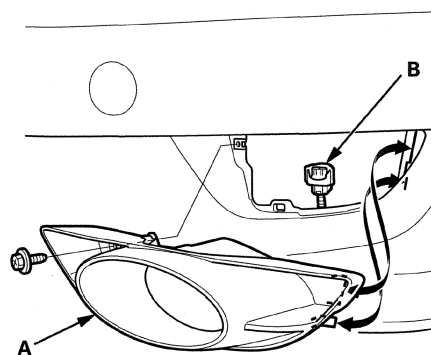
The illustration shows the right side.

3. Install a new bulb in the reverse order of removal.

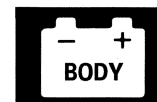
Fog Light Replacement

'09-11 models

1. Remove the mounting screw, then pull out the fog light (A) from the front bumper.



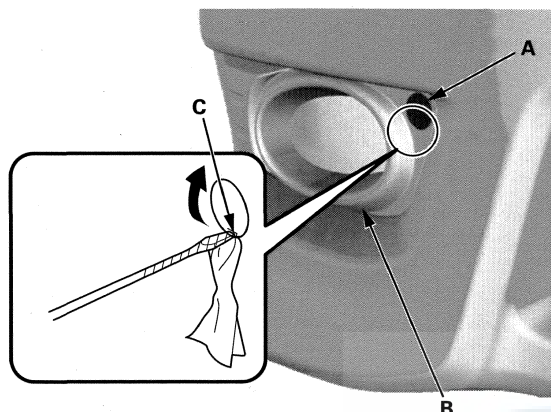
2. Disconnect the 2P connector (B), then remove the fog light.
3. Install the light in the reverse order of removal.
4. After replacement, adjust the fog lights (see page 22-205).



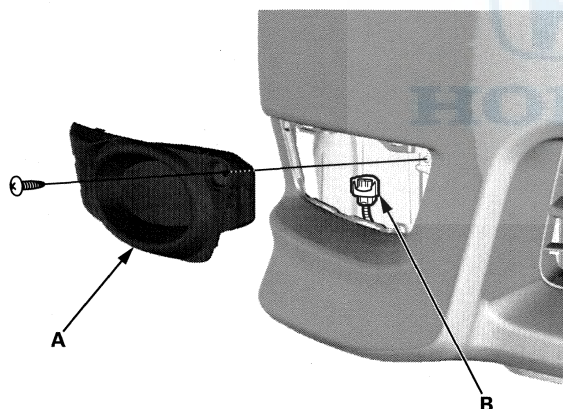
Fog Light Adjustment

'12 model

1. Put a shop towel in the opening between the lower edge of the cap (A) and the fog light (B) to prevent scratches. Insert a flat-tip screwdriver wrapped with protective tape into the slot (C), and remove the cap.



2. Remove the mounting screw, then pull out the fog light (A) from the front bumper.



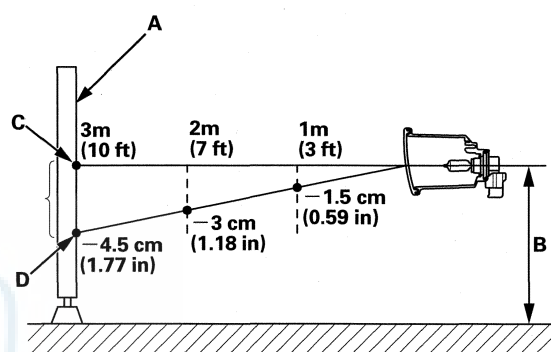
3. Disconnect the 2P connector (B), then remove the fog light.
4. Install the light in the reverse order of removal.
5. After replacement, adjust the fog lights (see page 22-205).

Before adjusting the fog lights:

- Park the vehicle on a level surface.
- Make sure the tire pressures are correct.
- The driver or someone who weighs the same should sit in the driver's seat.
- Unload the vehicle.

The fog lights should aim down slightly. To check for proper adjustment:

1. Park the vehicle in front of a wall (A).



2. Turn the fog lights on.
3. Determine if the fog lights are aimed properly:
 - Measure the height of the fog lights (B).
 - On the wall, mark the height of the fog lights with a piece of tape (C).
 - Check each fog light beam's height. Adjust them both so they are approximately 4.5 cm (1.77 in) lower (D) than the height of the fog lights at a distance of 3 m (10 ft).

For example, if the vehicle is parked 3 m (10 ft) from the screen, the top of the fog light beam should be 4.5 cm (1.77 in) below the tape mark.

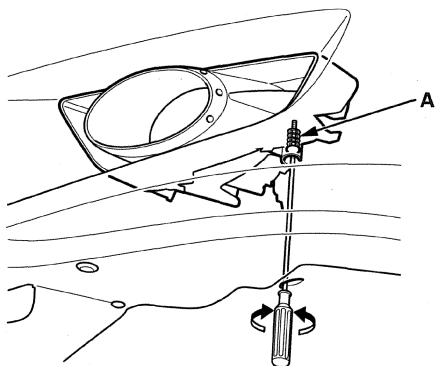
(cont'd)

Exterior Lights

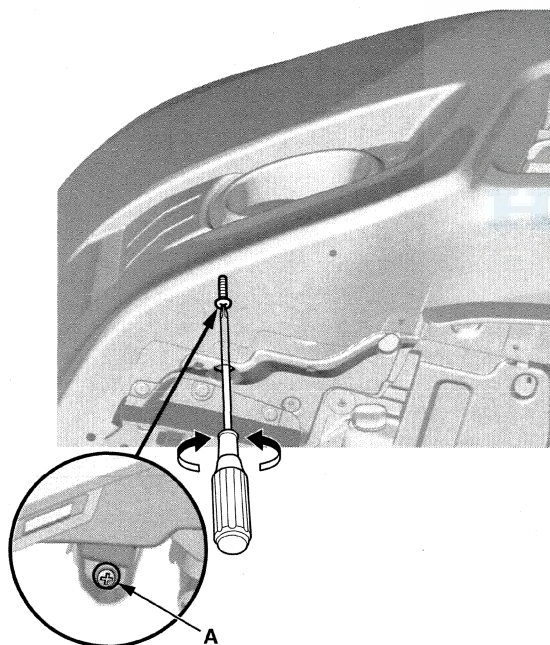
Fog Light Adjustment (cont'd)

4. Adjust each fog light by turning the adjuster (A).

'09-11 models



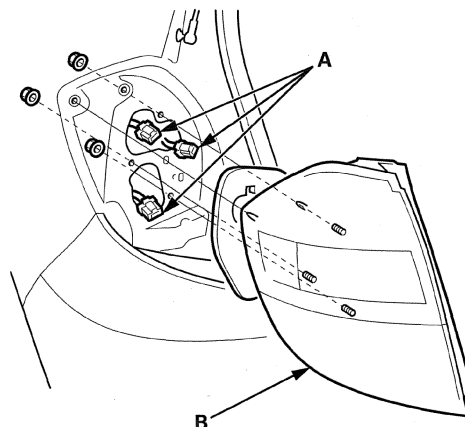
'12 model



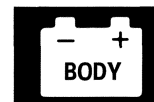
NOTE: Adjust the fog lights to illuminate lower than the specified value of height.

Taillight Replacement

1. Open the tailgate and remove the maintenance lid.
2. Disconnect the connectors (A) from the taillights (B).



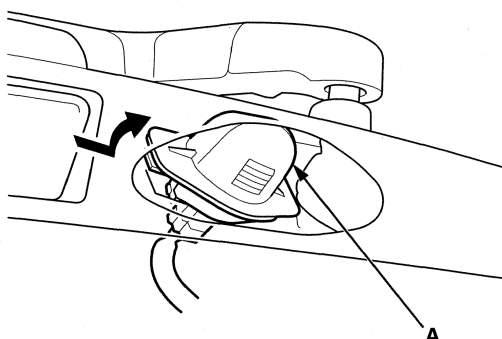
3. Remove the mounting nuts from the taillight.
4. Install the taillight in the reverse order of removal.



License Plate Light Replacement

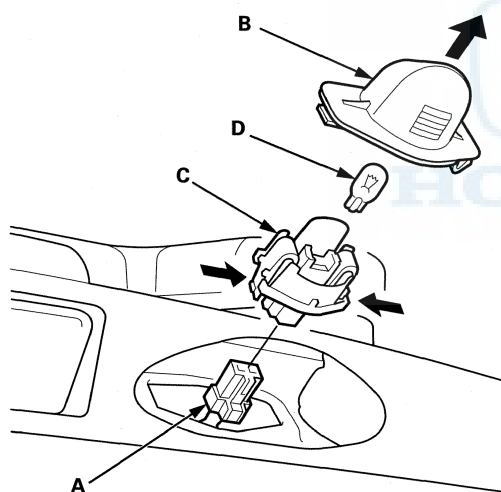
1. Push the license plate light (A) to the side to release the retaining spring, and pull out the license plate light.

NOTE: Be careful not to damage the tailgate.



2. Disconnect the 2P connector (A) from the light.

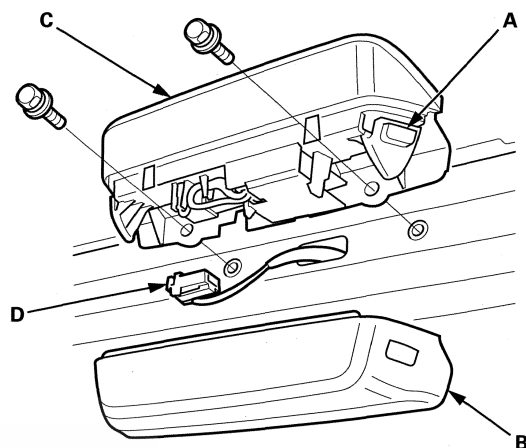
License Plate Light: 5 W



3. Separate the license plate light lens (B) and the housing (C), then remove the bulb (D).
4. Install the license plate light in the reverse order of removal.

High Mount Brake Light Replacement

1. Open the tailgate.
2. Push in the clips (A), and remove the cover (B) from the high mount brake light (C).

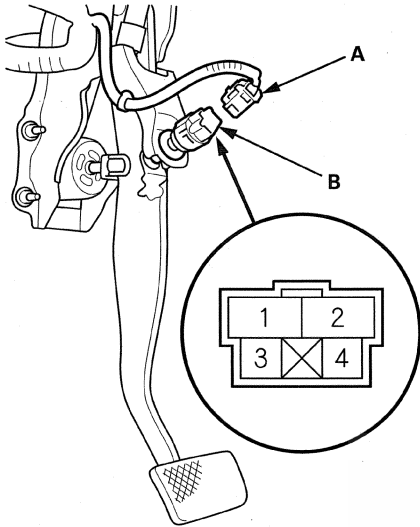


3. Disconnect the 2P connector (D).
4. Remove the two mounting bolts and the high mount brake light.
5. Install the high mount brake light in the reverse order of removal.

Exterior Lights

Brake Pedal Position Switch Test

1. Disconnect the 4P connector (A) from the brake pedal position switch (B).

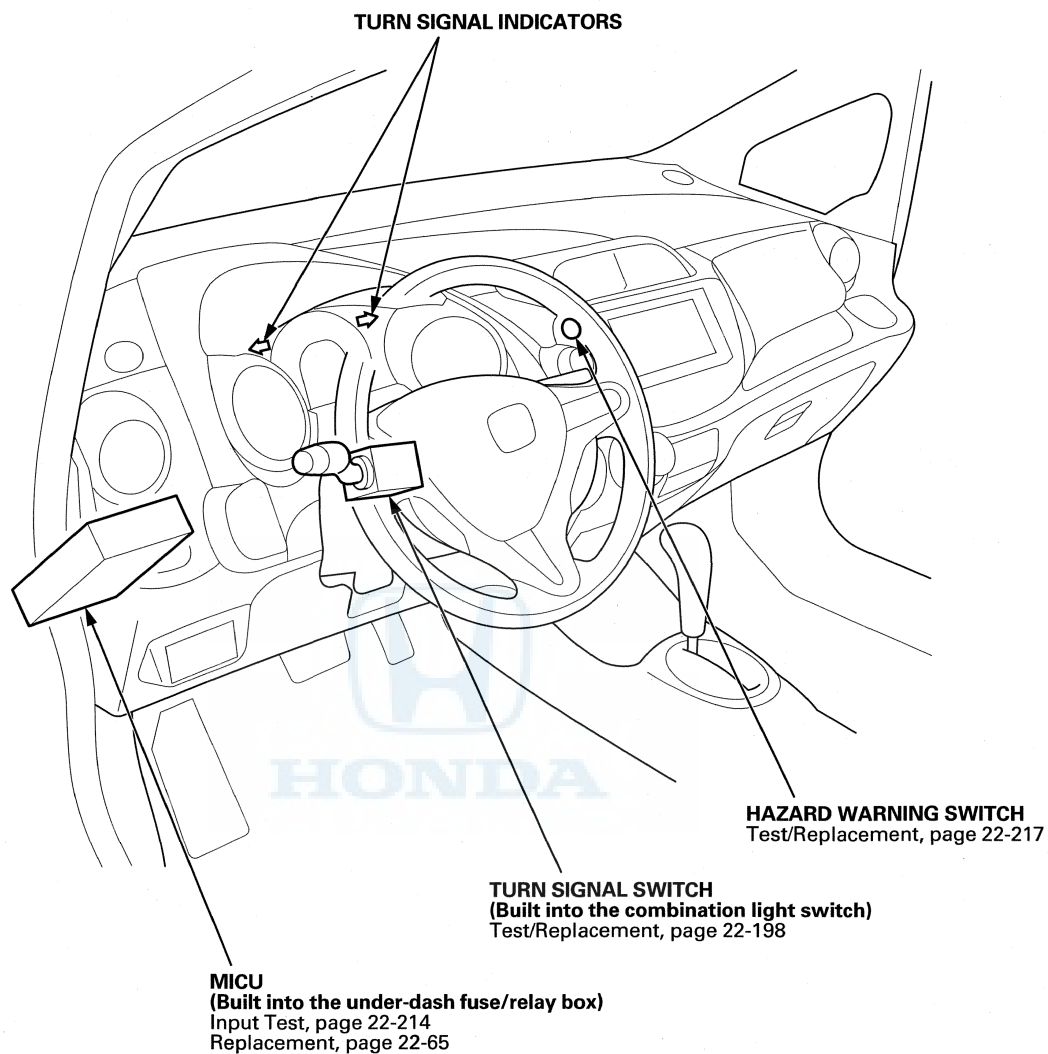


2. Check for continuity between terminals No. 1 and No. 2.
 - There should be continuity when the brake pedal is pressed.
 - There should be no continuity when the brake pedal is released.
3. Check for continuity between terminals No. 3 and No. 4.
 - There should be no continuity when the brake pedal is pressed.
 - There should be continuity when the brake pedal is released.
4. If the test results are not as specified, adjust the switch or adjust the pedal height (see page 19-6). If the results are still not as specified, replace the switch.

Turn Signal/Hazard Warning Lights

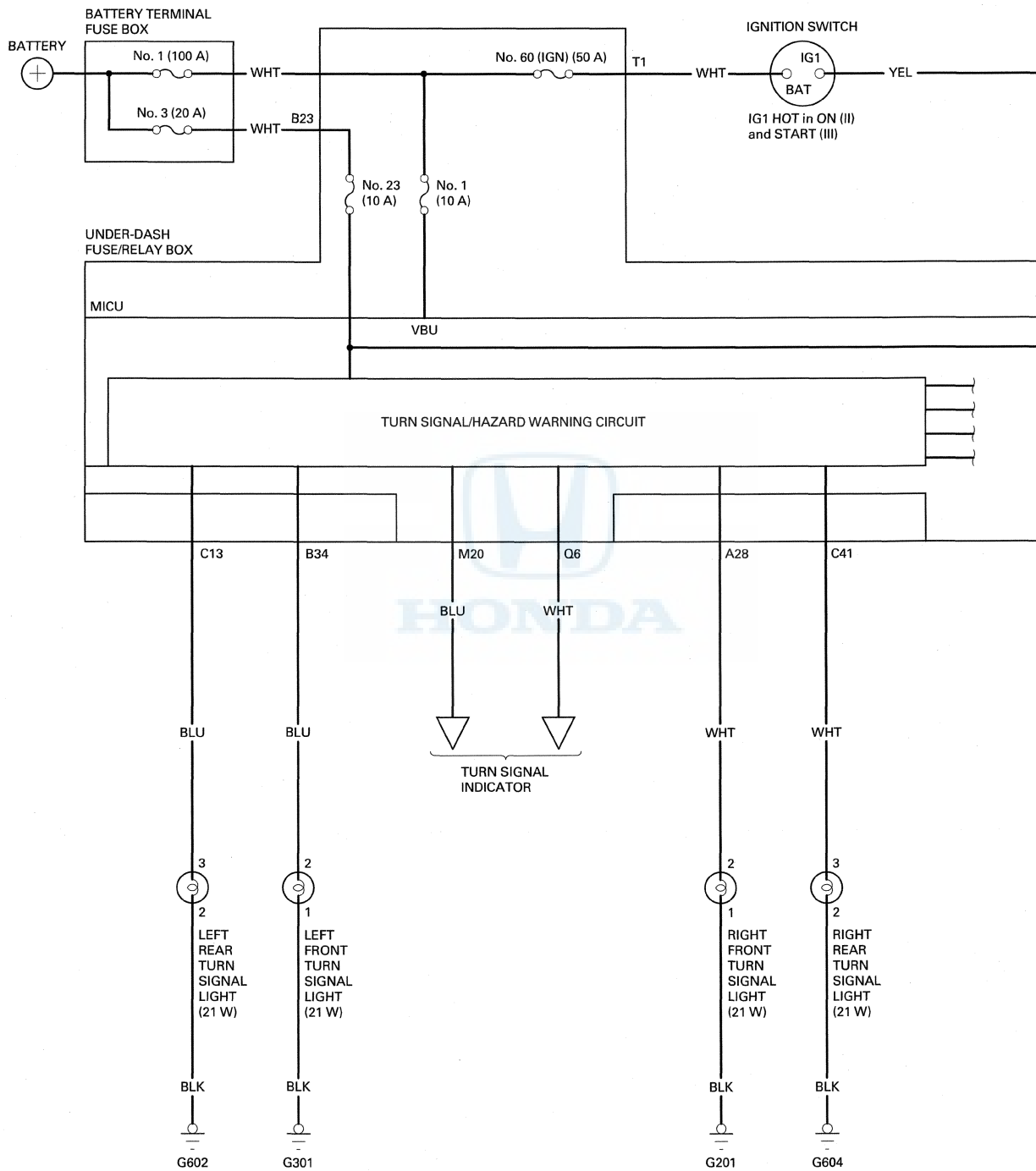


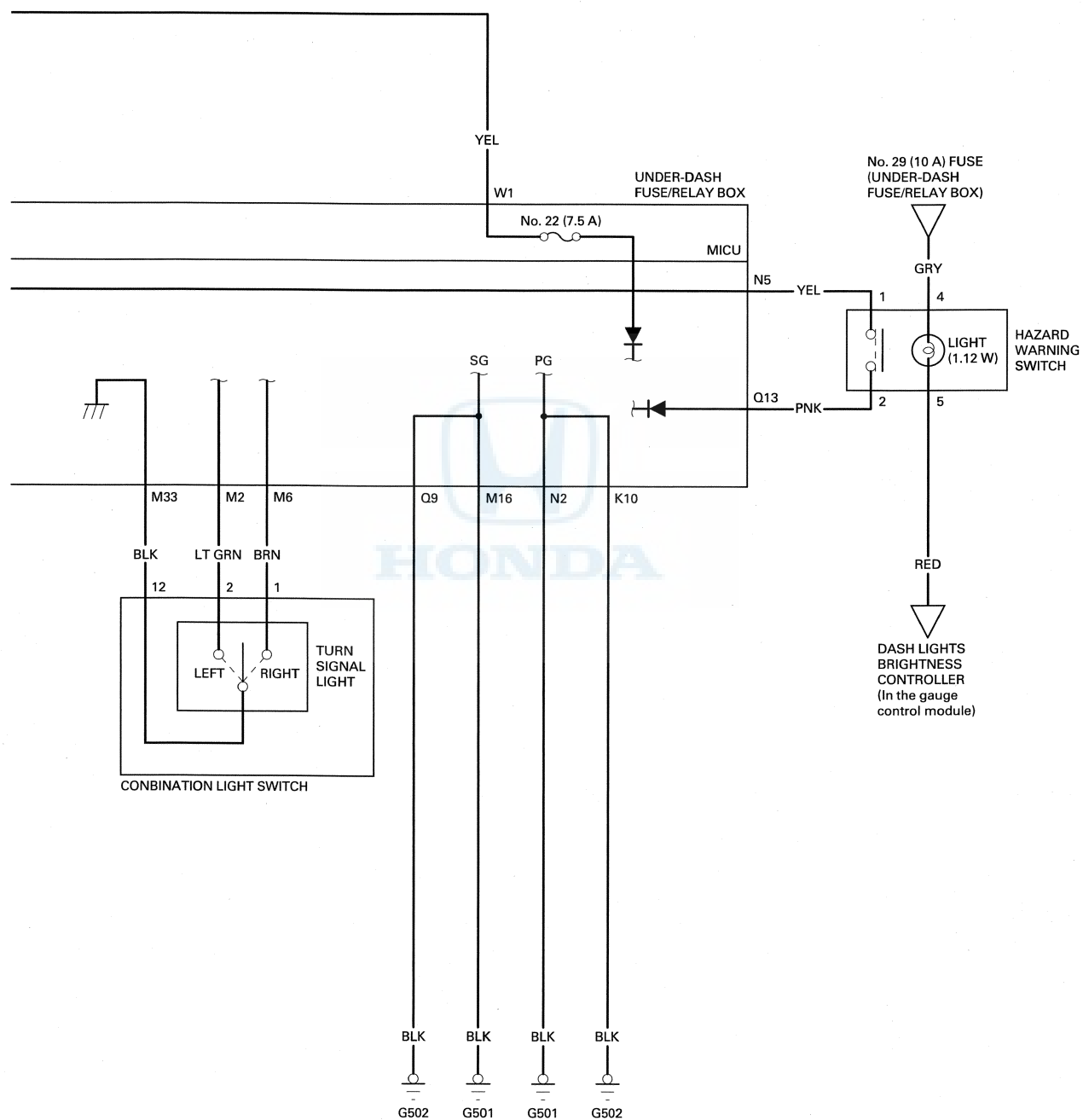
Component Location Index



Turn Signal/Hazard Warning Lights

Circuit Diagram





Turn Signal/Hazard Warning Lights

DTC Troubleshooting

DTC B1280: Turn Signal Switch Circuit Malfunction

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Operate the turn signal switch in left and right positions, and wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC B1280 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

5. Select LIGHTING from the BODY ELECTRICAL system select menu, then enter the DATA LIST.
6. Check each turn signal switch position value with the DATA LIST menu.

When the turn signal switch is in left position:

Data List	Value
Turn Signal Switch (LEFT)	ON
Turn Signal Switch (RIGHT)	OFF

When the turn signal switch is in right position:

Data List	Value
Turn Signal Switch (LEFT)	OFF
Turn Signal Switch (RIGHT)	ON

Are all data list values correct?

YES—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Go to step 7.

7. Disconnect the combination light switch 12P connector.
8. Check each turn signal switch position value with the DATA LIST menu.

When the turn signal switch is in neutral position:

Data List	Value
Turn Signal Switch (LEFT)	OFF
Turn Signal Switch (RIGHT)	OFF

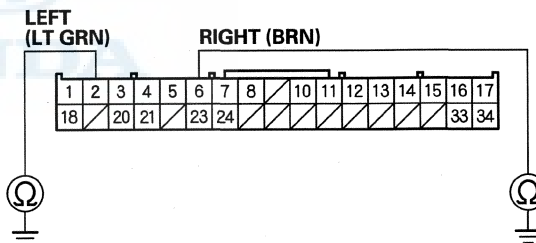
Are both values now showing OFF?

YES—Replace the combination light switch (see page 22-198).

NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).
10. Disconnect under-dash fuse/relay box connector M (34P).
11. Check for continuity between body ground and under-dash fuse/relay box connector M (34P) terminals No. 2 and No. 6 individually.

UNDER-DASH FUSE/RELAY BOX CONNECTOR M (34P)



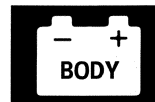
Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wires. ■

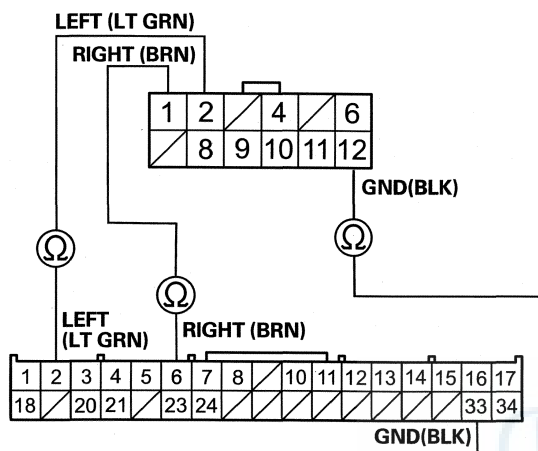
NO—Go to step 12.

12. Turn the ignition switch to LOCK (0).
 13. Do the combination light switch test (see page 22-198).
- Is the combination light switch OK?*
- YES**—Go to step 14.
- NO**—Replace the combination light switch. (see page 22-198)
14. Disconnect under-dash fuse/relay box connector M (34P).



15. Check for continuity between under-dash fuse/relay box connector M (34P) terminals No. 2, No. 6 and No. 33 and combination light switch 12P connector terminals No. 2, No. 1, and No. 12.

COMBINATION LIGHT SWITCH 12P CONNECTOR
Wire side of female terminals



UNDER-DASH FUSE/RELAY BOX CONNECTOR M (34P)
Wire side of female terminals

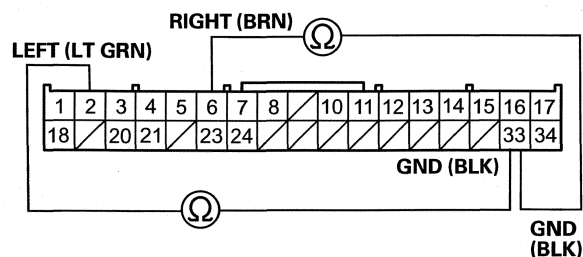
Is there continuity?

YES—Go to step 16.

NO—Repair an open in the wire.

16. Check for continuity between under-dash fuse/relay box connector M (34P) terminals No. 2 and No. 33, and between connector (34P) terminals No. 6 and No. 33 individually.

UNDER-DASH FUSE/RELAY BOX CONNECTOR M (34P)



Wire side of female terminals

Is there continuity?

YES—Repair a short in the wires.

NO—Faulty MICU; replace the under-dash fuse/relay box.

- USA models (see page 22-65)
- Canada models (see page 22-66)

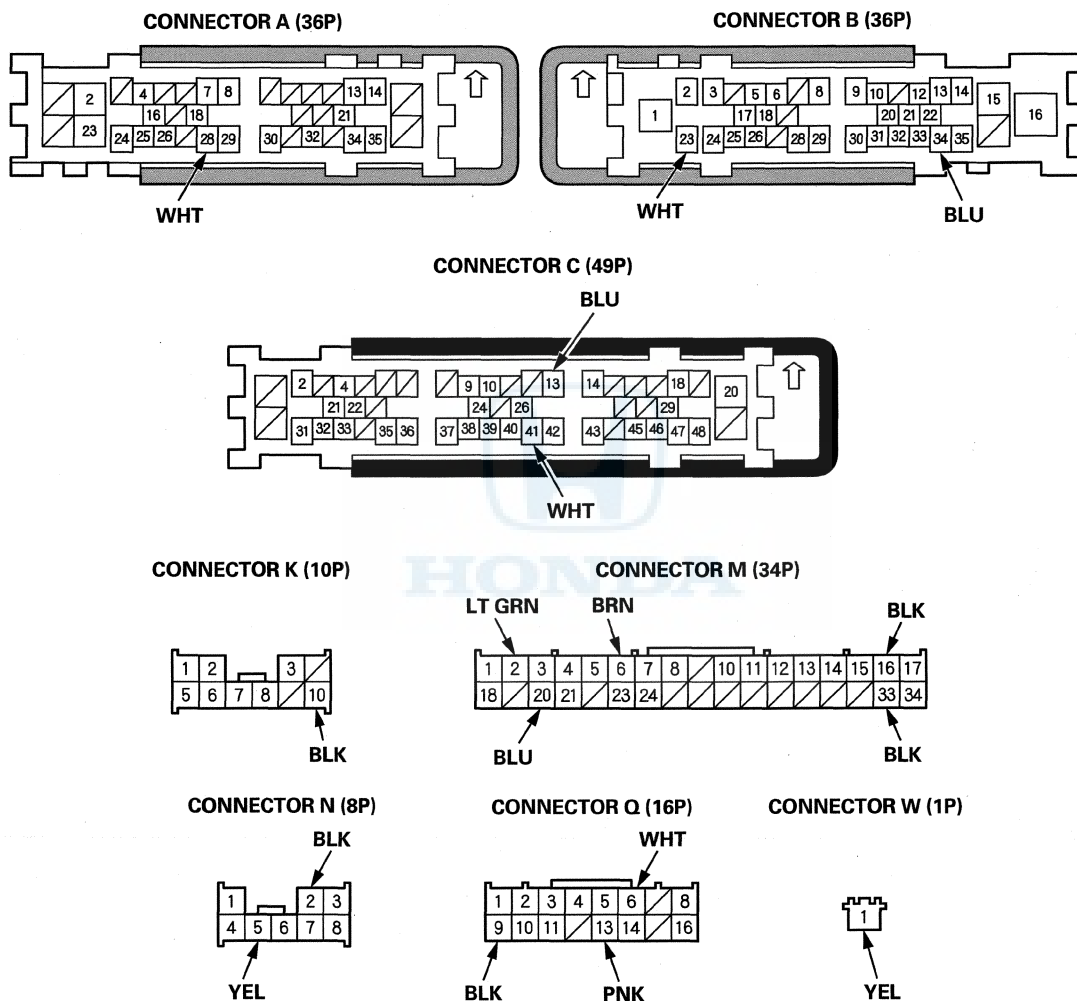
Turn Signal/Hazard Warning Lights

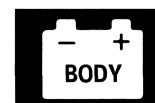
MICU Input Test

NOTE: Before testing, check the No. 1 (10 A), No. 22 (7.5 A), and No. 23 (10 A) fuse in the under-dash fuse/relay box.

1. Turn the ignition switch to LOCK (0).
2. Remove the fuse access panel (see page 20-97).
3. Disconnect the under-dash fuse/relay box connectors A, B, C, K, M, N, Q, and W.

NOTE: All connector views are wire side of female terminals.





4. With the connectors still disconnected, do these input tests at the following connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
B23	WHT	Under all conditions	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 3 (20 A) fuse in the battery terminal box • An open or high resistance in the wire
W1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 60 (50 A) fuse in the under-dash fuse/relay box • An open or high resistance in the wire • Faulty ignition switch
B34	BLU	Under all conditions	Connect terminals B23 and B34 with a jumper wire: The left front turn signal light should come on.	<ul style="list-style-type: none"> • Poor ground (G301) or an open in the ground wire • Blown bulb • An open or high resistance in the wire
C13	BLU	Under all conditions	Connect terminals B23 and C13 with a jumper wire: The left rear turn signal light should come on.	<ul style="list-style-type: none"> • Poor ground (G602) or an open in the ground wire • Blown bulb • An open or high resistance in the wire
A28	WHT	Under all conditions	Connect terminals B23 and A28 with a jumper wire: The right front turn signal light should come on.	<ul style="list-style-type: none"> • Poor ground (G201) or an open in the ground wire • Blown bulb • An open or high resistance in the wire
C41	WHT	Under all conditions	Connect terminals B23 and C41 with a jumper wire: The right rear turn signal light should come on.	<ul style="list-style-type: none"> • Poor ground (G604) or an open in the ground wire • Blown bulb • An open or high resistance in the wire
M20	BLU	Under all conditions	Connect terminals B23 and M20 with a jumper wire: The left turn signal indicator should come on.	<ul style="list-style-type: none"> • Faulty gauge control module • An open or high resistance in the wire • Poor ground (G501) or an open in the ground wire
Q6	WHT	Under all conditions	Connect terminals B23 and Q6 with a jumper wire: The right turn signal indicator should come on.	<ul style="list-style-type: none"> • Faulty gauge control module • An open or high resistance in the wire • Poor ground (G501) or an open in the ground wire

(cont'd)

Turn Signal/Hazard Warning Lights

MICU Input Test (cont'd)

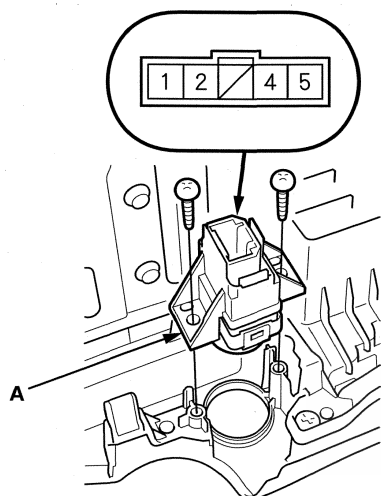
5. Reconnect the connectors to the driver's under-dash fuse/relay box, and do these input tests at the following connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the MICU must be faulty; replace the under-dash fuse/relay box (see page 22-65).

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
K10	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) • An open or high resistance in the wire
N2	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
M16	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
Q9	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) • An open or high resistance in the wire
N5	YEL	Under all conditions	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Faulty under-dash fuse/relay box • A short to ground in the wire
Q13	PNK	Hazard warning switch pressed	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Faulty hazard warning switch • An open or high resistance in the wire
M2 M33	LT GRN	Ignition switch ON (II), turn signal switch in left position	Measure the voltage between terminals M2 and M33: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty combination light switch • An open or high resistance in the wire
	BLK	Ignition switch ON (II), turn signal switch in right or neutral position	Measure the voltage between terminals M2 and M33: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty combination light switch • A short to ground in the wire
M6 M33	BRN	Ignition switch ON (II), turn signal switch in right position	Measure the voltage between terminals M6 and M33: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty combination light switch • An open or high resistance in the wire
	BLK	Ignition switch ON (II), turn signal switch in left or neutral position	Measure the voltage between terminals M6 and M33: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty combination light switch • A short to ground in the wire

Hazard Warning Switch Test/Replacement

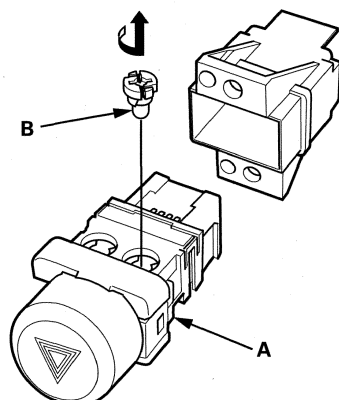
1. Remove the audio panel.
 - With navigation unit (see page 23-154)
 - Without navigation unit (see page 23-67)
2. Remove the two screws and the hazard warning switch (A).



3. Check for continuity between the terminals in each switch position according to the table.

Terminal Position	1	2	4		5
OFF			○	⊖	○
ON	○	○	○	⊖	○

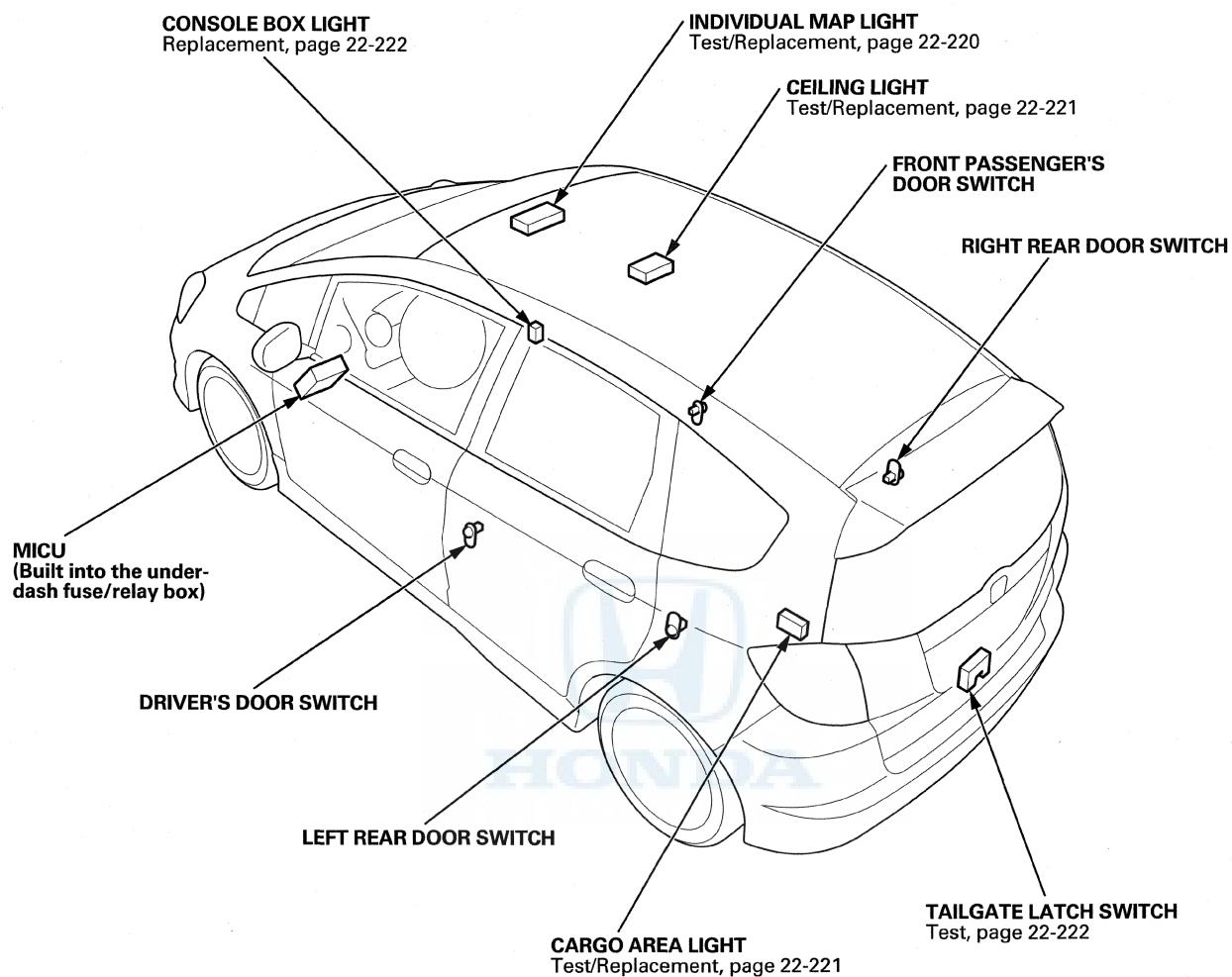
4. If the continuity is not as specified for terminals 1 and 2, replace the switch (A). If the continuity is not as specified for terminals 4 and 5, replace the bulb (B).

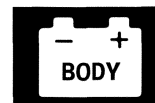


5. Install the switch in the reverse order of removal.

Interior Lights

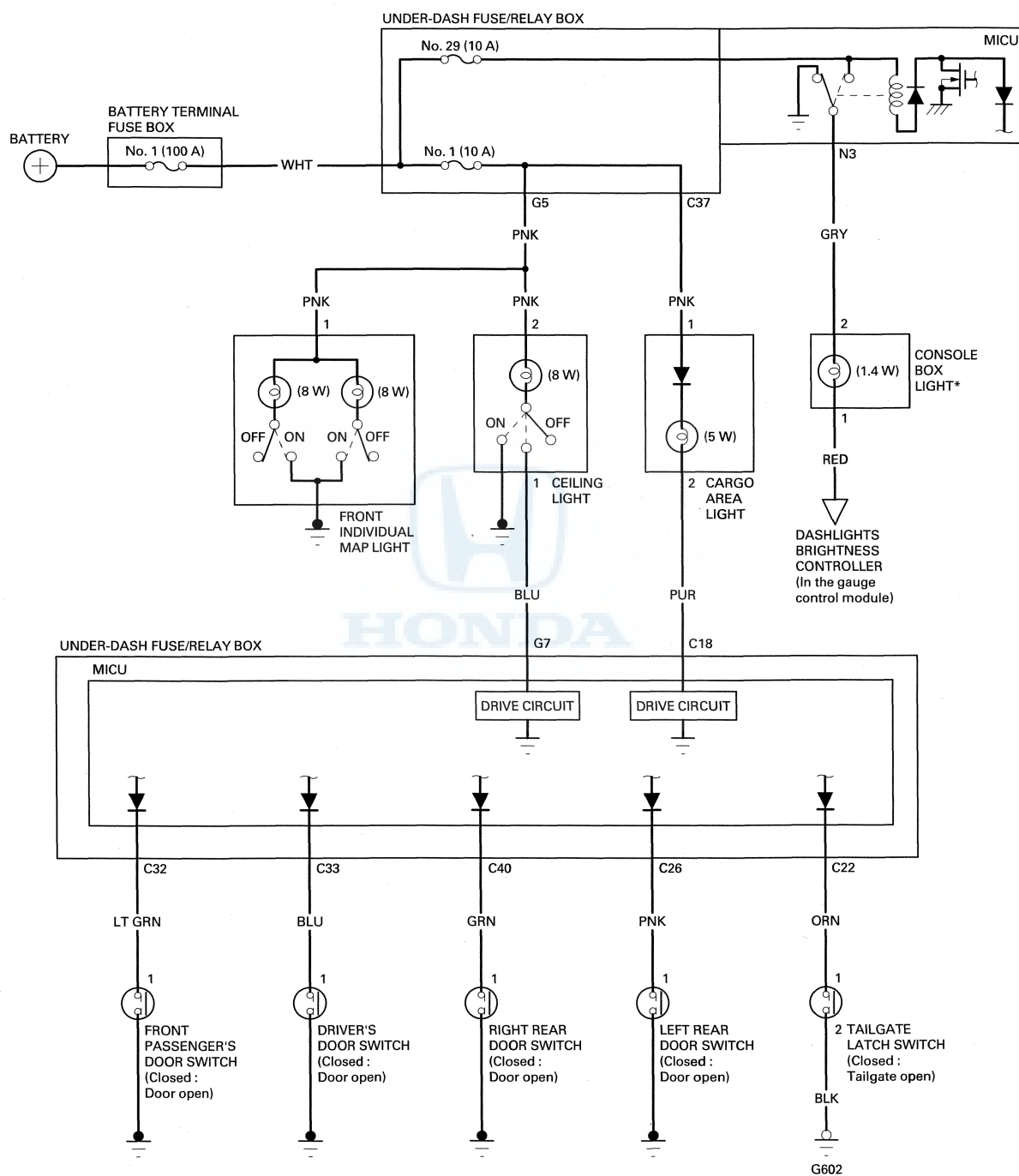
Component Location Index





Circuit Diagram

*: '12 model



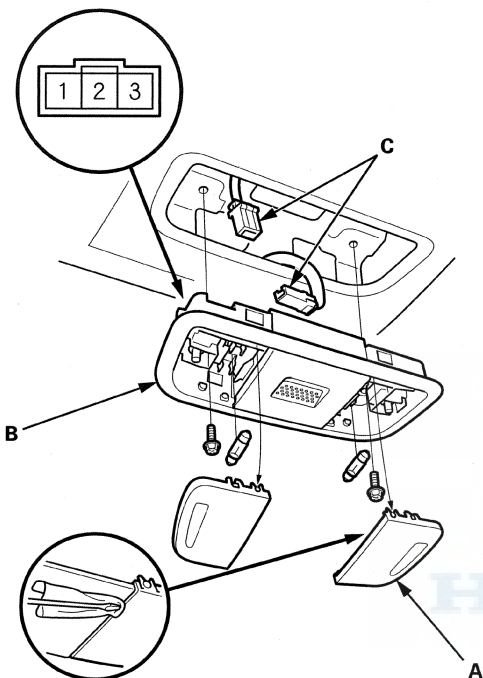
Interior Lights

Front Individual Map Light Test/Replacement

With navigation

1. Turn the individual map light switch OFF.
2. Carefully pry the lens (A) off with a small screwdriver.

Individual Map Light: 8 W x 2

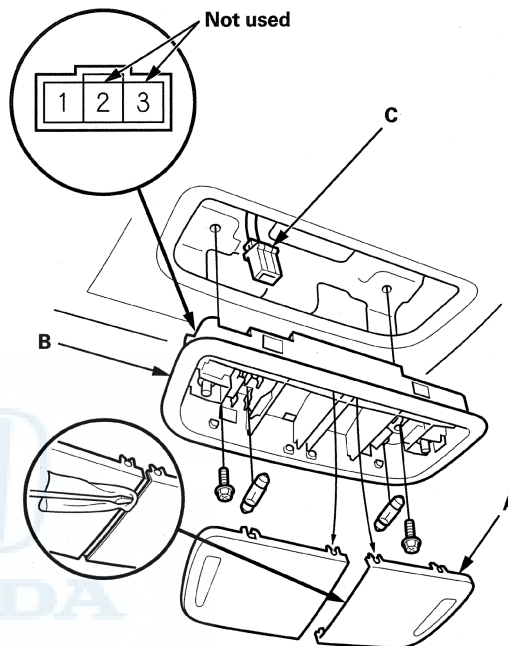


3. Remove the two screws, then remove the individual map light (B).
4. Disconnect the connectors (C) from the individual map light.
5. Check for continuity between the terminals.
 - There should be continuity between terminal No. 1 and the ground terminal with the switch in the ON position.
 - There should be no continuity between terminal No. 1 and the ground terminal with the switch in the OFF position.
6. If the continuity is not as specified, check the bulb. If the bulb is OK, replace the individual map light.
7. Install the light in the reverse order of removal.

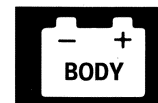
Without navigation

1. Turn the individual map light switch OFF.
2. Carefully pry the lens (A) off with a small screwdriver.

Individual Map Light: 8 W x 2



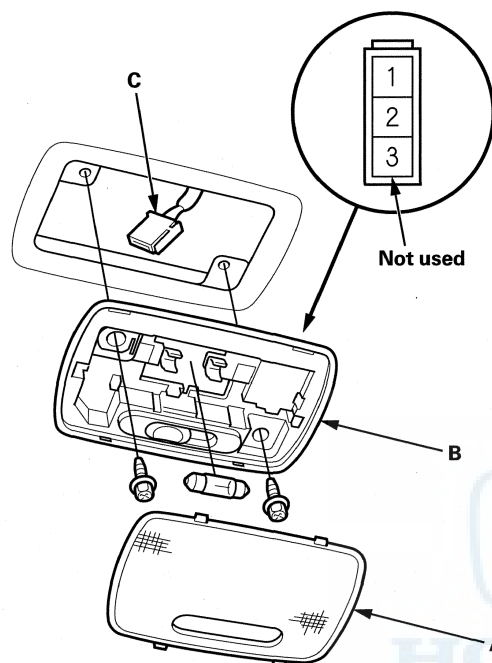
3. Remove the screws, then remove the individual map light (B).
4. Disconnect the connector (C) from the individual map light.
5. Check for continuity between the terminals.
 - There should be continuity between terminal No. 1 and the ground terminal with the switch in the ON position.
 - There should be no continuity between terminal No. 1 and the ground terminal with the switch in the OFF position.
6. If the continuity is not as specified, check the bulb. If the bulb is OK, replace the individual map light.
7. Install the light in the reverse order of removal.



Ceiling Light Test/Replacement

1. Turn the ceiling light switch OFF.
2. Carefully pry the lens (A) off with a small screwdriver.

Ceiling Light: 8 W

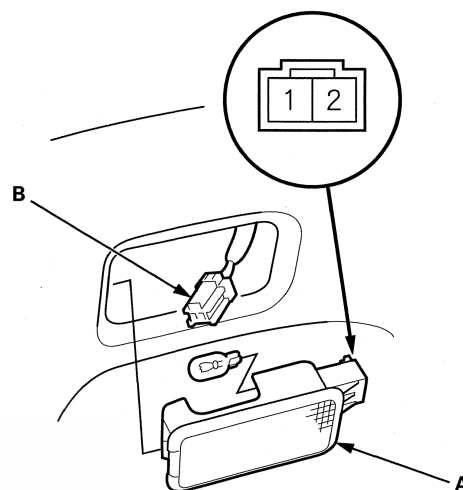


3. Remove the screws, then remove the ceiling light (B).
4. Disconnect the 3P connector (C) from the ceiling light.
5. Check for continuity between the terminals.
 - There should be continuity between terminals No. 1 and No. 2 with the switch in the MIDDLE (DOOR) position.
 - There should be continuity between terminals No. 2 and body ground with the switch in the ON position.
 - There should be no continuity between terminals No. 1 and No. 2, and between terminals No. 2 and body ground with the switch in the OFF position.
6. If the continuity is not as specified, check the bulb. If the bulb is OK, replace the ceiling light.
7. Install the light in the reverse order of removal.

Cargo Area Light Test/Replacement

1. Open the tailgate.
2. Carefully pry out the cargo area light (A).

Cargo Area Light: 5 W



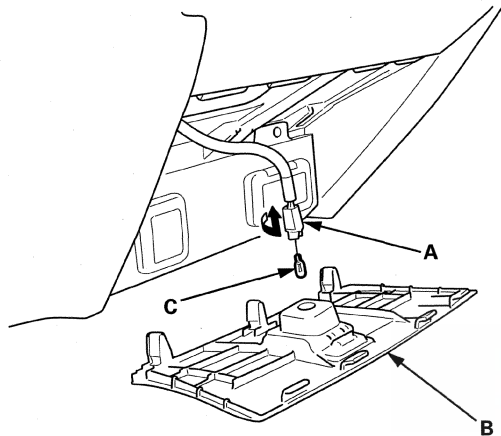
3. Disconnect the 2P connector (B) from the cargo area light.
4. Check for continuity between terminals No. 1 (+) and No. 2 (-). There should be continuity. If there is no continuity, check the bulb. If the bulb is OK, replace the cargo area light assembly.
5. Install the light in the reverse order of removal.

Interior Lights

Console Box Light Replacement

1. Remove the dashboard center lower cover (see page 20-99).
2. Twist the socket (A) to remove it from the dashboard center lower cover (B).

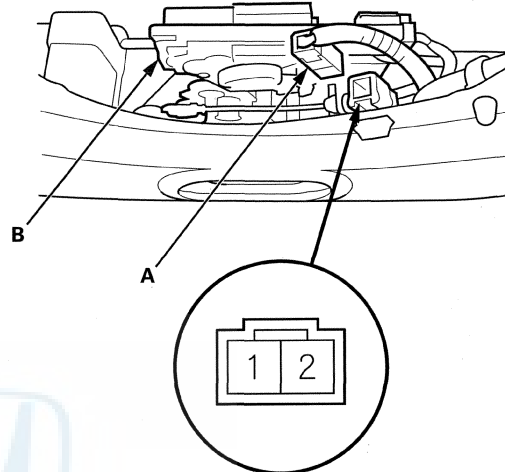
Console Box Light: 1.4 W



3. Remove the bulb (C) from the socket.
4. Install the light in the reverse order of removal.

Tailgate Latch Switch Test

1. Open the tailgate.
2. Remove the tailgate lower trim panel (see page 20-78).
3. Disconnect the 2P connector (A) from the tailgate latch assembly (B).

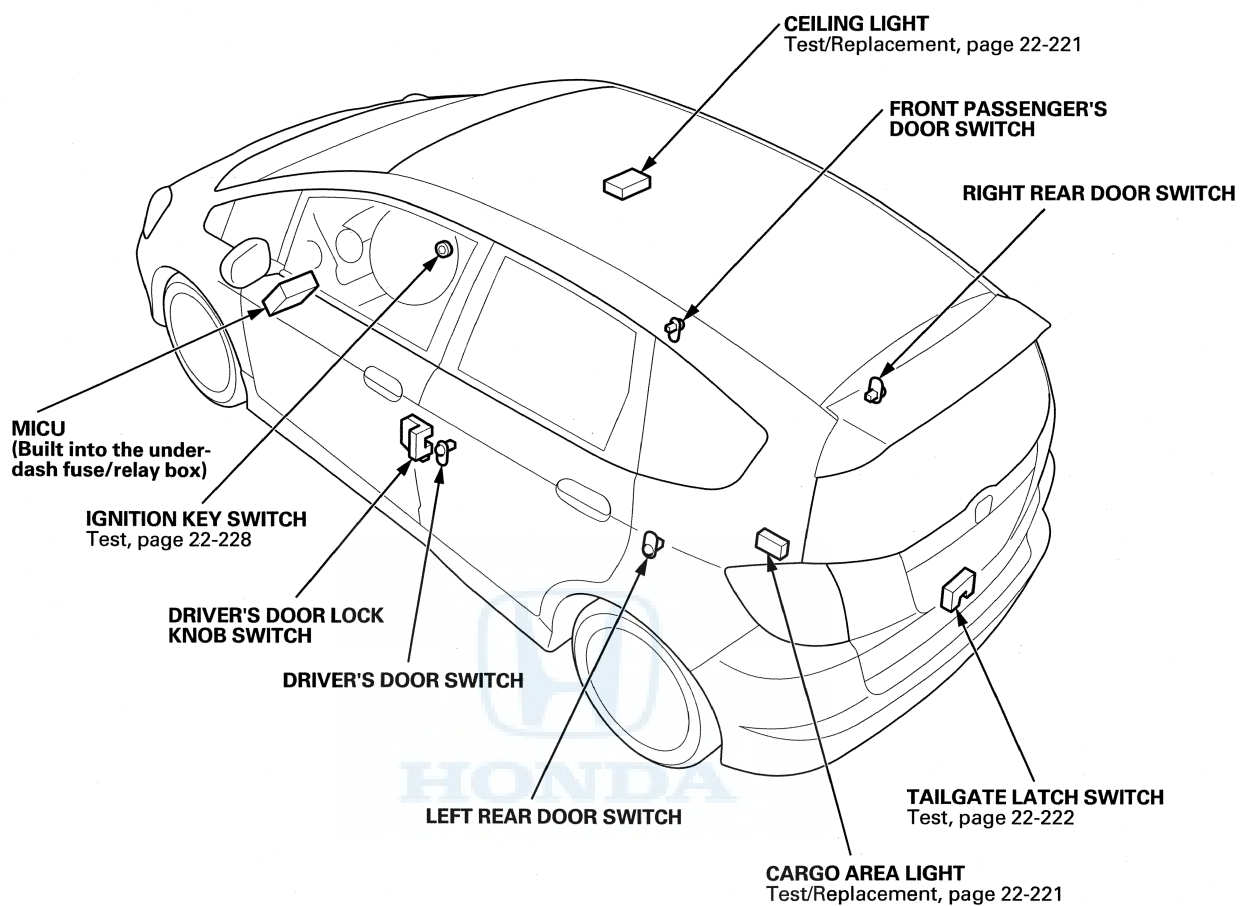


4. Check for continuity between terminals No. 1 and No. 2.
 - There should be continuity with the tailgate open.
 - There should be no continuity with the tailgate closed.
5. If the continuity is not as specified, replace the tailgate latch assembly (see page 20-161).

Entry Lights Control System

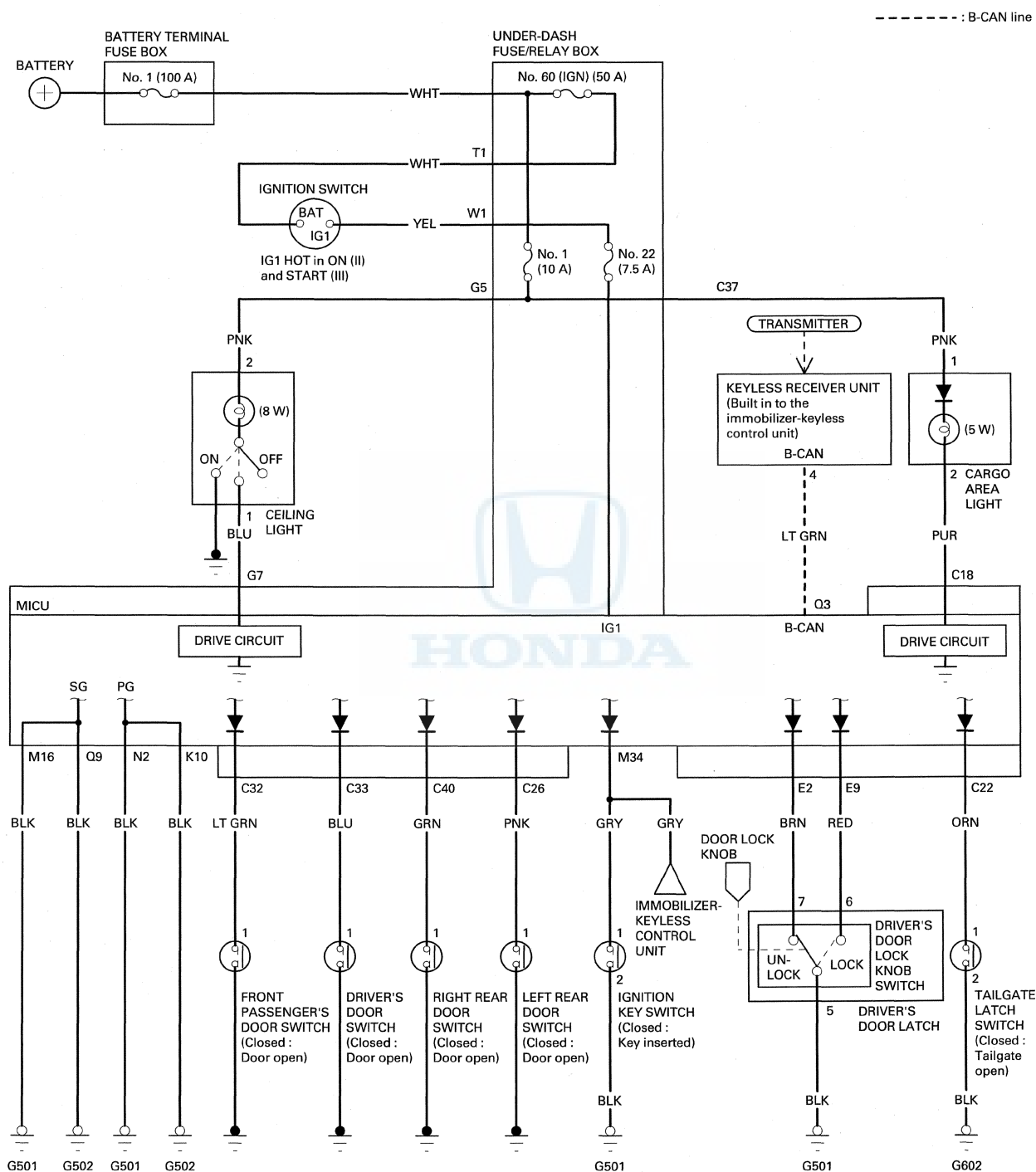


Component Location Index



Entry Lights Control System

Circuit Diagram



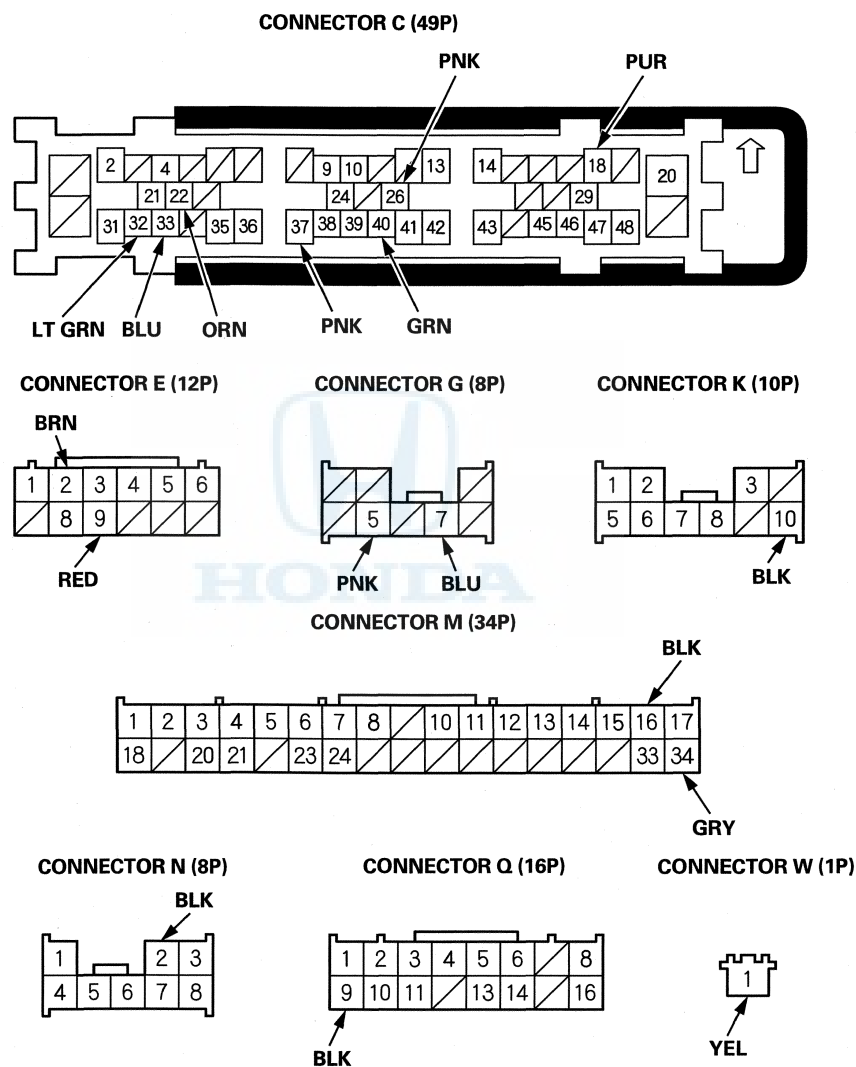


MICU Input Test

NOTE: Before testing, check for No. 22 (7.5 A) fuse in the under-dash fuse/relay box.

1. Turn the ignition switch to LOCK (0).
2. Remove the fuse access panel (see page 20-97).
3. Disconnect the under-dash fuse/relay box connectors C, E, G, K, M, N, Q, and W.

NOTE: All connector views are wire side of female terminals.



4. Inspect the connector and socket terminals to be sure they are all making good contact.
 - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
 - If the terminals look OK, go to step 5.

(cont'd)

Entry Lights Control System

MICU Input Test (cont'd)

5. Reconnect the connectors to the under-dash fuse/relay box, and do these input tests at the following connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the MICU must be faulty; replace the under-dash fuse/relay box (see page 22-65).

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
K10	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) • An open or high resistance in the wire
M16	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
N2	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
Q9	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) • An open or high resistance in the wire
W1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 60 (50 A) fuse in the under-dash fuse/relay box • Faulty ignition switch • An open or high resistance in the wire
C33	BLU	Driver's door open	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty driver's door switch • Faulty driver's door switch ground • An open or high resistance in the wire
		Driver's door closed	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty driver's door switch • A short to ground in the wire
C32	LT GRN	Front passenger's door open	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty front passenger's door switch • Faulty front passenger's door switch ground • An open or high resistance in the wire
		Front passenger's door closed	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty front passenger's door switch • A short to ground in the wire
C40	GRN	Right rear door open	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty right rear door switch • Faulty right rear door switch ground • An open or high resistance in the wire
		Right rear door closed	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty right rear door switch • A short to ground in the wire
C26	PNK	Left rear door open	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty left rear door switch • Faulty left rear door switch ground • An open or high resistance in the wire
		Left rear door closed	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty left rear door switch • A short to ground in the wire



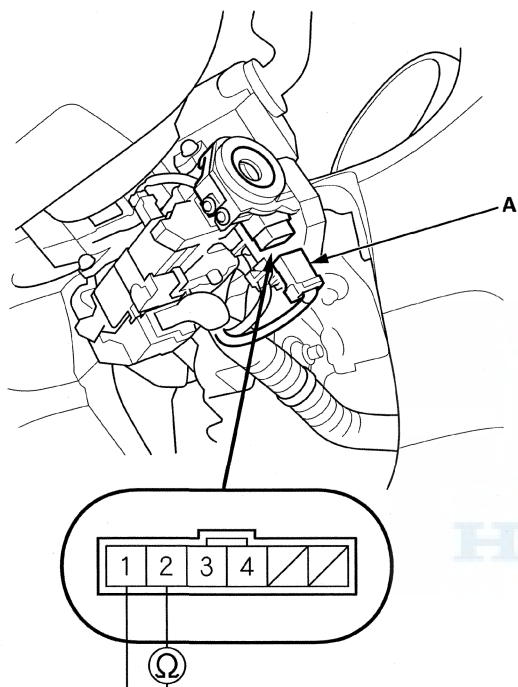
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
C22	ORN	Tailgate open	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G602) or an open in the ground wire Faulty tailgate latch switch An open or high resistance in the wire
		Tailgate closed	Measure the voltage to ground: There should be about 5 V or more. There should be no continuity	<ul style="list-style-type: none"> Faulty tailgate latch switch A short to ground in the wire
M34	GRY	Ignition key inserted into the ignition switch	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G501) or an open in the ground wire Faulty ignition key switch An open or high resistance in the wire
		Ignition switch LOCK (0), and the ignition key removed from the ignition switch	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty ignition key switch A short to ground in the wire
E2	BRN	Driver's door lock knob switch in UNLOCK	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G501) or an open in the ground wire Faulty driver's door lock knob switch An open or high resistance in the wire
		Driver's door lock knob switch in neutral or LOCK	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty driver's door lock knob switch A short to ground in the wire
E9	RED	Driver's door lock knob switch in LOCK	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> Poor ground (G501) or an open in the ground wire Faulty driver's door lock knob switch An open or high resistance in the wire
		Driver's door lock knob switch in neutral or UNLOCK	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> Faulty driver's door lock knob switch A short to ground in the wire
G7	BLU	Ceiling light switch in middle position	Connect terminal G7 and body ground with a jumper wire: The ceiling light should come on.	<ul style="list-style-type: none"> Blown No. 1 (10 A) fuse in the under-dash fuse/relay box Faulty ceiling light Blown bulb An open or high resistance in the wire
C18	PUR	Under all conditions	Connect terminal C18 and body ground with a jumper wire: The cargo area light should come on.	<ul style="list-style-type: none"> Blown No. 1 (10 A) fuse in the under-dash fuse/relay box Faulty cargo area light Blown bulb An open or high resistance in the wire

Entry Lights Control System

Ignition Key Switch Test

NOTE: SRS components are located in this area. Review the SRS component locations (see page 24-13), and precautions and procedures (see page 24-15) before repairing or servicing.

1. Remove the steering column upper and lower covers (see page 20-105).
2. Disconnect the steering lock 6P connector (A).

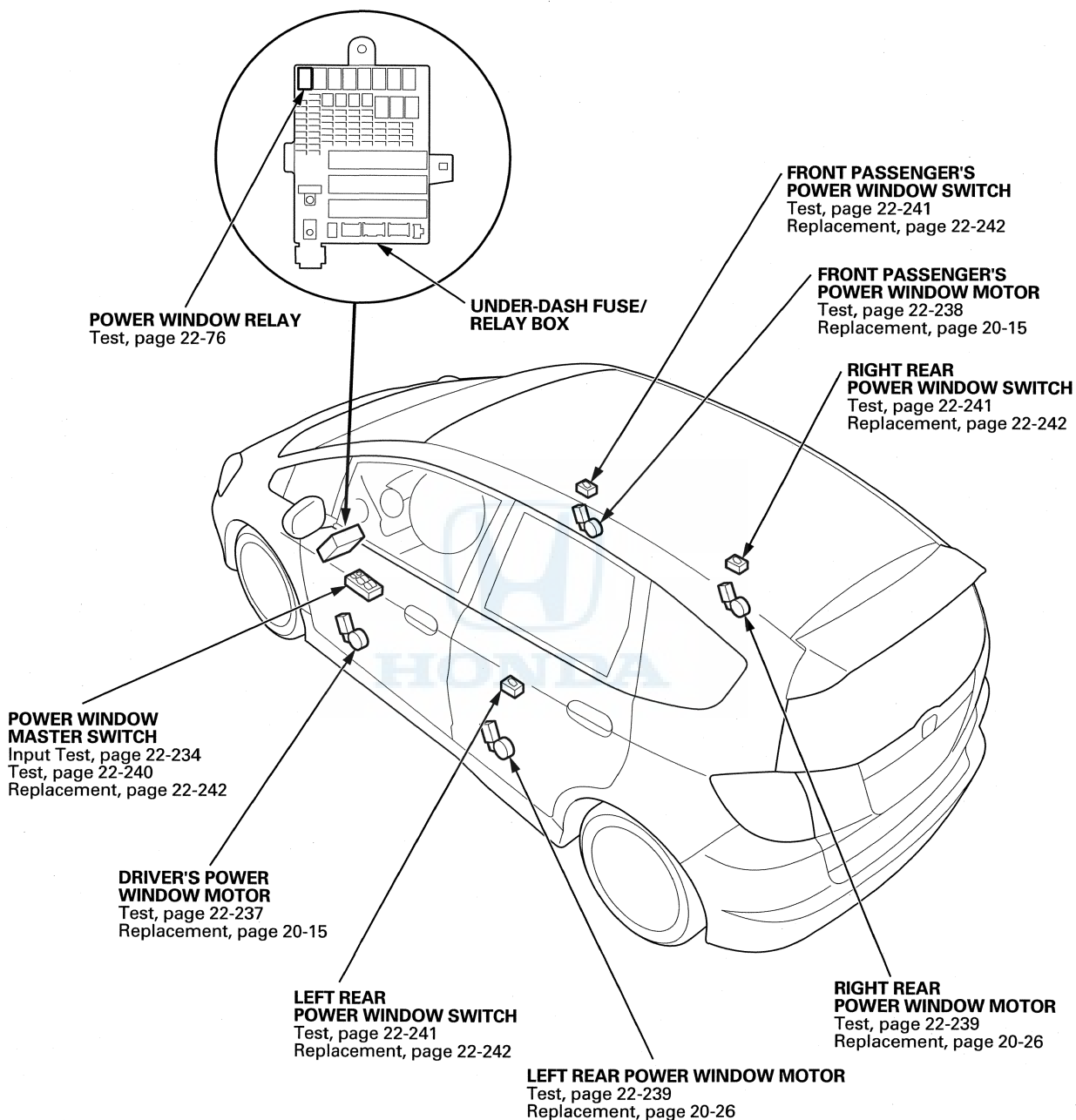


3. Check for continuity between terminals No. 1 and No. 2.
 - There should be continuity with the key in the ignition switch.
 - There should be no continuity with the key removed.
4. If the continuity is not as specified, replace the steering lock (see page 17-16).

Power Windows



Component Location Index



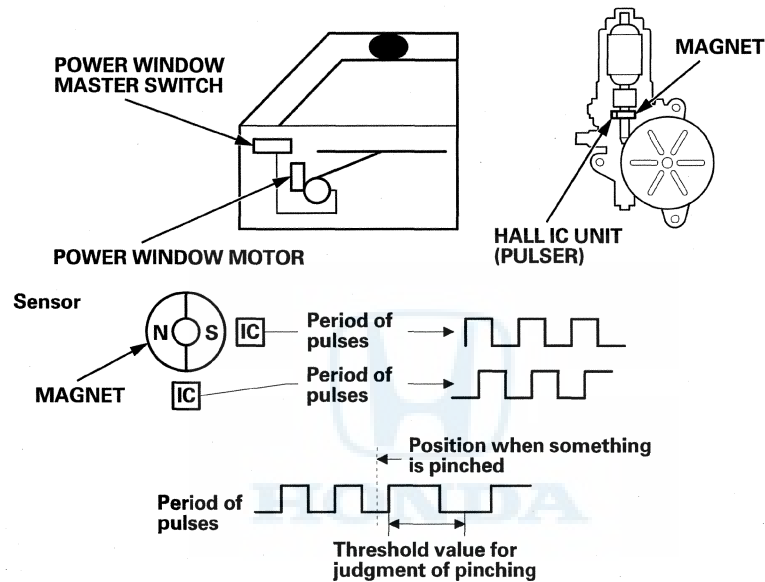
Power Windows

System Description

Anti-pinch Power Window Operation

The system is composed of the power window control unit (built into the power window master switch) and the driver's power window motor.

The driver's power window motor incorporates a Hall IC unit (pulser) which generates pulses during the motor's operation and sends pulses to the power window control unit. As soon as the power window control unit detects a change in the pulse frequency from the Hall IC unit (pulser), the power window control unit makes the power window motor stop and reverse. This prevents pinching your hand or fingers during auto-up operation. The anti-pinch function does not work when the power window master switch is held in the closed position.





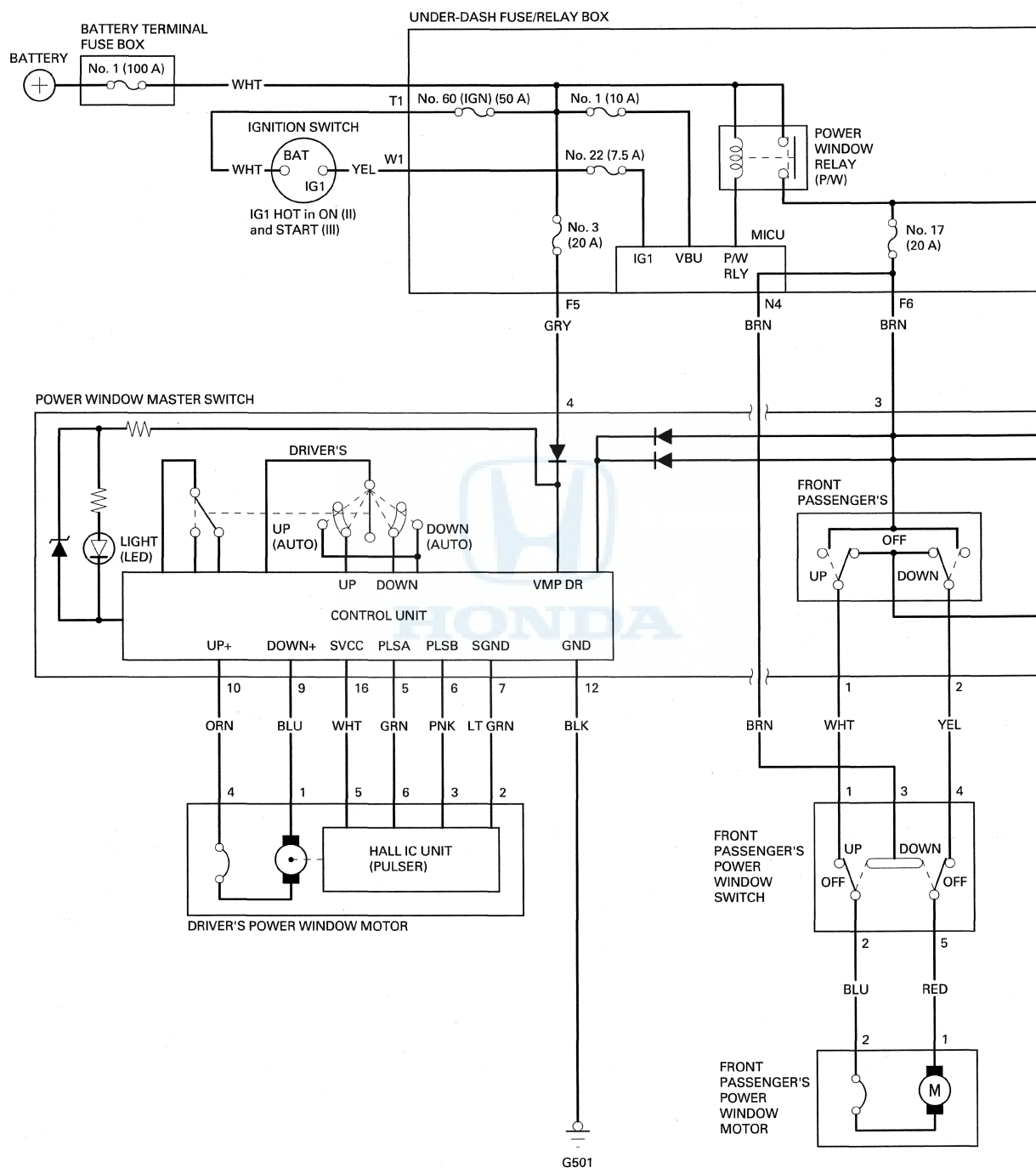
Resetting the Power Window Control Unit

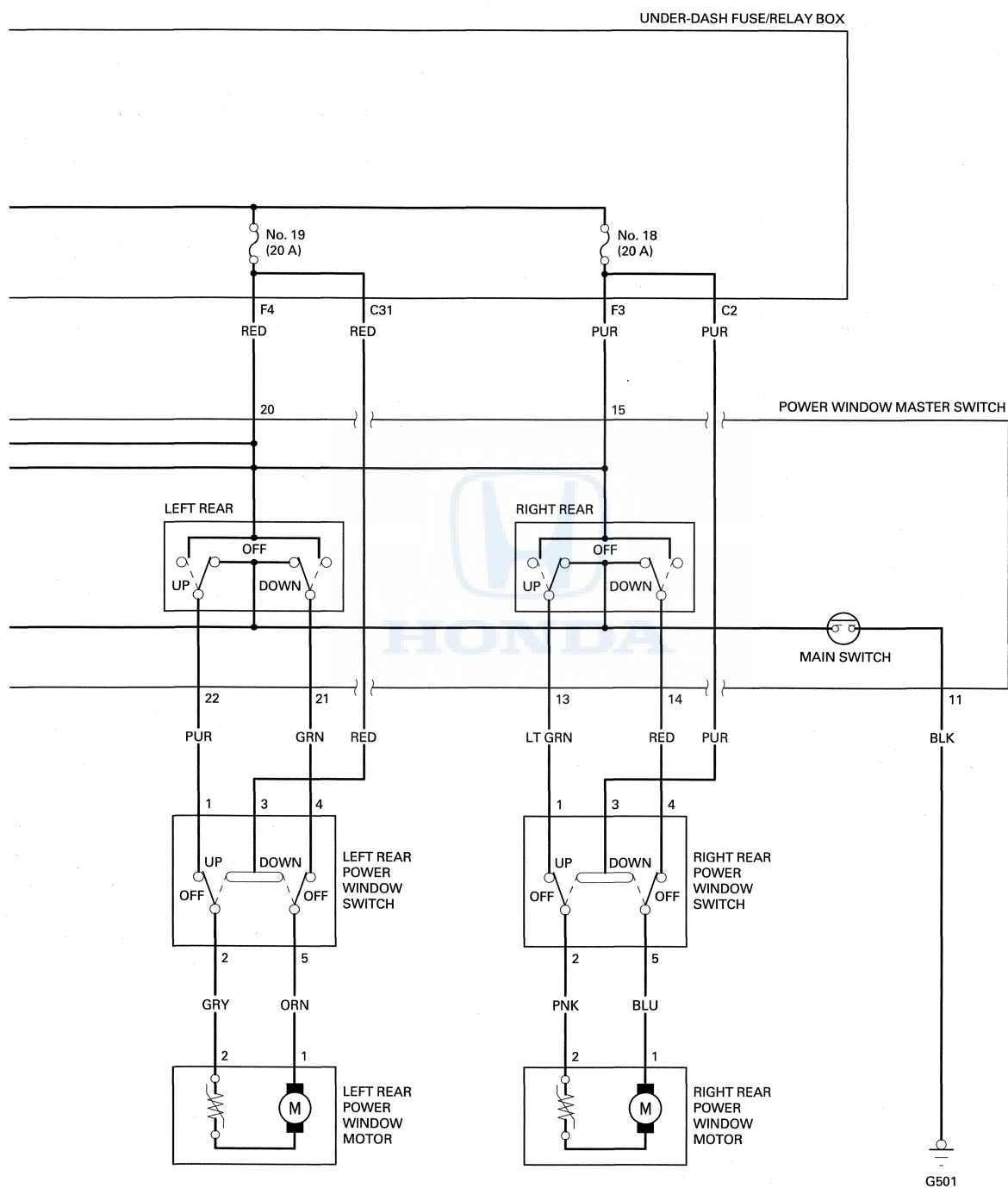
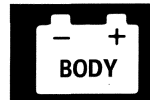
Resetting the power window control unit after doing any of the following:

- Power window master switch replacement
 - Power window regulator replacement or repair
 - Power window motor replacement or repair
 - Window run channel replacement or repair
 - Driver's door glass replacement or repair
1. Turn the ignition switch to LOCK (0).
 2. Press and hold the driver's window DOWN switch.
 3. Turn the ignition switch to ON (II).
 4. Release the driver's window DOWN switch.
 5. Repeat steps 1—4 three more times.
 6. Check if the AUTO UP and AUTO DOWN functions still work.
 - If they still work, AUTO UP and AUTO DOWN functions have not been cleared; go back to step 1.
 - If they do not, go to step 7.
 7. Turn the ignition switch to ON (II).
 8. Move the driver's window all the way down by using the driver's window DOWN switch.
 9. Pull up and hold the driver's window UP switch until the window reaches the fully closed position, then continue to hold the switch for 1 second.
 10. Make sure that the power window control unit is reset by using the driver's window AUTO UP and AUTO DOWN functions.

Power Windows

Circuit Diagram



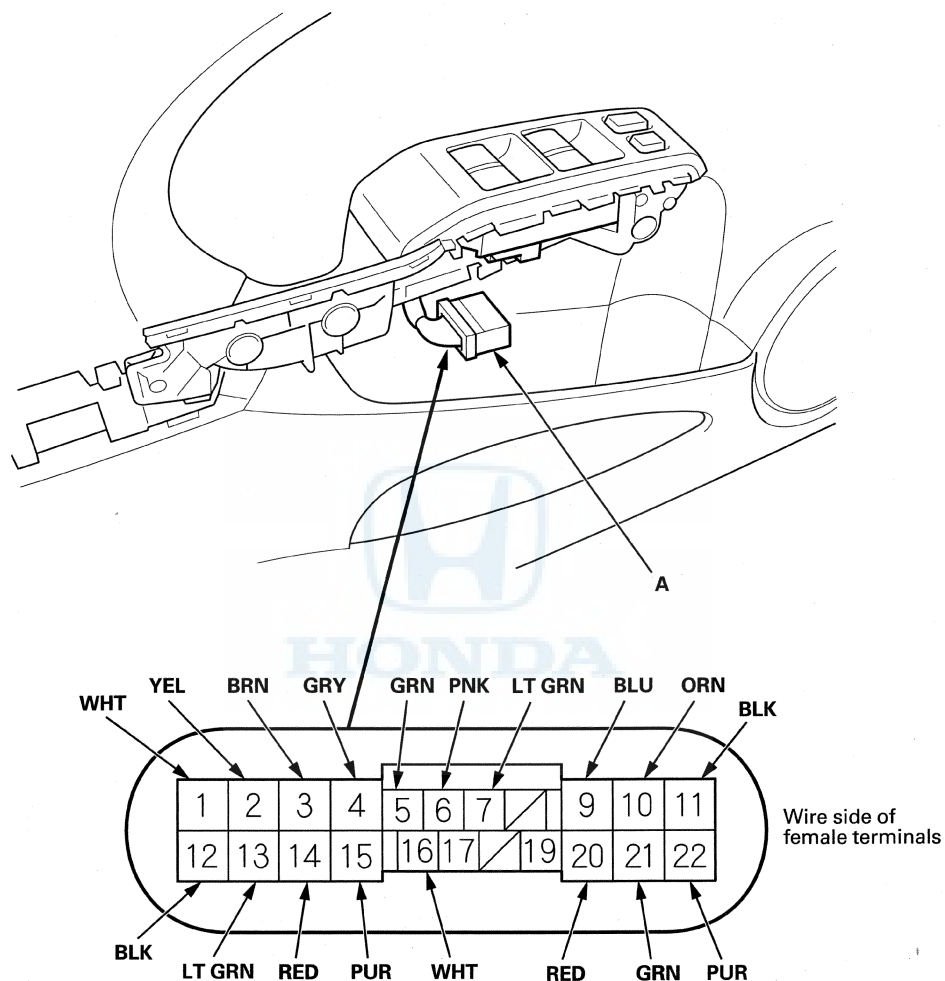


Power Windows

Power Window Master Switch Input Test

NOTE: The power window control unit is built into the power window master switch.

1. Remove the grip cover (see page 20-6).
2. Disconnect the 22P connector (A) from the power window master switch.



3. Inspect the connector and socket terminals to be sure they are all making good contact.
 - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
 - If the terminals look OK, go to step 4.



4. With the connector still disconnected, do these input tests at the following connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 5.

NOTE: Before testing, make sure the No. 1 (10 A), No. 22 (7.5 A), and No. 60 (50 A) fuse in the under-dash fuse/relay are OK.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
3	BRN	Ignition switch ON (II)	Measure the voltage between terminals No. 3 and No. 11: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 17 (20A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty power window relay (P/W) • Faulty MICU • Poor ground (G501) or an open in the wire • An open or high resistance in the wire
2	YEL	Ignition switch ON (II)	Connect terminals No. 3 and No. 2, and terminals No. 1 and No. 11 momentarily with jumper wires: The front passenger's window should open.	<ul style="list-style-type: none"> • Blown No. 17 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty front passenger's power window motor • Faulty front passenger's power window switch • Poor ground (G501) or an open in the ground wire • An open or high resistance in the wire
1	WHT	Ignition switch ON (II)	Connect terminals No. 3 and No. 1, and terminals No. 2 and No. 11 momentarily with jumper wires: The front passenger's window should close.	
13	LT GRN	Ignition switch ON (II)	Connect terminals No. 15 and No. 13, and terminals No. 14 and No. 11 momentarily with jumper wires: The right rear window should close.	<ul style="list-style-type: none"> • Blown No. 18 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty right rear power window motor • Faulty right rear power window switch • Poor ground (G501) or an open in the ground wire • An open or high resistance in the wire
14	RED	Ignition switch ON (II)	Connect terminals No. 15 and No. 14, and terminals No. 13 and No. 11 momentarily with jumper wires: The right rear window should open.	
21	GRN	Ignition switch ON (II)	Connect terminals No. 20 and No. 21, and terminals No. 22 and No. 11 momentarily with jumper wires: The left rear window should open.	<ul style="list-style-type: none"> • Blown No. 19 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty left rear power window motor • Faulty left rear power window switch • Poor ground (G501) or an open in the ground wire • An open or high resistance in the wire
22	PUR	Ignition switch ON (II)	Connect terminals No. 20 and No. 22, and terminals No. 21 and No. 11 momentarily with jumper wires: The left rear window should close.	
10	ORN	Connect terminals No. 4 and No. 10, and terminals No. 9 and No. 12 momentarily with jumper wires	Check driver's power window motor operation: The driver's window should close.	<ul style="list-style-type: none"> • Blown No. 3 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty driver's power window motor • Poor ground (G501) or an open in the ground wire • An open or high resistance in the wire
9	BLU	Connect terminals No. 4 and No. 9, and terminals No. 10 and No. 12 momentarily with jumper wires	Check driver's power window motor operation: The driver's window should open.	

(cont'd)

Power Windows

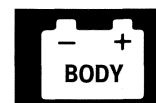
Power Window Master Switch Input Test (cont'd)

5. Reconnect the connector to the power window master switch. Turn the ignition switch to ON (II), and do these input tests at the following connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the control unit must be faulty; replace the power window master switch (see page 22-242).

NOTE: After replacing the power window master switch, reset the power window control unit (see page 22-231).

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
7	LT GRN	Ignition switch ON (II)	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) or an open in the ground wire • Faulty power window master switch • An open or high resistance in the wire
16	WHT	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Faulty power window master switch • A short to ground in the wire
5	GRN	Ignition switch ON (II), and driver's window switch moving up or down	Measure the voltage between terminals No. 5 and No. 7: An analog voltmeter should read about 0 V—about 5 V—0 V—about 5 V repeatedly (a digital voltmeter should read about 2.5 V while the window moves).	<ul style="list-style-type: none"> • Faulty power window master switch • Faulty driver's power window motor • An open or high resistance in the wire • A short to ground in the wire
6	PNK	Ignition switch ON (II), and driver's power window switch moving up or down	Measure the voltage between terminals No. 6 and No. 7: An analog voltmeter should read about 0 V—about 5 V—0 V—about 5 V repeatedly (a digital voltmeter should read about 2.5 V while the window moves).	
4	GRY	Under all conditions	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 3 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • An open or high resistance in the wire
3	BRN	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 17 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty power window relay (P/W) • Faulty MICU • An open or high resistance in the wire
15	PUR	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 18 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty power window relay (P/W) • Faulty MICU • An open or high resistance in the wire
20	RED	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 19 (20 A) fuse in the under-dash fuse/relay box • Faulty under-dash fuse/relay box • Faulty power window relay (P/W) • Faulty MICU • An open or high resistance in the wire
11	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) or an open in the ground wire • An open or high resistance in the wire
12	BLK	Under all conditions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) or an open in the ground wire • An open or high resistance in the wire

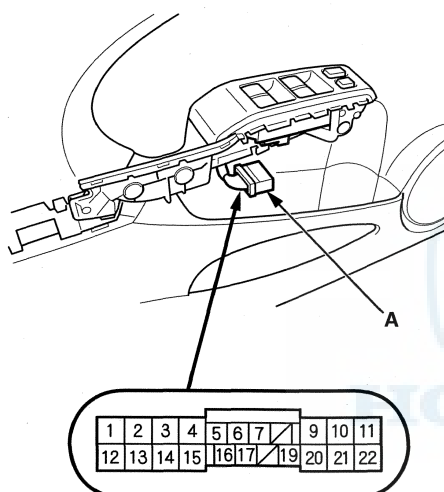


Driver's Power Window Motor Test

Motor Test

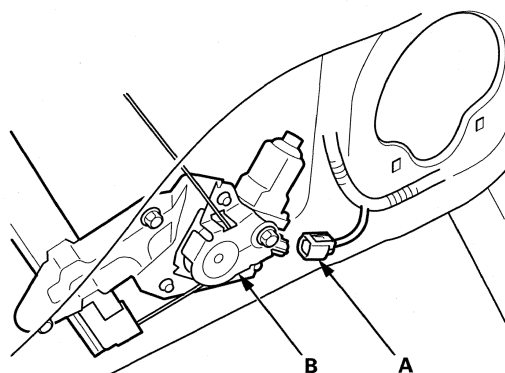
1. Remove the power window master switch (see page 22-242).
2. Test the motor in each direction by connecting battery power and ground to the power window master switch 22P connector (A) according to the table.

Terminal	9	10
Direction		
UP	⊖	⊕
DOWN	⊕	⊖



Wire side of female terminals

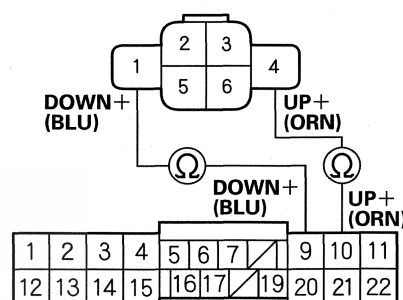
3. If the motor does not run or fails to run smoothly, go to step 4. If the motor is OK, do the power window master switch input test (see page 22-234).
4. Remove the front door panel (see page 20-6).
5. Disconnect the 6P connector (A) from the driver's power window motor (B).



6. Check for continuity between power window master switch 22P connector terminals No. 9 and No. 10 and driver's power window motor 6P connector terminals No. 1 and No. 4 respectively. There should be continuity.

POWER WINDOW MASTER SWITCH 22P CONNECTOR	DRIVER'S POWER WINDOW MOTOR 6P CONNECTOR
9	1
10	4

DRIVER'S POWER WINDOW MOTOR 6P CONNECTOR
Wire side of female terminals



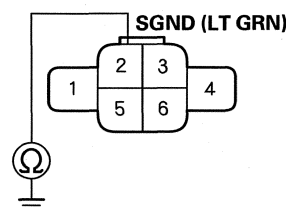
POWER WINDOW MASTER SWITCH 22P CONNECTOR
Wire side of female terminals

7. If the wire harness is OK, the driver's power window motor is faulty; replace the driver's door regulator (see page 20-15).

Pulser Test

8. Check for continuity between the driver's power window motor 6P connector terminal No. 2 and body ground. There should be continuity.
 - If there is continuity, go to step 9.
 - If there is no continuity, check for an open or high resistance in the BLK wire or poor ground (G501).

DRIVER'S POWER WINDOW MOTOR 6P CONNECTOR



Wire side of female terminals

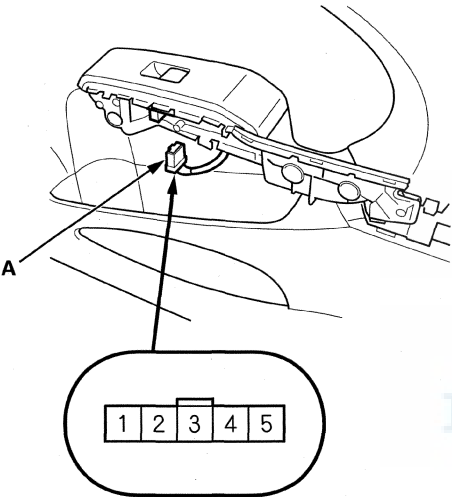
9. Do the power window master switch test for terminals No. 5, No. 6, and No. 16 (see page 22-240).

Power Windows

Front Passenger's Power Window Motor Test

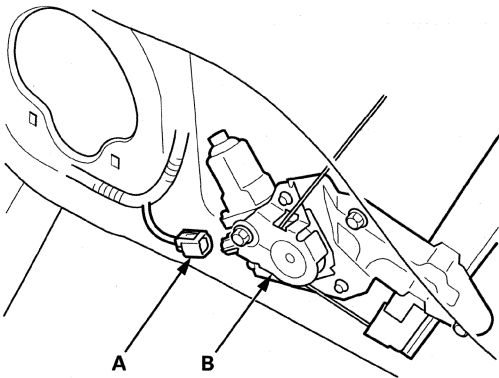
- 1. Remove the front passenger's power window switch (see page 22-242).
- 2. Test the motor in each direction by connecting battery power and ground to the front passenger's power window switch 5P connector (A) according to the table.

Terminal	2	5
Direction		
UP	⊕	⊖
DOWN	⊖	⊕



Wire side of female terminals

- 3. Remove the front door panel (see page 20-6).
- 4. Disconnect the 2P connector (A) from the front passenger's power window motor (B).

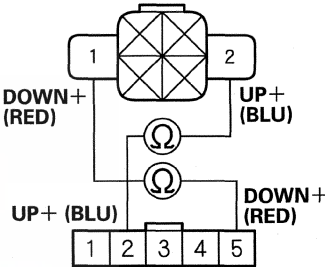


- 5. Check for continuity between front passenger's power window switch 5P connector terminals No. 2 and No. 5 and front passenger's power window motor 2P connector terminals No. 1 and No. 2 respectively. There should be continuity.

FRONT PASSENGER'S POWER WINDOW SWITCH 5P CONNECTOR	FRONT PASSENGER'S POWER WINDOW MOTOR 2P CONNECTOR
2	2
5	1

FRONT PASSENGER'S POWER WINDOW MOTOR 2P CONNECTOR

Wire side of female terminals



FRONT PASSENGER'S POWER WINDOW SWITCH 5P CONNECTOR

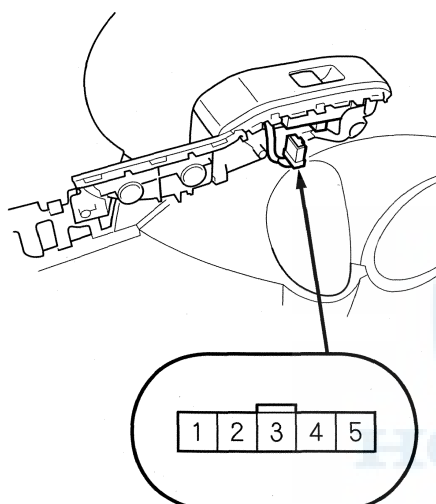
Wire side of female terminals

- 6. If the wire harness is OK, the front passenger's power window motor is faulty; replace the front passenger's door regulator (see page 20-15).

Rear Power Window Motor Test

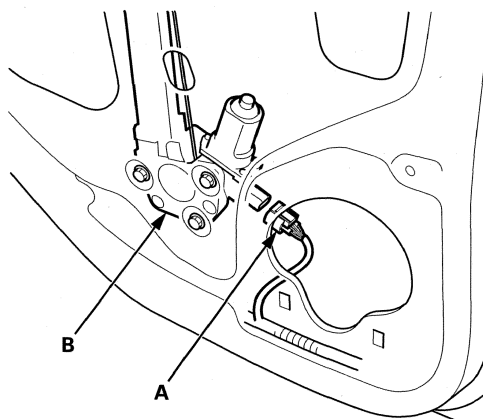
1. Remove the rear power window switch (see page 22-242).
2. Test the motor in each direction by connecting battery power and ground to the rear power window switch 5P connector (A) according to the table.

Terminal	2	5
Direction		
UP	⊕	⊖
DOWN	⊖	⊕



Wire side of female terminals

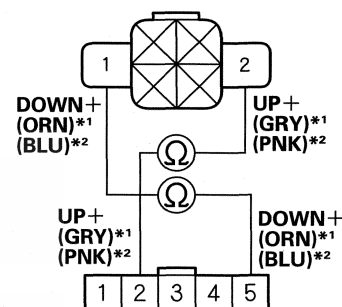
3. If the motor does not run or fails to run smoothly, go to step 4. If the motor is OK, do the power window master switch input test (see page 22-234).
4. Remove the rear door panel (see page 20-18).
5. Disconnect the 2P connector (A) from the rear power window motor (B).



6. Check for continuity between rear power window switch 5P connector terminals No. 2 and No. 5 and rear power window motor 2P connector terminals No. 1 and No. 2 respectively. There should be continuity.

REAR POWER WINDOW SWITCH 5P CONNECTOR	REAR POWER WINDOW MOTOR 2P CONNECTOR
No. 2 terminal	No. 2 terminal
No. 5 terminal	No. 1 terminal

REAR POWER WINDOW MOTOR 2P CONNECTOR
Wire side of female terminals



REAR POWER WINDOW SWITCH 5P CONNECTOR
Wire side of female terminals

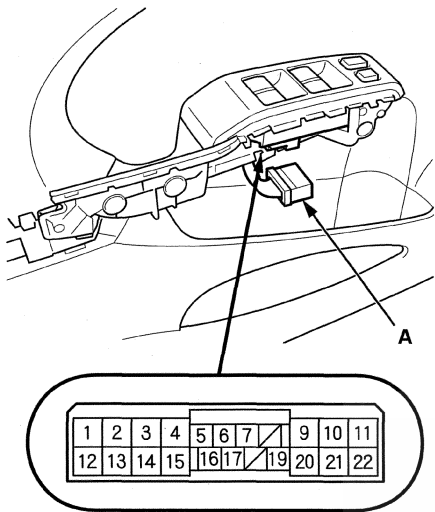
- *1: Left rear
- *2: Right rear

7. If the wire harness is OK, the rear power window motor is faulty; replace the rear door regulator (see page 20-26).

Power Windows

Power Window Master Switch Test

- 1. Remove the grip cover (see page 20-6).
- 2. Disconnect the 22P connector (A) from the power window master switch.



- 3. Check for continuity between the terminals in each switch position according to the tables.

Front Passenger's Switch

Terminal					
Position	Main Switch	1	2	3	11
OFF	ON	○	○		○
	OFF	○	○		
UP	ON	○	○	○	○
	OFF	○		○	
DOWN	ON	○	○	○	○
	OFF		○	○	

Right Rear Switch

Terminal					
Position	Main Switch	13	14	15	11
OFF	ON	○	○		○
	OFF	○	○		
UP	ON	○	○	○	○
	OFF	○		○	
DOWN	ON	○	○	○	○
	OFF		○	○	

Left Rear Switch

Terminal					
Position	Main Switch	20	21	22	11
OFF	ON		○	○	○
	OFF		○	○	
UP	ON	○	○	○	○
	OFF	○		○	
DOWN	ON	○	○	○	○
	OFF	○	○		

Driver's Switch

The driver's switch is combined with the control unit so you cannot isolate the switch to test it.

Instead, run the power window master switch input test procedures (see page 22-234). If the tests are normal, the driver's switch must be faulty; replace the power window master switch (see page 22-242).

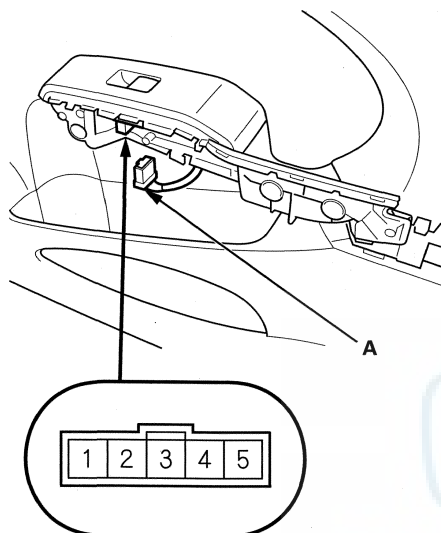
- 4. If the continuity is not as specified, replace the switch (see page 22-242).



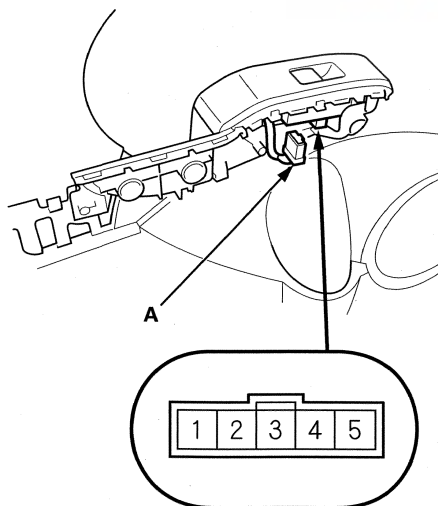
Passenger's Power Window Switch Test

1. Remove the grip cover:
 - Front passenger's (see page 20-6)
 - Rear (see page 20-18)
2. Disconnect the 5P connector (A) from the passenger's window switch.

Front passenger's



Rear



3. Check for continuity between the terminals in each switch position according to the table.

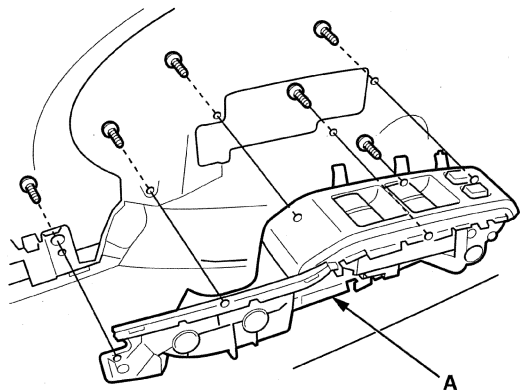
Terminal Position	1	3	4	2	5
OFF	○		○	○	○
UP		○	○	○	○
DOWN	○	○		○	○

4. If the continuity is not as specified, replace the switch (see page 22-242).

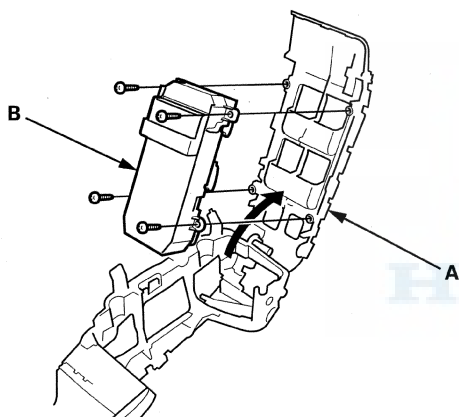
Power Windows

Power Window Master Switch Replacement

1. Remove the front door panel (A) (see page 20-6).



2. Open the switch panel (A) from the grip base.

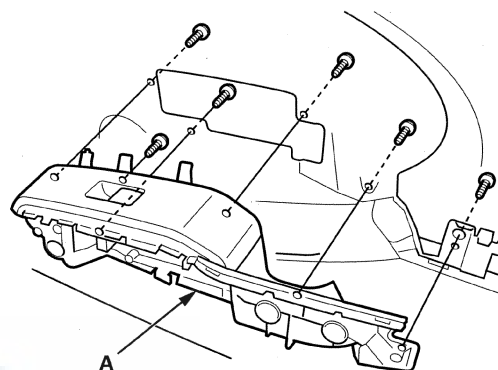


3. Remove the screws and replace the power window master switch (B).
4. Install the parts in the reverse order of removal.

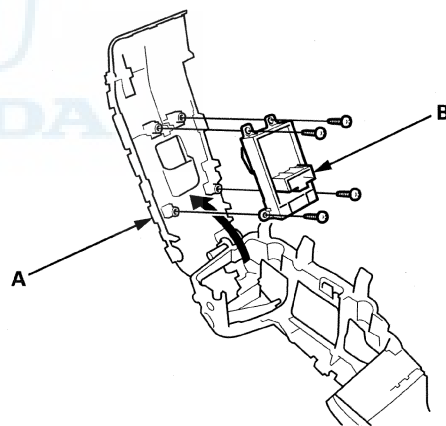
Passenger's Power Window Switch Replacement

NOTE: The illustration shows front passenger's power window switch.

1. Remove the door panel:
 - Front passenger's (see page 20-6)
 - Rear (see page 20-18)
2. Remove the screws and the grip base (A).



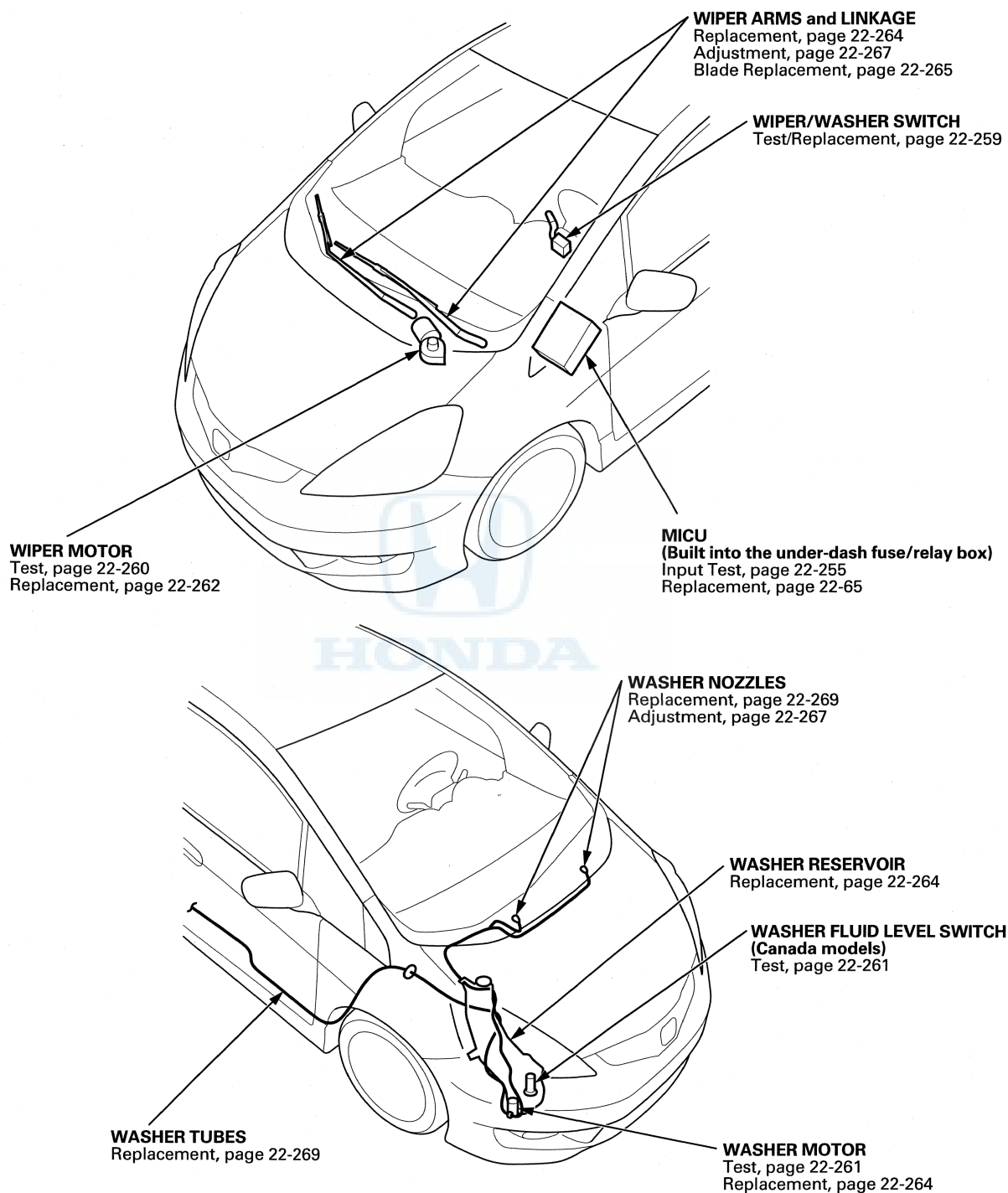
3. Open the switch panel (A) from the grip base.



4. Remove the screws and replace the passenger's power window switch (B).
5. Install the parts in the reverse order of removal.



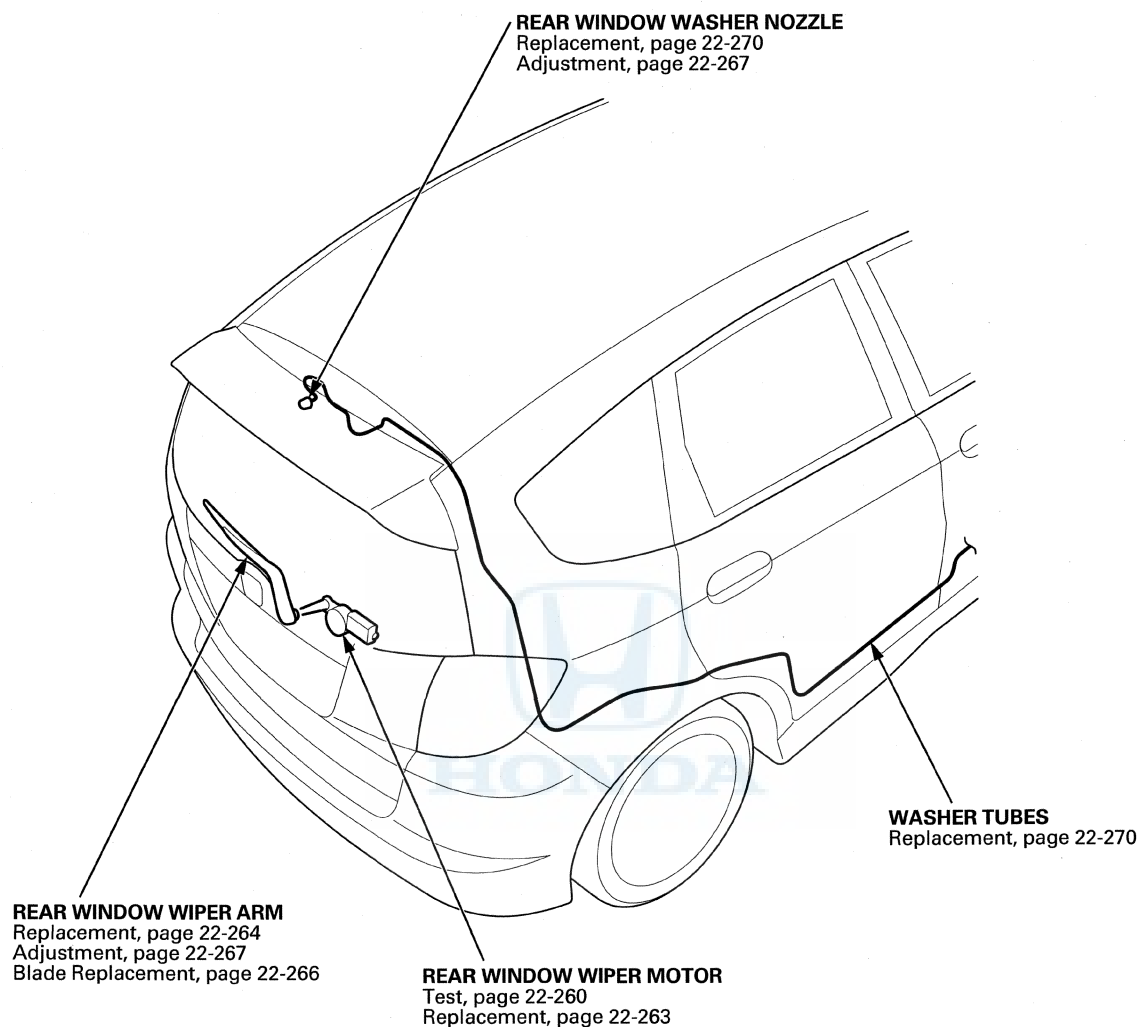
Component Location Index

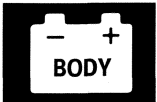


(cont'd)

Wipers/Washers

Component Location Index (cont'd)



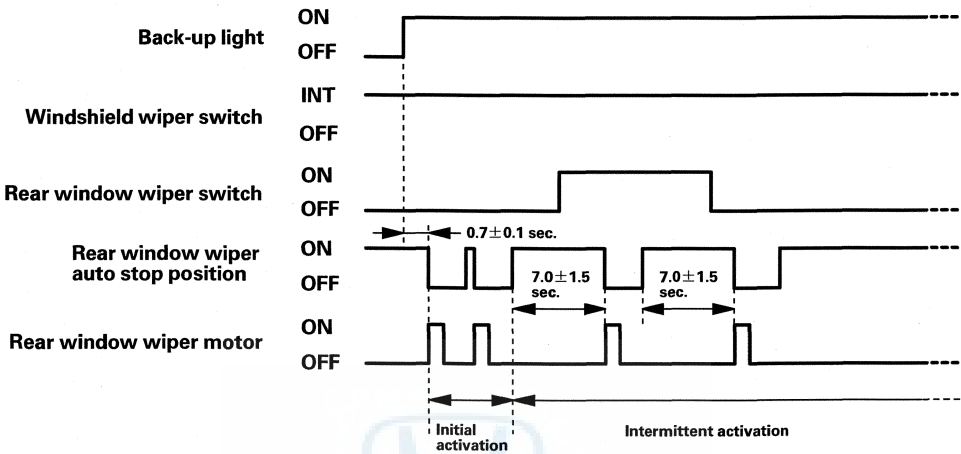


System Description

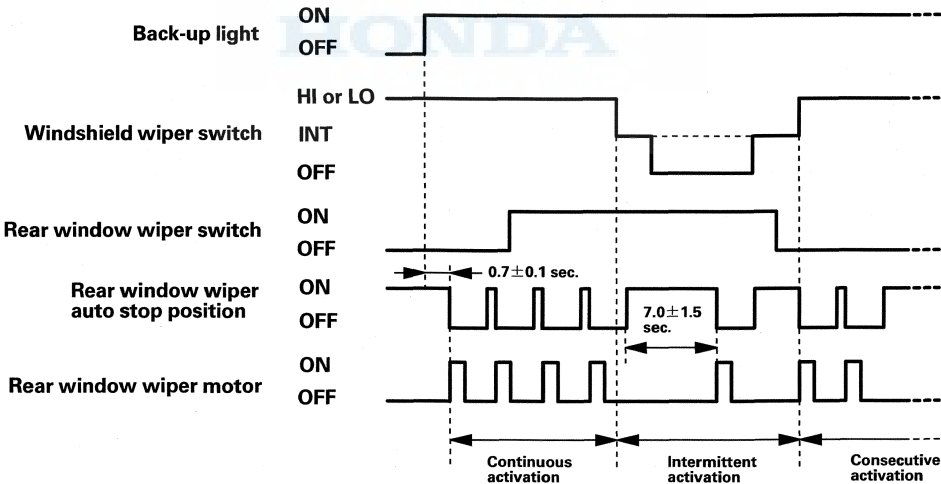
Reverse (Gear Position) Linked Rear Wiper

When the shift lever is shifted to R with the windshield wiper activated, the rear window wiper operates automatically even if the rear window wiper switch is off.

Intermittent operation (Basic)

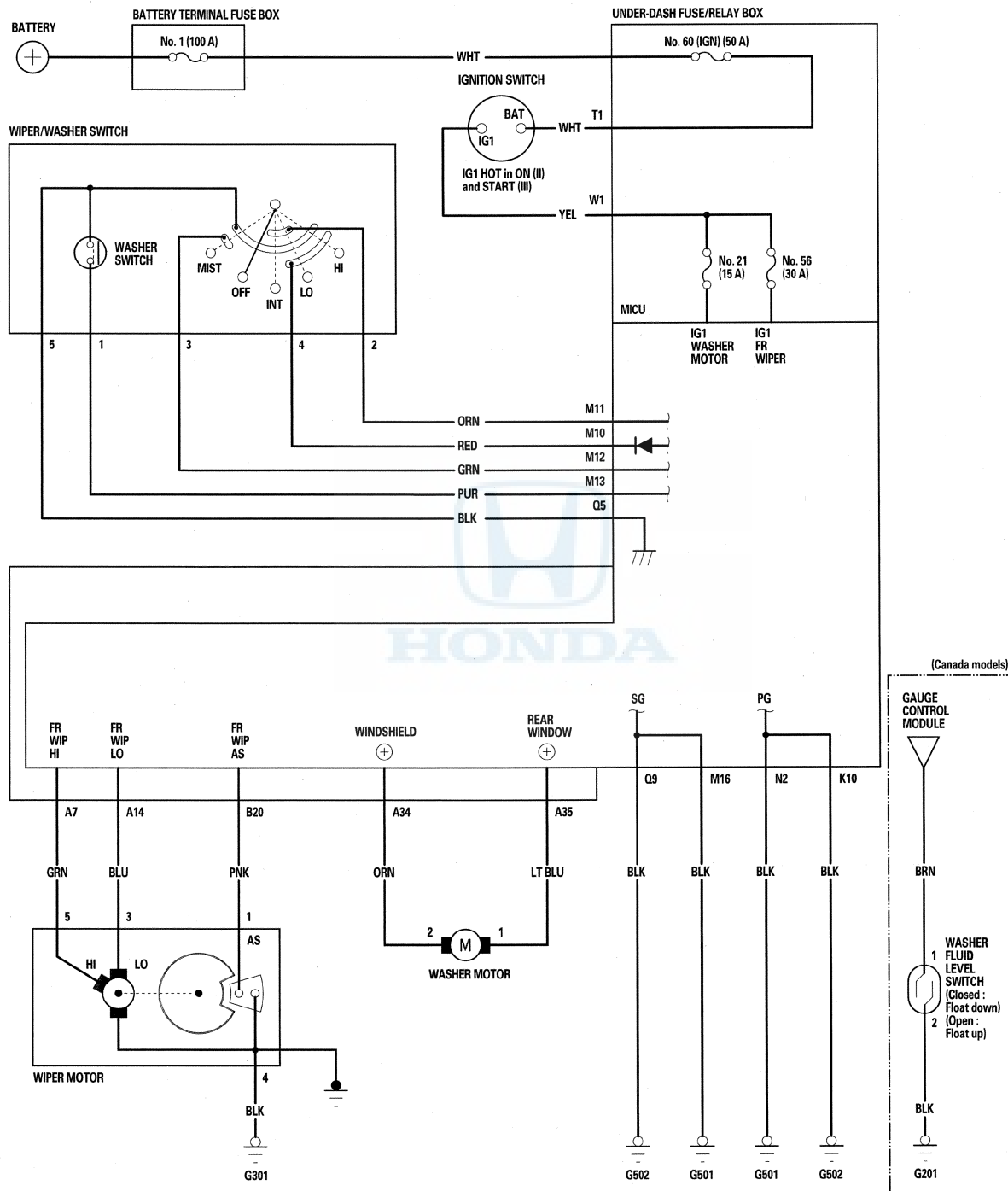


Continuous operation (Basic)



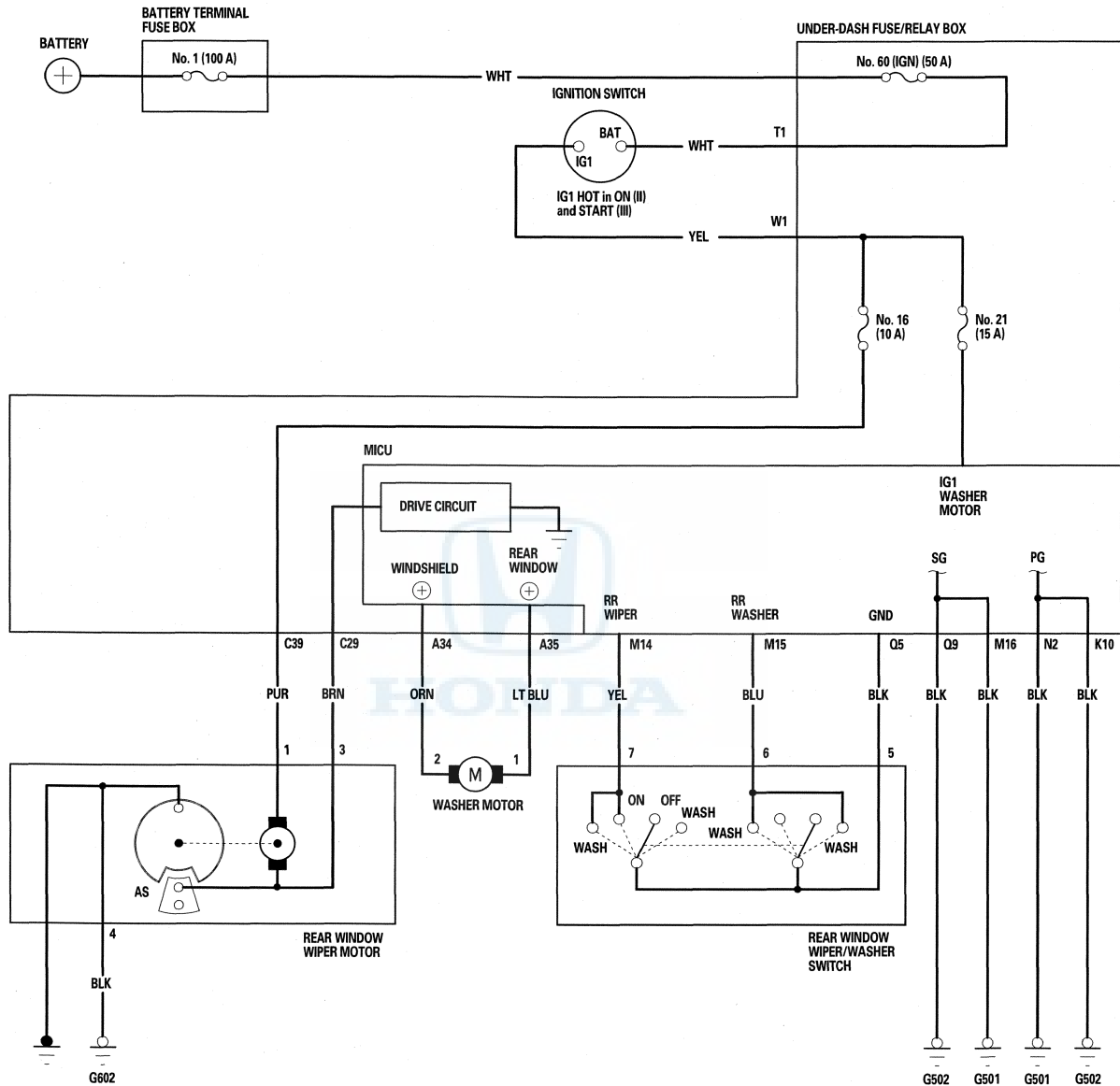
Wipers/Washers

Circuit Diagram - Windshield





Circuit Diagram - Rear Window



Wipers/Washers

DTC Troubleshooting

DTC B1028: Rear wiper motor (Park) signal error

NOTE: If you are troubleshooting multiple DTC's, be sure to follow the instruction in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Operate the rear window wiper for at least 15 seconds, then turn the rear window wiper switch OFF.
4. Check for DTCs with the HDS.

Is DTC B1028 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

5. Check the No. 16 (10 A) fuse in the under-dash fuse/relay box.

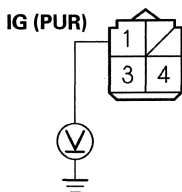
Is the fuse OK?

YES—Go to step 6.

NO—Replace the fuse, and recheck the system. ■

6. Disconnect the rear window wiper motor 4P connector.
7. Turn the ignition switch to ON (II).
8. Measure the voltage between rear window wiper motor 4P connector terminal No. 1 and body ground.

REAR WINDOW WIPER MOTOR 4P CONNECTOR



Wire side of female terminals

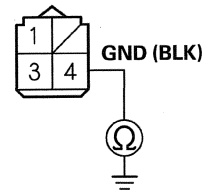
Is there battery voltage?

YES—Go to step 9.

NO—Repair open in the wire between the under-dash fuse/relay box and the rear window wiper motor. ■

9. Check for continuity between rear window wiper motor 4P connector terminal No. 4 and body ground.

REAR WINDOW WIPER MOTOR 4P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Go to step 10.

NO—Repair open in the wire between rear window wiper motor 4P connector terminal No. 4 and body ground (G602). ■

10. Do the rear window wiper motor test (see page 22-260).

Is the rear window wiper motor OK?

YES—Go to step 11.

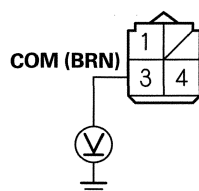
NO—Replace the rear window wiper motor. ■

11. Disconnect the under-dash fuse/relay box connector C.



12. Measure the voltage between rear window wiper motor 4P connector terminal No. 3 and body ground.

REAR WINDOW WIPER MOTOR 4P CONNECTOR



Wire side of female terminals

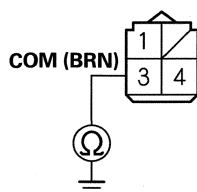
Is there battery voltage?

YES—Repair short to power in the wire between the rear window wiper motor and the under-dash fuse/relay box. ■

NO—Go to step 13.

13. Check for continuity between rear window wiper motor 4P connector terminal No. 3 and body ground.

REAR WINDOW WIPER MOTOR 4P CONNECTOR



Wire side of female terminals

Is there continuity?

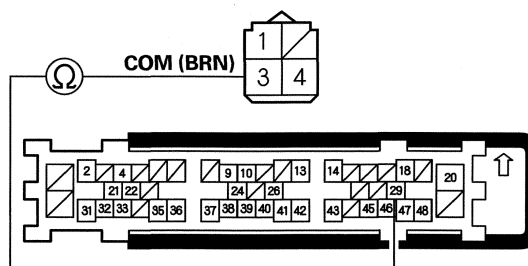
YES—Repair short to ground in the wire between the rear window wiper motor and the under-dash fuse/relay box. ■

NO—Go to step 14.

14. Check for continuity between under-dash fuse/relay box connector C (49P) terminal No. 29 and rear window wiper rear window wiper motor 4P connector terminal No. 3.

REAR WINDOW WIPER MOTOR 4P CONNECTOR

Wire side of female terminals



UNDER-DASH FUSE/RELAY BOX CONNECTOR C (49P)

Wire side of female terminals

Is there continuity?

YES—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Repair open in the wire between the rear window wiper motor and the under-dash fuse/relay box. ■

(cont'd)

Wipers/Washers

DTC Troubleshooting (cont'd)

DTC B1077: Wiper Auto-Stop (As) Signal Circuit Malfunction

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instruction in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Turn the wiper switch to LOW or HIGH for at least 15 seconds, then turn the switch OFF.

Do the wiper arms stop at AUTO STOP (park) position?

YES—Go to step 4.

NO—Go to step 5.

4. Check for DTCs with the HDS.

Is DTC B1077 indicated?

YES—Check for loose or poor connections at the MICU and the wiper motor. If the connections are OK, replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

5. Turn the ignition switch to LOCK (0).
6. Do the windshield wiper motor test (see page 22-260).

Is the windshield wiper motor OK?

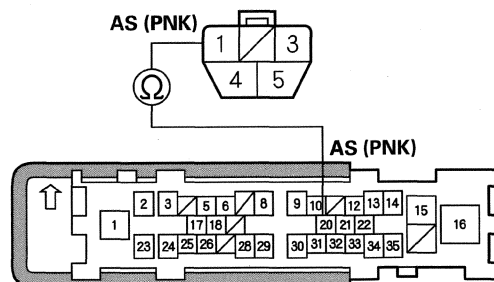
YES—Go to step 7.

NO—Replace the windshield wiper motor (see page 22-262), and recheck. ■

7. Disconnect the windshield wiper motor 5P connector.
8. Disconnect under-dash fuse/relay box connector B (36P).

9. Check for continuity between windshield wiper motor 5P connector terminal No. 1 and under-dash fuse/relay box connector B (36P) terminal No. 20.

WINDSHIELD WIPER MOTOR 5P CONNECTOR
Wire side of female terminals



UNDER-DASH FUSE/RELAY BOX CONNECTOR B (36P)
Wire side of female terminals

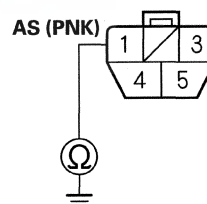
Is there continuity?

YES—Go to step 10.

NO—Repair an open or high resistance in the wire. ■

10. Check for continuity between windshield wiper motor 5P connector terminal No. 1 and body ground.

WINDSHIELD WIPER MOTOR 5P CONNECTOR



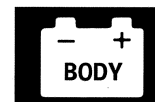
Wire side of female terminals

Is there continuity?

YES—Repair a short to ground in the wire. ■

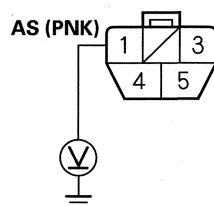
NO—Go to step 11.

11. Turn the ignition switch to ON (II).



12. Measure the voltage between windshield wiper motor 5P connector terminal No. 1 and body ground.

WINDSHIELD WIPER MOTOR 5P CONNECTOR



Wire side of female terminals

Is there voltage?

YES—Repair short to power in the wire. ■

NO—Faulty MICU; replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

13. Turn the ignition switch to LOCK (0).
14. Check the No. 56 (30 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES—Go to step 15.

NO—Replace the fuse, and recheck the system. ■

15. Do the windshield wiper motor test (see page 22-260).

Is the windshield wiper motor OK?

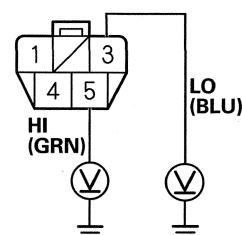
YES—Go to step 16.

NO—Replace the windshield wiper motor (see page 22-262), and recheck. ■

16. Disconnect the under-dash fuse/relay box connector A (36P) and the windshield wiper motor 5P connector.

17. Measure the voltage between body ground and windshield wiper motor 5P connector terminal No. 3 with the wiper switch ON (Low), and measure the voltage between body ground and windshield wiper motor 5P connector terminal No. 5 with the wiper switch ON (High) individually.

WINDSHIELD WIPER MOTOR 5P CONNECTOR



Wire side of female terminals

Is there voltage?

YES—Repair an open or high resistance in the wire between the windshield wiper motor and body ground. If the wire is OK, check for poor ground (G301). ■

NO—Go to step 18.

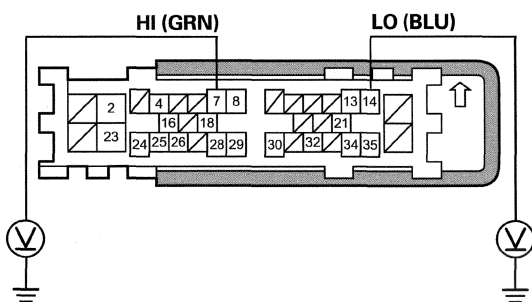
(cont'd)

Wipers/Washers

DTC Troubleshooting (cont'd)

18. Measure the voltage between body ground and under-dash fuse/relay box connector A (36P) terminal No. 14 with the wiper switch ON (Low), and measure the voltage between body ground and under-dash fuse/relay box connector A (36P) terminal No. 7 with the wiper switch ON (High) individually.

UNDER-DASH FUSE/RELAY BOX CONNECTOR A (36P)



Wire side of female terminals

Is there battery voltage?

YES—Repair an open or high resistance in the BLU (LO) or GRN (HI) wire. ■

NO—Check for loose or poor connections at the MICU and the windshield wiper motor. If the connections are OK, replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

DTC B1281: Front wiper MIST position Circuit Malfunction

DTC B1282: Front wiper INT(AUTO) position Circuit Malfunction

DTC B1283: Front wiper LOW position Circuit Malfunction

DTC B1284: Front wiper HIGH position Circuit Malfunction

NOTE: If you are troubleshooting multiple DTC's, be sure to follow the instruction in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Operate each wiper switch position, then turn the wiper/washer switch OFF.
4. Check for DTCs with the HDS.

Is DTC B1281, B1282, B1283, or B1284 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

5. Select WIPER from the BODY ELECTRICAL menu, and enter DATA LIST.
6. Check each wiper switch position value with the DATA LIST menu.

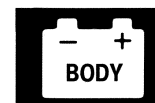
When the wiper switch is OFF:

Data List	Value
Wiper Switch (LOW)	OFF
Wiper Switch (HIGH)	OFF
Wiper Switch (MIST)	OFF
Wiper Switch (INT)	OFF

Are all data list values correct?

YES—Go to step 15.

NO—Go to step 7.



7. Turn the ignition switch to LOCK (0).
8. Disconnect the wiper/washer switch 8P connector.
9. Turn the ignition switch to ON (II).
10. Select WIPER from the BODY ELECTRICAL menu.
11. Check each wiper switch position value with the DATA LIST menu.

Data List	Value
Wiper Switch (LOW)	OFF
Wiper Switch (HIGH)	OFF
Wiper Switch (MIST)	OFF
Wiper Switch (INT)	OFF

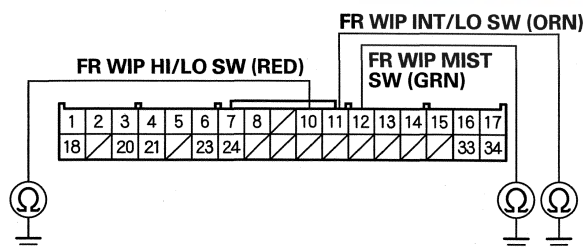
Are all data list values correct?

YES—Replace the wiper/washer switch (see page 22-259). ■

NO—Go to step 12.

12. Turn the ignition switch to LOCK (0).
13. Disconnect under-dash fuse/relay box connector M (34P).
14. Check for continuity between under-dash fuse/relay box connector M (24P) terminals No. 10, No. 11, and No. 12 and body ground.

UNDER-DASH FUSE/RELAY BOX CONNECTOR M (34P)



Wire side of female terminals

Is there continuity?

YES—Repair short to ground in the wires. ■

NO—Faulty MICU, replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

15. Check each wiper switch position value with the DATA LIST menu.

When the wiper switch is ON (LOW):

Data List	Value
Wiper Switch (LOW)	ON

When the wiper switch is ON (HIGH):

Data List	Value
Wiper Switch (HIGH)	ON

When the wiper switch is MIST:

Data List	Value
Wiper Switch (MIST)	ON

When the wiper switch is INT:

Data List	Value
Wiper Switch (INT)	ON

Are all data list values correct?

YES—Faulty MICU, replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Go to step 16.

16. Turn the ignition switch to LOCK (0).
17. Do the wiper/washer switch test (see page 22-259).

Is the wiper/washer switch OK?

YES—Go to step 18.

NO—Replace the wiper/washer switch (see page 22-259). ■

18. Disconnect under-dash fuse/relay box connectors M (34P) and Q (16P).

(cont'd)

Wipers/Washers

DTC Troubleshooting (cont'd)

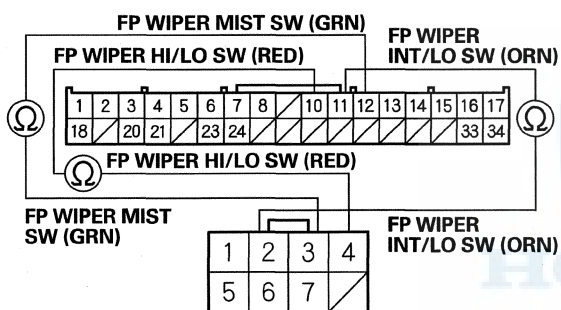
19. Check for continuity between under-dash fuse/relay box connector M (34P) terminals and the wiper/washer switch 8P connector terminals as shown:

Under-dash fuse/relay box connector M (34P)	Wiper/wash switch 8P connector
10	4
11	2
12	3

Under-dash fuse/relay box connector Q (16P)	Wiper/wash switch 8P connector
5	5

UNDER-DASH FUSE/RELAY BOX CONNECTOR M (34P)

Wire side of female terminals

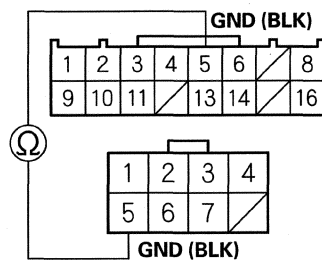


WIPER/WASHER SWITCH 8P CONNECTOR

Wire side of female terminals

UNDER-DASH FUSE/RELAY BOX CONNECTOR Q (16P)

Wire side of female terminals



WIPER/WASHER SWITCH 8P CONNECTOR

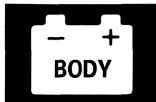
Wire side of female terminals

Is there continuity?

YES—Faulty MICU, replace the under-dash fuse/relay box. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

NO—Repair open in the wires. ■



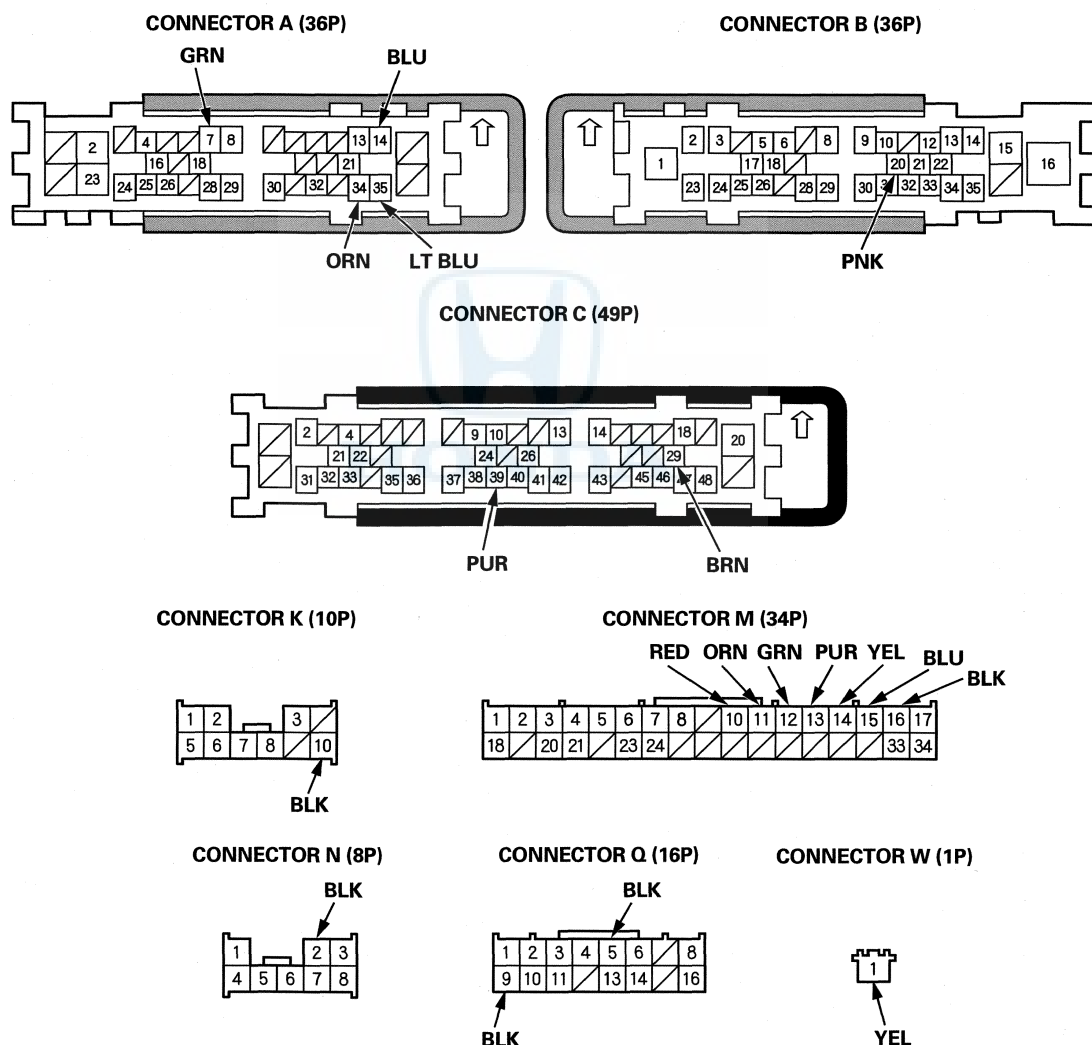
MICU Input Test

NOTE:

- Before performing the input tests, check the No. 16 (10 A), No. 21 (15 A), and No. 56 (30 A) fuse in the under-dash fuse/relay box.
- If there is malfunction of the rear window wiper operation, and no DTCs are detected, check the rear window wiper motor and an open in the ground circuit of the rear window wiper (see step 9 on page 22-248).

1. Turn the ignition switch to LOCK (0).
2. Remove the fuse access panel (see page 20-97).
3. Disconnect under-dash fuse/relay box connectors A, B, C, K, M, N, Q, and W.

NOTE: All connector views are shown from wire side of female terminals.



4. Inspect the connector and socket terminals to be sure they are all making good contact.
 - If the terminals are bent, loose or corroded, repair them as necessary and recheck the system.
 - If the terminals look OK, go to step 5.

(cont'd)

Wipers/Washers

MICU Input Test (cont'd)

5. With the connectors still disconnected, do these input tests at the following connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
W1	YEL	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 60 (IGN) (50 A) fuse in the under-dash fuse/relay box • Faulty ignition switch • An open or high resistance in the wire
A7	GRN	Under all conditions	Connect the terminal A7 to battery power: The wiper motor should run at high speed.	<ul style="list-style-type: none"> • Poor ground (G301) or an open in the ground wire • Faulty wiper motor • An open or high resistance in the wire
A14	BLU	Under all conditions	Connect the terminal A14 to battery power: The wiper motor should run at low speed.	
A34	ORN	Under all conditions	Connect the terminal A34 to battery power and terminal A35 to body ground: The washer motor should run.	<ul style="list-style-type: none"> • Faulty washer motor • An open or high resistance in the wire
A35	LT BLU	Under all conditions	Connect the terminal A35 to battery power and terminal A34 to body ground: The washer motor should run.	<ul style="list-style-type: none"> • Faulty washer motor • An open or high resistance in the wire
B20	PNK	The motor stops at auto-stop position.	Check for continuity to ground: There should be continuity.	<ul style="list-style-type: none"> • Faulty wiper motor • Poor ground (G301) or an open in the ground wire • An open or high resistance in the wire
		Connect the terminal A14 to the battery power momentarily, and stop the motor operation before the motor reaches the auto-stop position.	Check for continuity to ground: There should be no continuity.	Faulty wiper motor
C39 C29	PUR BRN	Connect battery power to terminal C39, then connect terminal C29 to body ground momentarily.	Check rear window wiper motor operation: The rear window wiper motor should run, and the park position.	<ul style="list-style-type: none"> • Faulty rear window wiper motor • An open or high resistance in the wire • Poor ground (G602) or an open in the ground wire



6. Reconnect the connectors to the under-dash fuse/relay box, turn the ignition switch to ON (II), and do these input tests at the following connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the MICU must be faulty; replace the under-dash fuse/relay box (see page 22-65).

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
K10	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) • An open or high resistance in the wire
M16	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
N2	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
Q9	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) • An open or high resistance in the wire
M10 Q5	RED BLK	Wiper/washer switch (LO or HI) ON	Measure the voltage between terminals M10 and Q5: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty wiper/washer switch • An open or high resistance in the wire
		Wiper/washer switch OFF	Measure the voltage between terminals M10 and Q5: There should be about 5 V or more.	Faulty wiper/washer switch
M11 Q5	ORN BLK	Wiper/washer switch (INT or LO) ON	Measure the voltage between terminals M11 and Q5: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty wiper/washer switch • An open or high resistance in the wire
		Wiper/washer switch OFF	Measure the voltage between terminals M11 and Q5: There should be about 5 V or more.	Faulty wiper/washer switch
M12 Q5	GRN BLK	Wiper/washer switch (MIST) ON	Measure the voltage between terminals M12 and Q5: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty wiper/washer switch • An open or high resistance in the wire
		Wiper/washer switch OFF	Measure the voltage between terminals M12 and Q5: There should be about 5 V or more.	Faulty wiper/washer switch
M13 Q5	PUR BLK	Washer switch ON	Measure the voltage between terminals M13 and Q5: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty wiper/washer switch • An open or high resistance in the wire
		Washer switch OFF	Measure the voltage between terminals M13 and Q5: There should be about 5 V or more.	Faulty wiper/washer switch
M14 Q5	YEL BLK	Rear window wiper/washer switch (RR WIPER) ON	Measure the voltage between terminals M14 and Q5: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty Rear window wiper/washer switch • An open or high resistance in the wire
		Rear window wiper/washer switch OFF	Measure the voltage between terminals M14 and Q5: There should be about 5 V or more.	Faulty Rear window wiper/washer switch

(cont'd)

Wipers/Washers

MICU Input Test (cont'd)

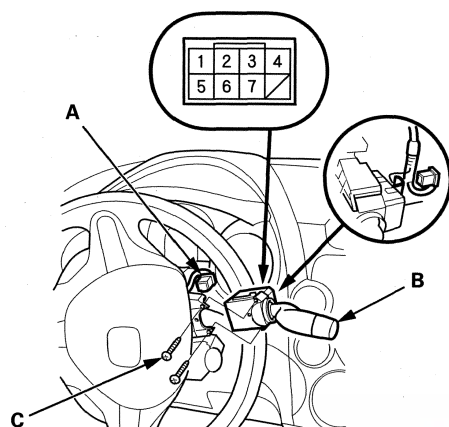
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
M15 Q5	BLU	Rear window wiper/washer switch (RR WASH) ON	Measure the voltage between terminals M15 and Q5: There should be less than 0.2 V.	<ul style="list-style-type: none">• Faulty Rear window wiper/washer switch• An open or high resistance in the wire
	BLK	Rear window wiper/washer switch OFF	Measure the voltage between terminals M15 and Q5: There should be about 5 V or more.	Faulty Rear window wiper/washer switch





Wiper/Washer Switch Test/Replacement

1. Remove the steering column covers (see page 20-105).
2. Disconnect the dashboard wire harness 8P connector (A) from the wiper/washer switch (B).



3. Turn the steering wheel to access the wiper/washer switch screws (C).
4. Remove the two screws, then slide out the wiper/washer switch.
5. Inspect the connector terminals to be sure they are all making good contact.
 - If the terminals are bent, loose, or corroded, repair them as necessary, and recheck the system.
 - If the terminals look OK, go to step 6.

6. Check for continuity between the terminals in each switch position according to the table.

Wiper

Terminal Position	1	2	3	4	5
OFF					
INT		○	—	—	○
LO		○	—	○	○
HI				○	○
Mist ON			○	—	○
Washer ON	○	—	—	—	○

Rear window wiper

Terminal Position	7	6	5
Washer Switch ON, wiper switch OFF		○	○
OFF			
Wiper switch ON, washer switch OFF	○	—	○
Wiper and washer switch ON	○	○	○

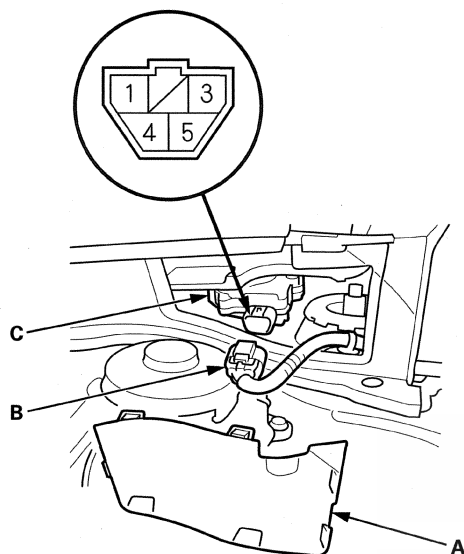
7. If the continuity is not as specified, replace the switch.
8. Install the switch in the reverse order of removal.

Wipers/Washers

Wiper Motor Test

Windshield

1. Remove the wiper arms (see page 22-264) and the cowl lid (A).

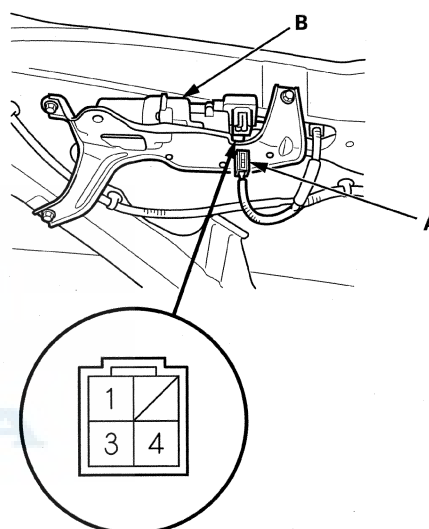


2. Disconnect the 5P connector (B) from the wiper motor (C).
3. Test the motor by connecting battery power to terminal No. 3 and ground to terminal No. 4 of the wiper motor 5P connector. The motor should run at low speed.
4. Test the motor by connecting battery power to terminal No. 5 and ground to terminal No. 4 of the wiper motor 5P connector. The motor should run at high speed.
5. Connect an analog ohmmeter to terminals No. 1 and No. 4, and run the motor at low speed (repeat step 3). The needle of the ohmmeter should pulse.
6. If the motor does not run, or fails to run smoothly, or there is no pulse, replace the motor.

Rear Window

NOTE: If there is malfunction of the rear window wiper operation, and no DTCs are detected, test the rear window wiper motor as described below, and check for an open or high resistance in the ground circuit of the rear window wiper (see step 9 on page 22-248).

1. Open the tailgate, and remove the tailgate lower trim panel (see page 20-78).
2. Disconnect the 4P connector (A) from the wiper motor (B).

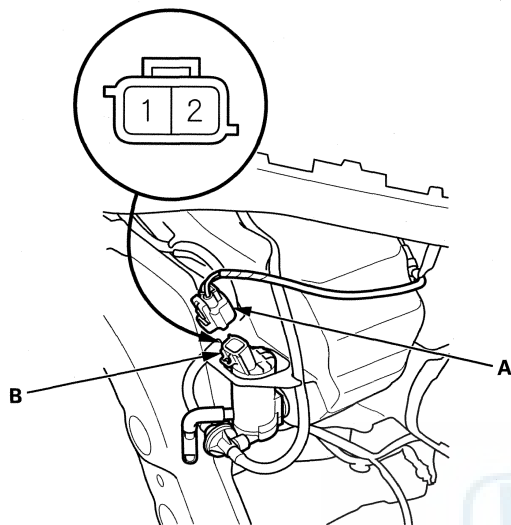


3. Test the motor by connecting battery power to terminal No. 1 and ground to terminal No. 3 of the wiper motor. The motor should run.
4. Connect an analog ohmmeter between rear window wiper motor 4P connector terminals No. 3 and No. 4 and run the motor (repeat step 3). The needle of the ohmmeter should pulse.
5. If the motor does not run, or fails to run smoothly, or there is no pulse, replace the motor.



Washer Motor Test

1. Remove the right inner fender (see page 20-178).
2. Disconnect the 2P connector (A) from the washer motor (B).

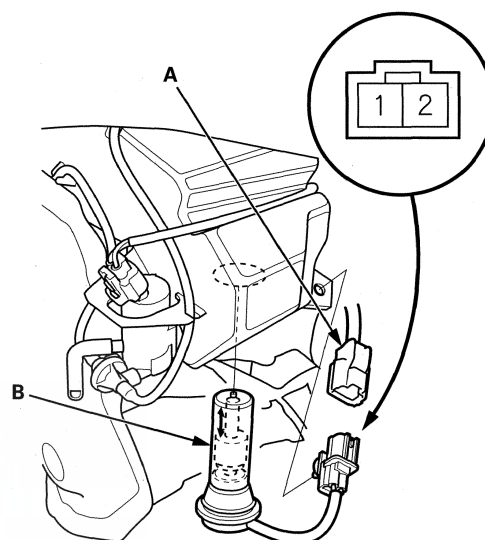


3. Test the motor by connecting battery power to terminal No. 1 (or No. 2), and ground to terminal No. 2 (or No. 1) of the washer motor. The motor should run.
 - If the motor does not run, or fails to run smoothly, replace the motor (see page 22-264).
 - If the motor runs smoothly, but little or no washer fluid is pumped, check for a disconnected or blocked washer hose, or a clogged washer motor outlet.

Washer Fluid Level Switch Test

Canada models

1. Remove the right inner fender (see page 20-178).
2. Disconnect the 2P connector (A) from the washer fluid level switch (B).



3. Remove the washer fluid level switch from the washer reservoir.

NOTE: Fluid may flow out of the opening.

4. Check for continuity between terminals No. 1 and No. 2 in each float position.
 - There should be continuity when the float is down.
 - There should be no continuity when the float is up.
5. If the continuity is not as specified, replace the switch.

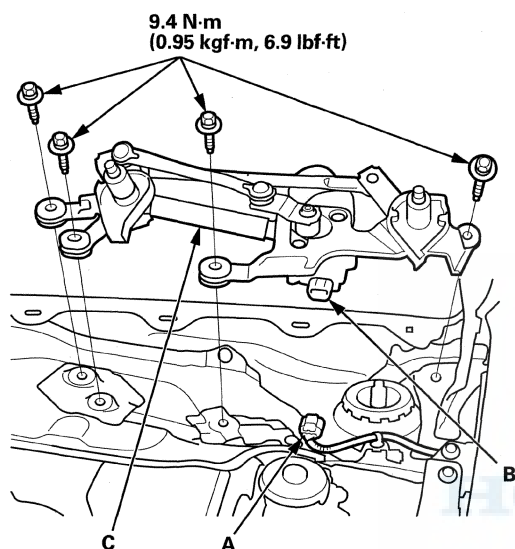
Wipers/Washers

Wiper Motor Replacement

Removal

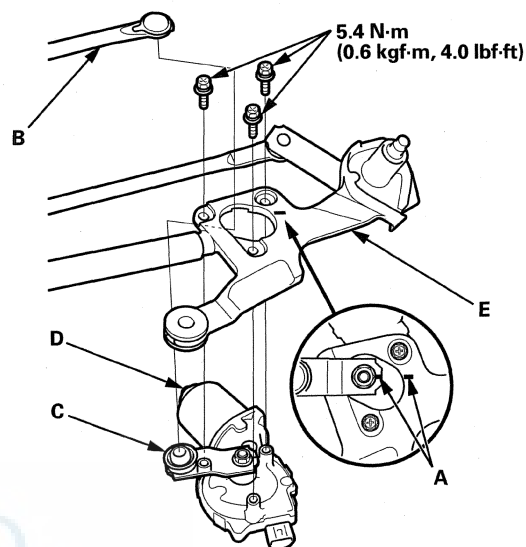
NOTE: Be careful not to scratch or damage the hood and the body.

1. Remove the wiper arms (see page 22-264).
2. Remove the cowl cover (see page 20-168).
3. Disconnect the 5P connector (A) from the wiper motor (B).



4. Remove the four bolts and the wiper linkage assembly (C).

5. Mark lines (A) to show the original adjustment, then remove the connection rod (B) from the linkage (C).



6. Remove the three bolts and separate the wiper motor (D) from the linkage assembly (E) through the hole.

Installation

- Before installing the motor, connect the 5P connector to the wiper motor, and turn the wiper/washer switch ON to LO or HI position, then OFF to return the motor shaft to the park position.

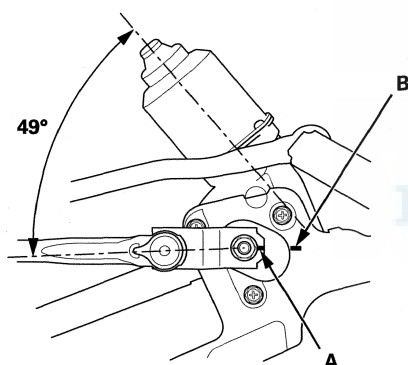
NOTE:

- Do not use the wiper/washer switch INT position in this step.
- Apply multipurpose grease to the moving parts.

- Install the wiper motor to the wiper linkage assembly in the reverse order of removal.

- Install the linkage to the wiper motor shaft, then align the mark (A) of the linkage and the mark (B) of the wiper linkage assembly.

NOTE: The linkage should be installed at the angle specified below.

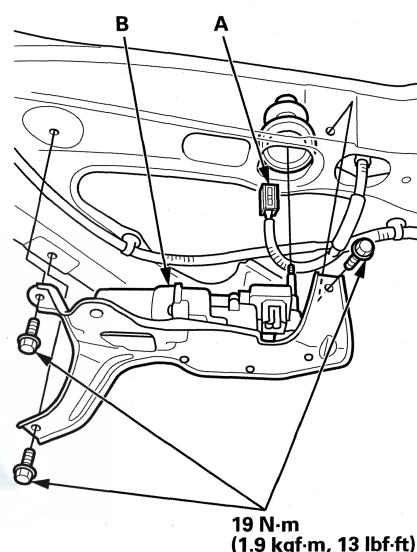


- After installation, adjust the wiper arms (see page 22-267).

Rear Window

NOTE: Be careful not to scratch or damage the tailgate.

- Remove the rear window wiper arm (see page 22-264).
- Open the tailgate, and remove the tailgate lower trim panel (see page 20-78).
- Disconnect the 4P connector (A) from the rear window wiper motor (B).



- Remove the three bolts and the rear window wiper motor.
- Install in the reverse order of removal, and note these items:
 - Grease the moving parts.
 - Before reinstalling the wiper arm, turn the rear window wiper switch ON, then OFF to return the wiper shaft to the park position.
 - Check the wiper motor operation.

Wipers/Washers

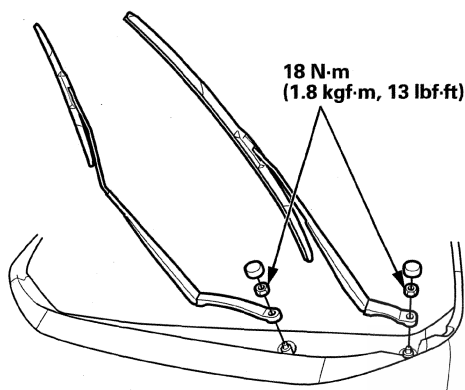
Wiper Arm Replacement

NOTE: Set the wiper arms to the auto-stop position before removal and installation.

Windshield

NOTE: Always pull up the driver's side wiper blade first.

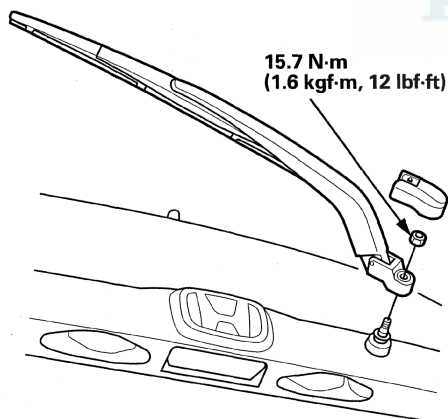
1. Remove the caps, the nuts, and the wiper arms.



Rear Window

NOTE: Be careful not to damage the tailgate.

1. Remove the cover, the nut, and the wiper arm.



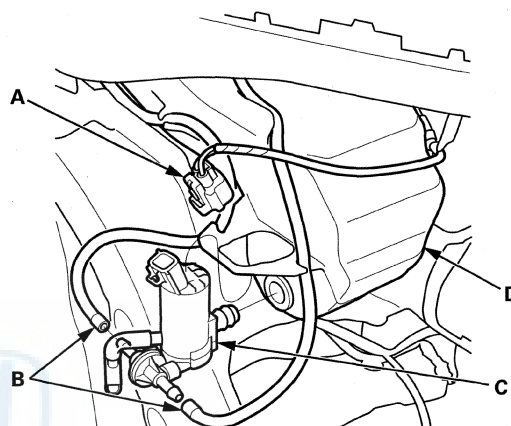
Washer Reservoir Replacement

1. Remove the front bumper (see page 20-144).
2. Disconnect the 2P connector (A) and tubes (B) from the washer motor (C) and the washer fluid level switch (Canada models).

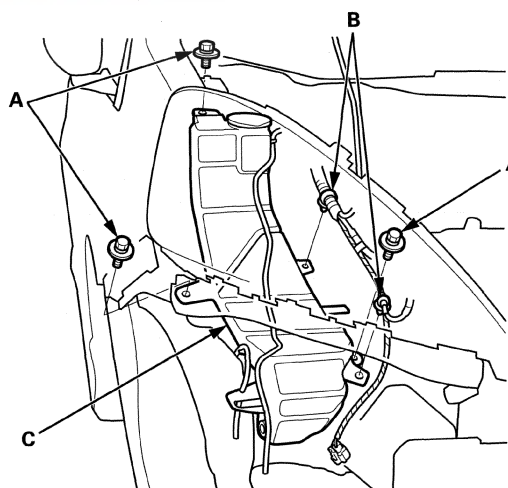
Washer Reservoir Capacity:

2.5 L (2.6 US qt): USA models

4.5 L (4.8 US qt): Canada models



3. Remove the washer motor from the washer reservoir (D).
4. Remove the bolts (A) and clips (B), then remove the washer reservoir (C).



5. Install the washer reservoir in the reverse order of removal. Check the washer motor operation.

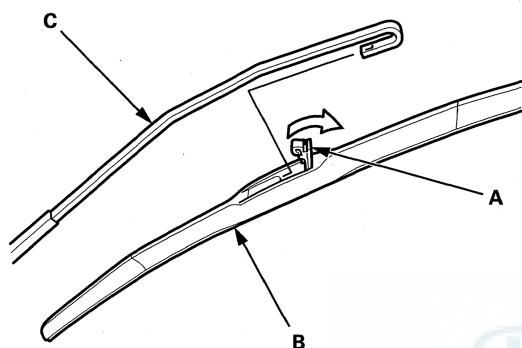
Wiper Blade Replacement

Windshield

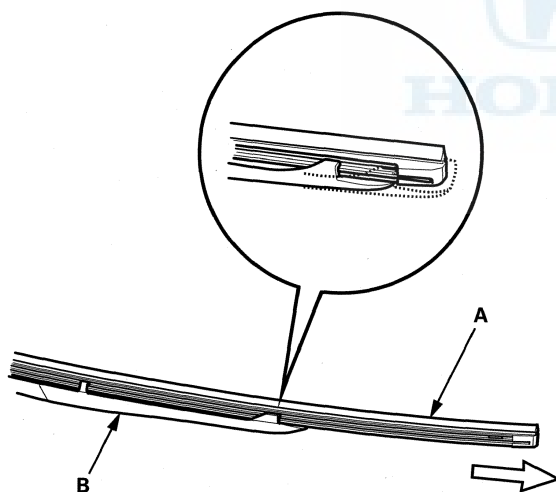
1. Lift the wiper arms from the windshield.

NOTE: Lift the driver's side first.

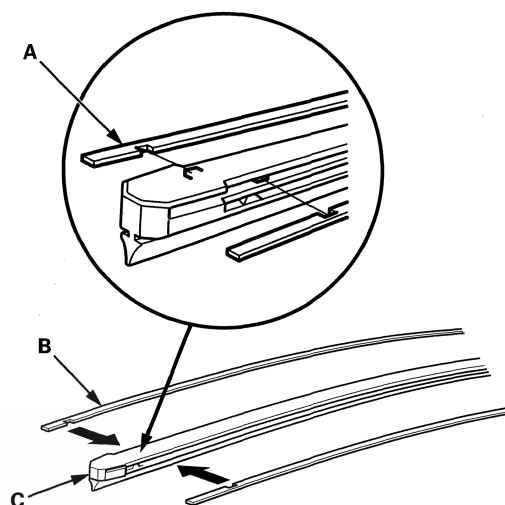
2. Pull up and hold the tab (A) of the wiper blade assembly (B), and remove the wiper blade assembly from the wiper arm (C).



3. Slide the blade (A) out of the wiper blade holder (B).



4. Align the groove (A) in each rail (B) with the tabs in a new wiper blade, then install the new wiper blade and rails into the blade holder in the reverse order of removal.



5. Install the wiper blade assemblies onto the wiper arms in the reverse order of removal.

6. Test the wiper operation. If the blades slip, turn the wiper switch OFF, and reinstall the blades securely.

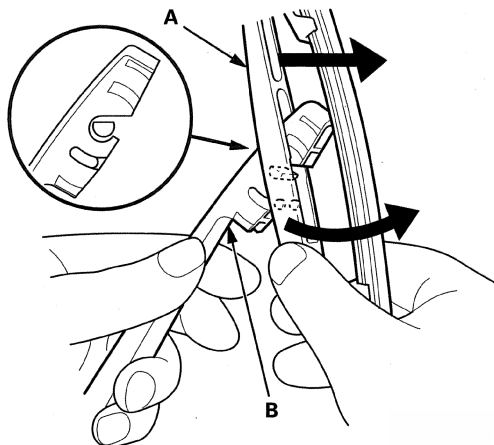
(cont'd)

Wipers/Washers

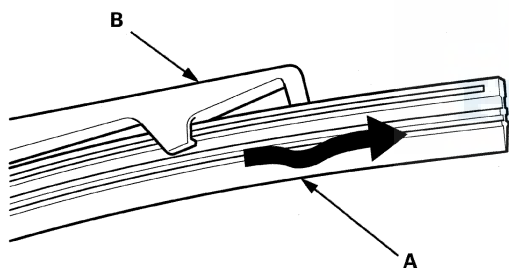
Wiper Blade Replacement (cont'd)

Rear Window

1. Turn the wiper blade assemblies (A), and remove the lock from the wiper arm (B).



2. Pull the wiper blade (A) up, and slide it out from the wiper blade holder (B).



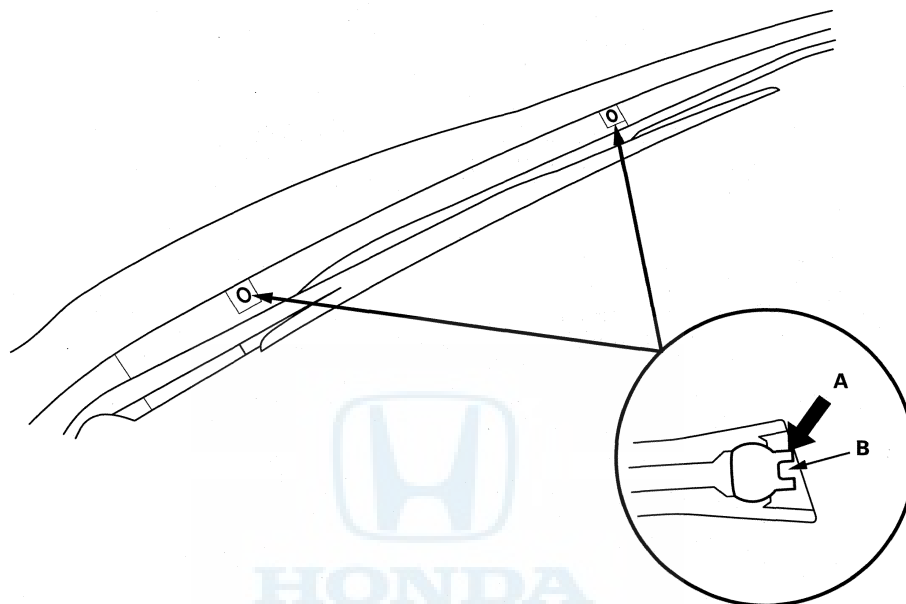
3. Install a new wiper blade in the reverse order of removal.
4. Test the wiper operation. If the blade slips, turn the wiper switch OFF, and reinstall the blade securely.



Wiper Arm/Nozzle Adjustment

NOTICE

- When you adjust the washer nozzles, carefully move the outside of the washer nozzles (A).
- Do not insert tools into the nozzle hole (B), as it may cause the washer fluid to spray incorrectly.



(cont'd)

Wipers/Washers

Wiper Arm/Nozzle Adjustment (cont'd)

Windshield Wiper Arms Park Position

1. Turn the ignition switch to ON (II), then turn the wiper switch ON, and then back OFF.
2. When the wiper arms stop at the park position, make sure that they are at the correct position.

Windshield

- a: Position at about 92 mm (3.62 in) from the top of cowl cover (A).
- b: Position at about 36 mm (1.42 in) from the top of cowl cover (A).

Rear window

- c: Position at about 10 mm (0.39 in) from the black ceramic area (D).

Washer nozzle position

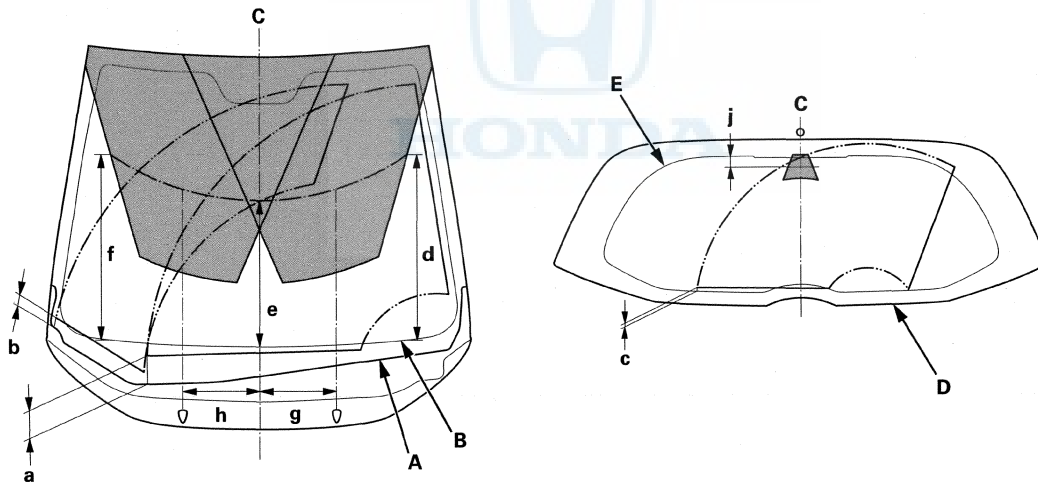
3. When you turn on the washers, make sure 50 % or more of the washer fluid lands within the spray area. If the spray area is not within the standard positions, adjust the nozzles.

Windshield

- d: Position at about 601 mm (23.66 in) from the top of the black ceramic area (B) at the lower windshield.
- e: Position at about 485 mm (19.09 in) from the top of the black ceramic area (B) at the lower windshield.
- f: Position at about 601 mm (23.66 in) from the top of the black ceramic area (B) at the lower windshield.
- g: Position at about 250 mm (9.84 in) from the windshield center line (C).
- h: Position at about 250 mm (9.84 in) from the windshield center line (C).

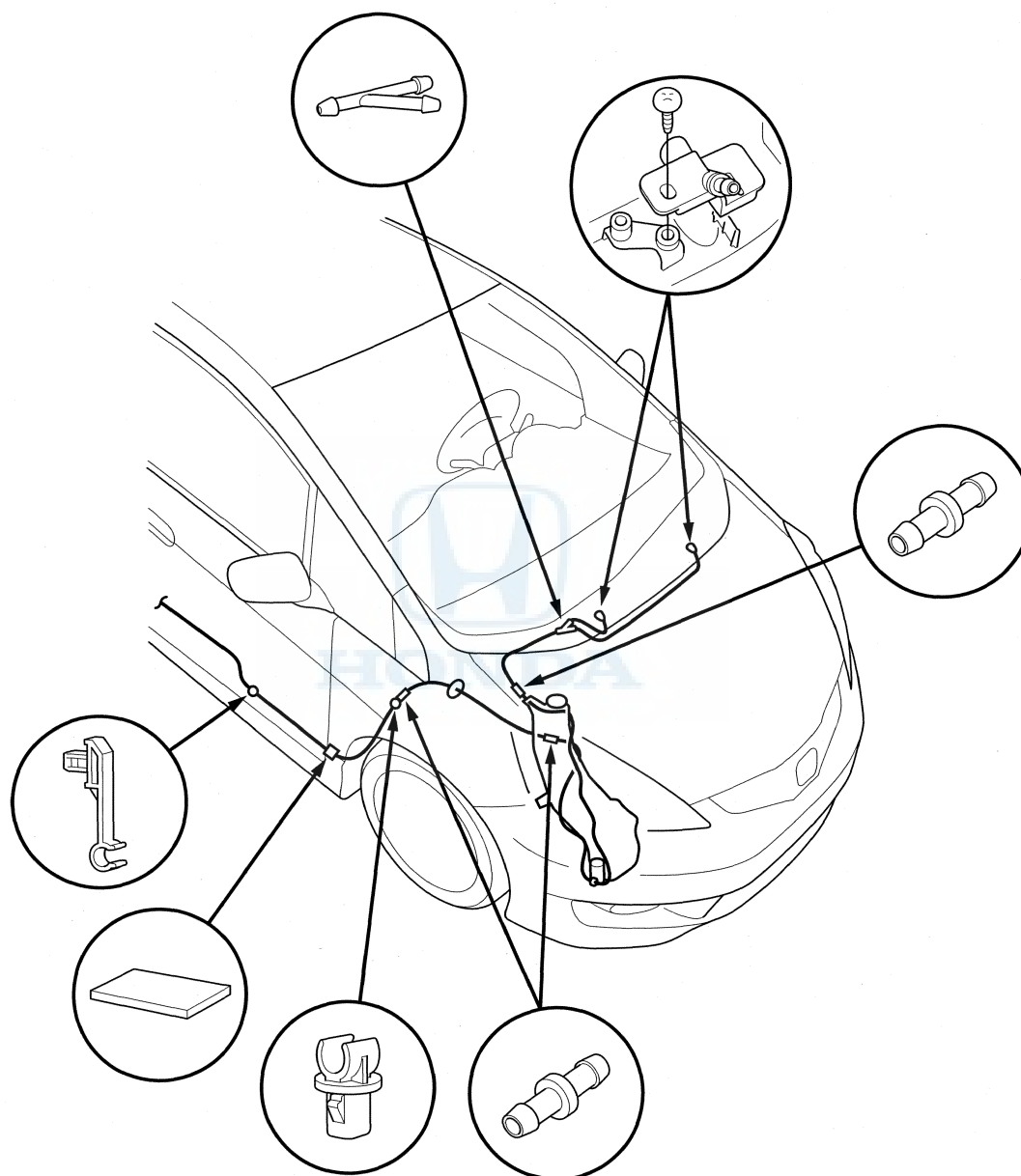
Rear Window

- j: Position at about 24.7 mm (0.972 in) from the top of the black ceramic area (E).



Washer Tube Replacement

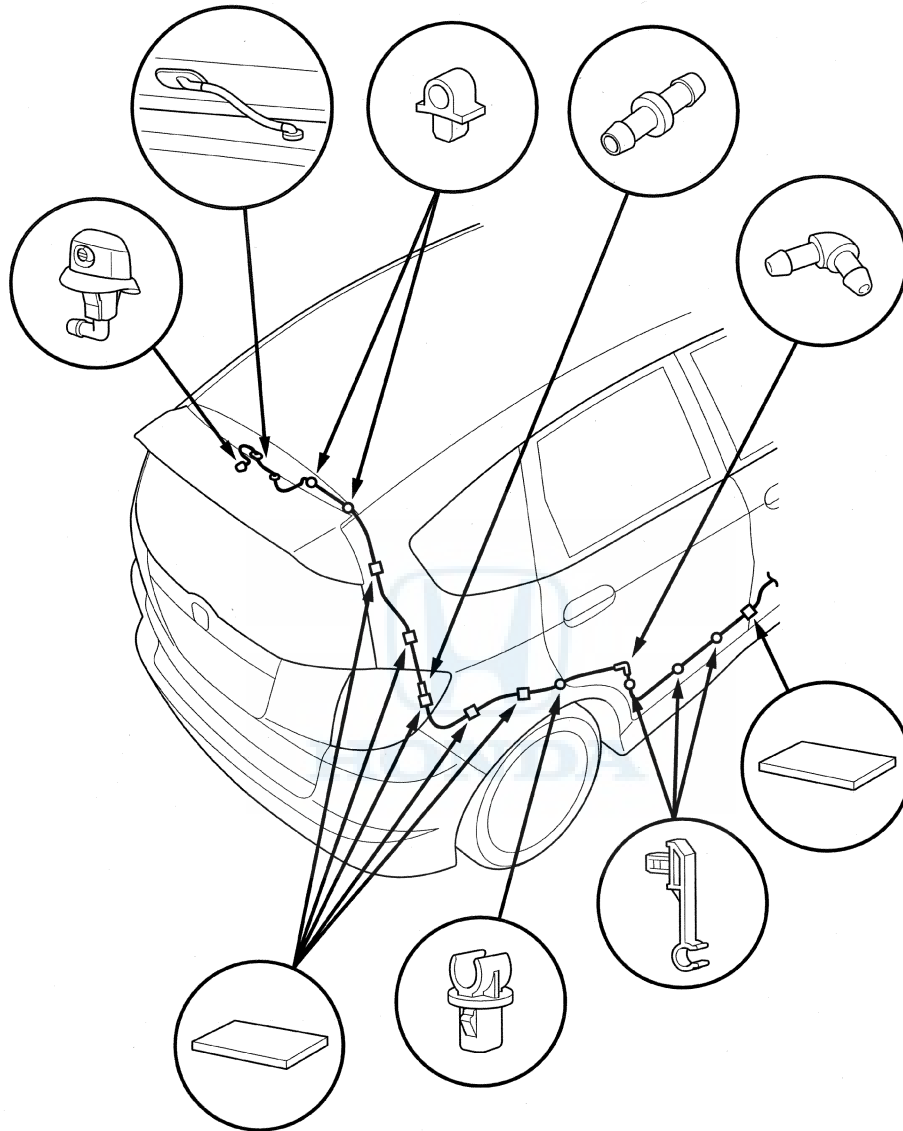
1. Remove the right inner fender (see page 20-178).
2. Remove the washer nozzles and clips, then remove the tubes.



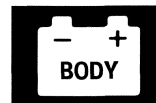
(cont'd)

Wipers/Washers

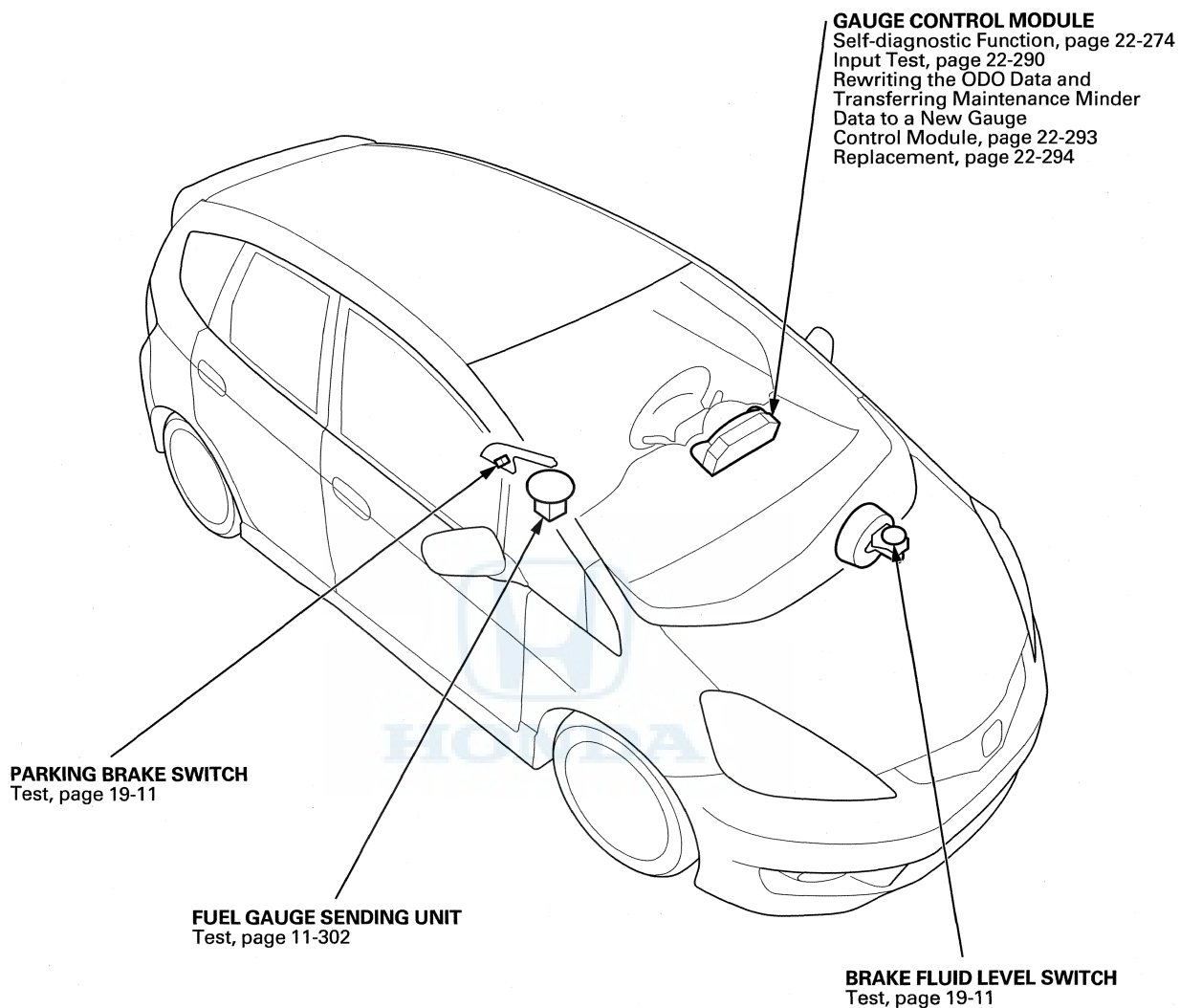
Washer Tube Replacement (cont'd)



3. Install the parts in the reverse order of removal. Take care not to pinch the washer tubes. Check the washer operation.



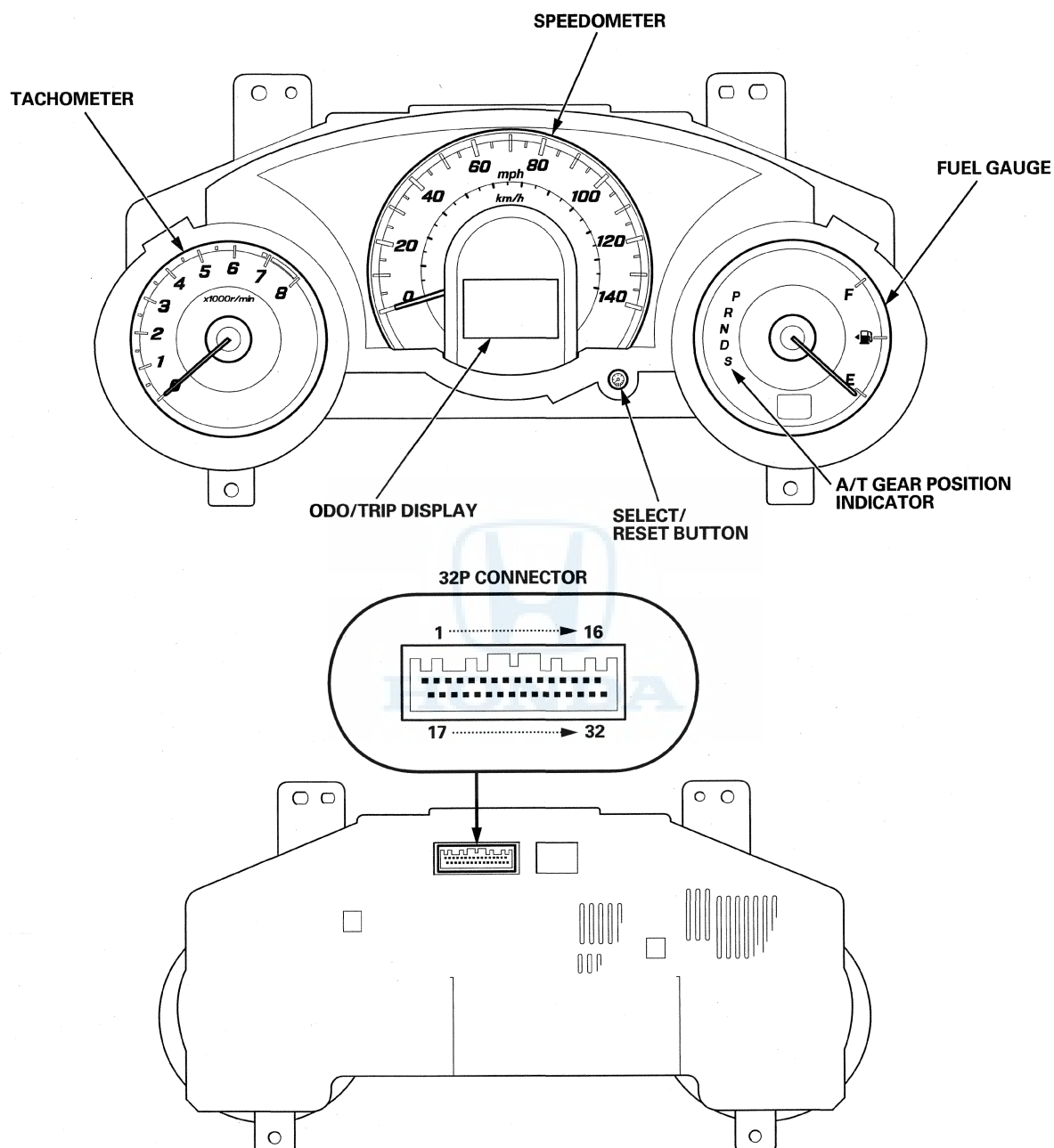
Component Location Index



(cont'd)

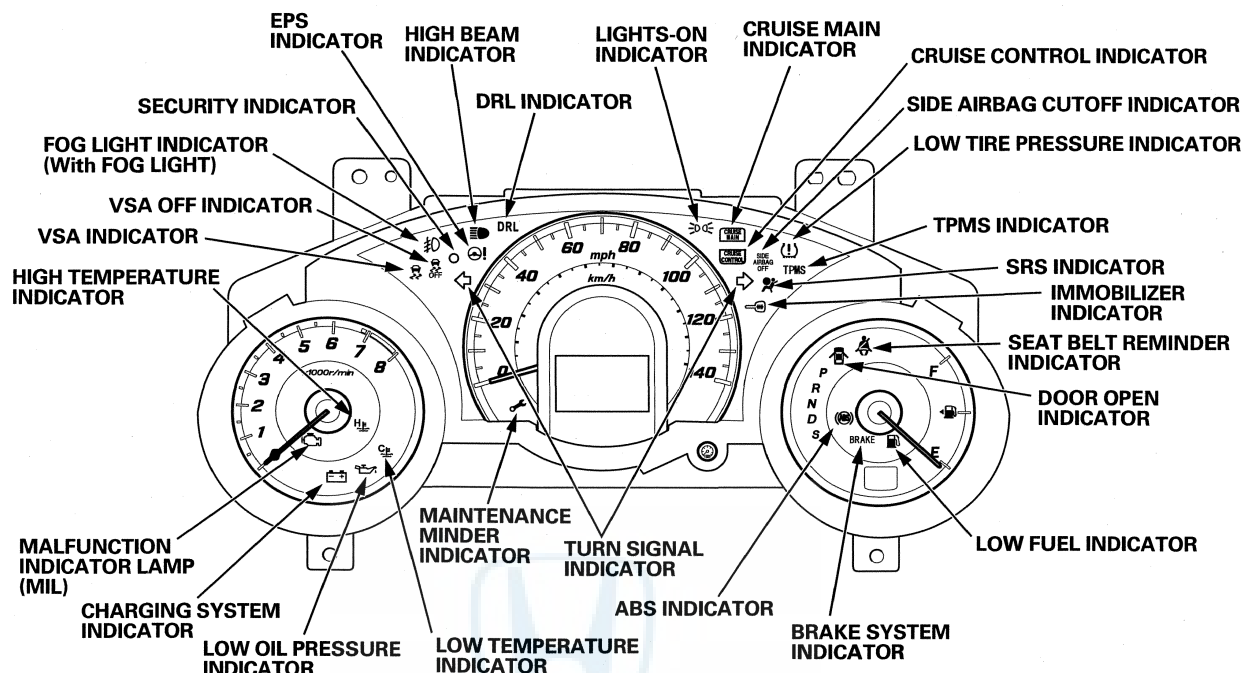
Gauges

Component Location Index (cont'd)

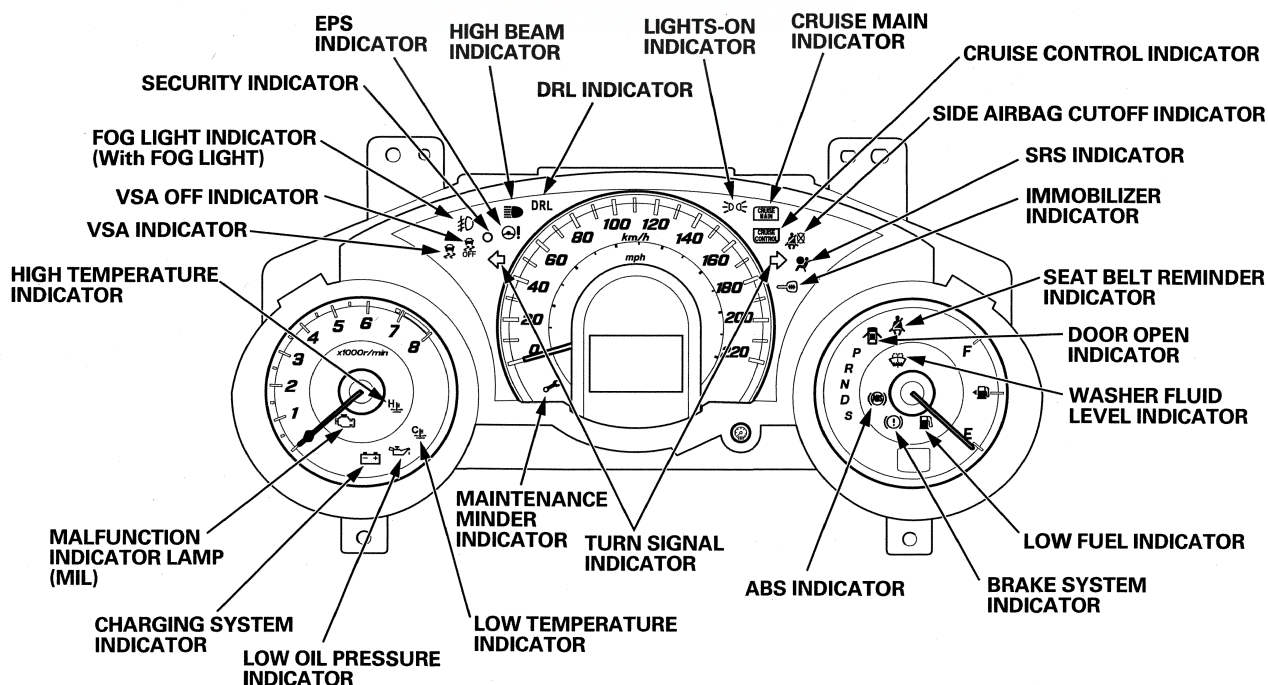




USA models



Canada models



Gauges

Self-Diagnostic Function

NOTE: Before doing the self-diagnostic function, make sure the No. 1 (10 A) and the No. 22 (7.5 A) fuse in the under-dash fuse/relay box are OK.

The gauge control module has a self-diagnostic function which consists of the following checks:

- The beeper drive circuit check.
- The indicator drive circuit check.
- The switch input test.
- The LCD segment check.
- The gauges drive circuit check (tachometer, fuel gauge, speedometer).
- The communication line check of the B-CAN (body-controller area network) communication line and the F-CAN (fast-controller area network) communication line between the gauges.

NOTE:

Indicators are also controlled via the communication lines.

Entering the Self-Diagnostic Function With the HDS

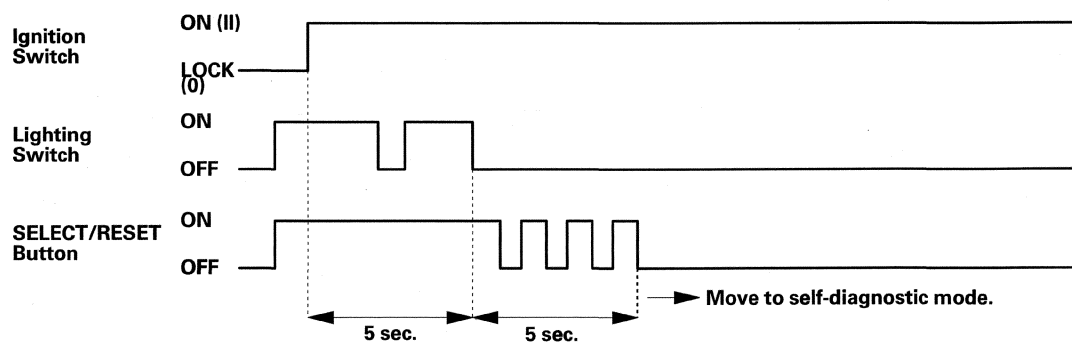
Using the HDS, select Body Electrical, Gauges, then Function Test and do the self-diagnostic function.

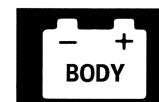
Entering the Self-Diagnostic Function (Manual method)

1. Push and hold the SELECT/RESET button.
2. Turn the combination light switch (⌘) ON.
3. Turn the ignition switch to ON (II).
4. Within 5 sec., turn the combination light switch (⌘) OFF, then ON and OFF again.
5. Within 5 sec., release the SELECT/RESET button, and then push and release the button three times repeatedly.

NOTE:

- While in the self-diagnostic mode, the dashlights brightness controller operates normally.
- While in the self-diagnostic mode, the SELECT/RESET button is used to start the Beeper Drive Circuit Test and the Gauge Drive Circuit Check.
- If the vehicle speed exceeds 1.2 mph (2 km/h) or the ignition switch is turned to LOCK (0), the self-diagnostic mode ends.





The Indicator Drive Circuit Check

When entering the self-diagnostic mode, the following indicators (if equipped) blink:

ABS indicator, brake system indicator, A/T gear position indicator, charging system indicator, cruise control indicator, cruise main indicator, EPS indicator, high beam indicator, high temperature indicator, immobilizer indicator, lights-on indicator, low temperature indicator, low oil pressure indicator, low fuel indicator, malfunction indicator lamp (MIL), seat belt indicator, security indicator, side airbag cutoff indicator, sequential sportshift mode shift indicator, SRS indicator, fog light indicator, ABS malfunction indicator, VSA malfunction/activation indicator*, DRL indicator, TPMS indicator, low tire pressure indicator, VSA OFF indicator*, washer fluid level indicator (Canada models), maintenance required indicator.

*: With VSA

The Beeper Drive Circuit Check

When entering the self-diagnostic mode, the beeper sounds five times.

Switch Input Check

At the initial stage of the self-diagnostic function, the beeper sounds intermittently. The beeper sounds continuously when any of the following switch inputs are switched from OFF to ON: Cruise control main, SET/DECEL, RES/ACCEL, CANCEL switches, VSA OFF switch, SELECT/RESET button, parking brake switch.

The LCD Segment Check

When entering the self-diagnostic mode, all the segments blink five times.

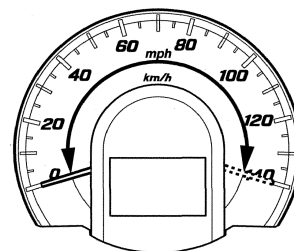
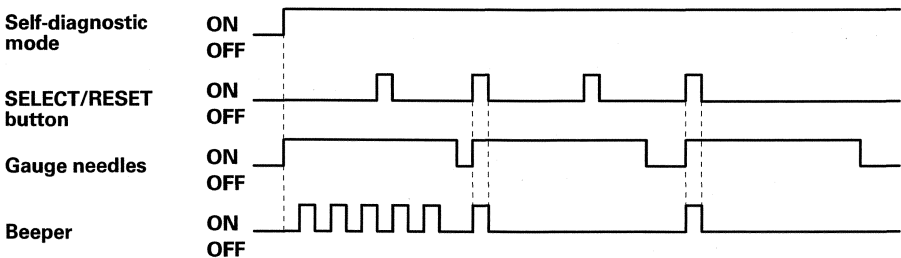
The Gauge Drive Circuit Check

When entering the self-diagnostic mode, the speedometer, the tachometer, the fuel gauge needles sweep from the minimum position to maximum position, then return to the minimum position.

NOTE:

After the beeper stops sounding and the gauge needles return to the minimum position, pressing the SELECT/RESET button starts the Beeper Drive Circuit Check (one beep) and the Gauge Drive Circuit Check again.

The check cannot be started again until the gauge needles return to the minimum position.



The needles sweep from the minimum position to the maximum position, then return to the minimum position.

If the needles fail to sweep, or the beeper does not sound, replace the gauge control module.

(cont'd)

Gauges

Self-Diagnostic Function (cont'd)

The Communication Line Check

While in the self-diagnostic mode, the communication line check starts after the LCD Segments Check.
If all segments come on, the communication line is OK. If faulty, the letters "Err" will be indicated on the odometer display followed by number(s).

Error Code List

Error code	Type of communication line(s) error
Error 1	F-CAN communication
Error 2	B-CAN communication
Error 12	F-CAN and B-CAN communication

Example Indication

Normal (all segments come on.)

88888888

Faulty (Error 1)

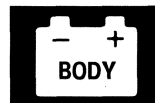
Err 1

- Err 1: there is a malfunction in the communication line between the gauge control module and F-CAN. Check for DTCs in the ECM/PCM (see page 11-3), and troubleshoot the indicated DTCs.
- Err 2: there is a malfunction in the communication line between the gauge control module and B-CAN. Check for DTCs in the body electrical system and troubleshoot the indicated DTCs.
- Err 12: there is a malfunction in the communication line between the gauge control module and F-CAN or B-CAN. Check for DTCs in the ECM/PCM first and troubleshoot the indicated DTCs. If there is no DTCs in the ECM/PCM, check for the body electrical system DTCs and troubleshoot the indicated DTCs.

Ending the self-diagnostic function

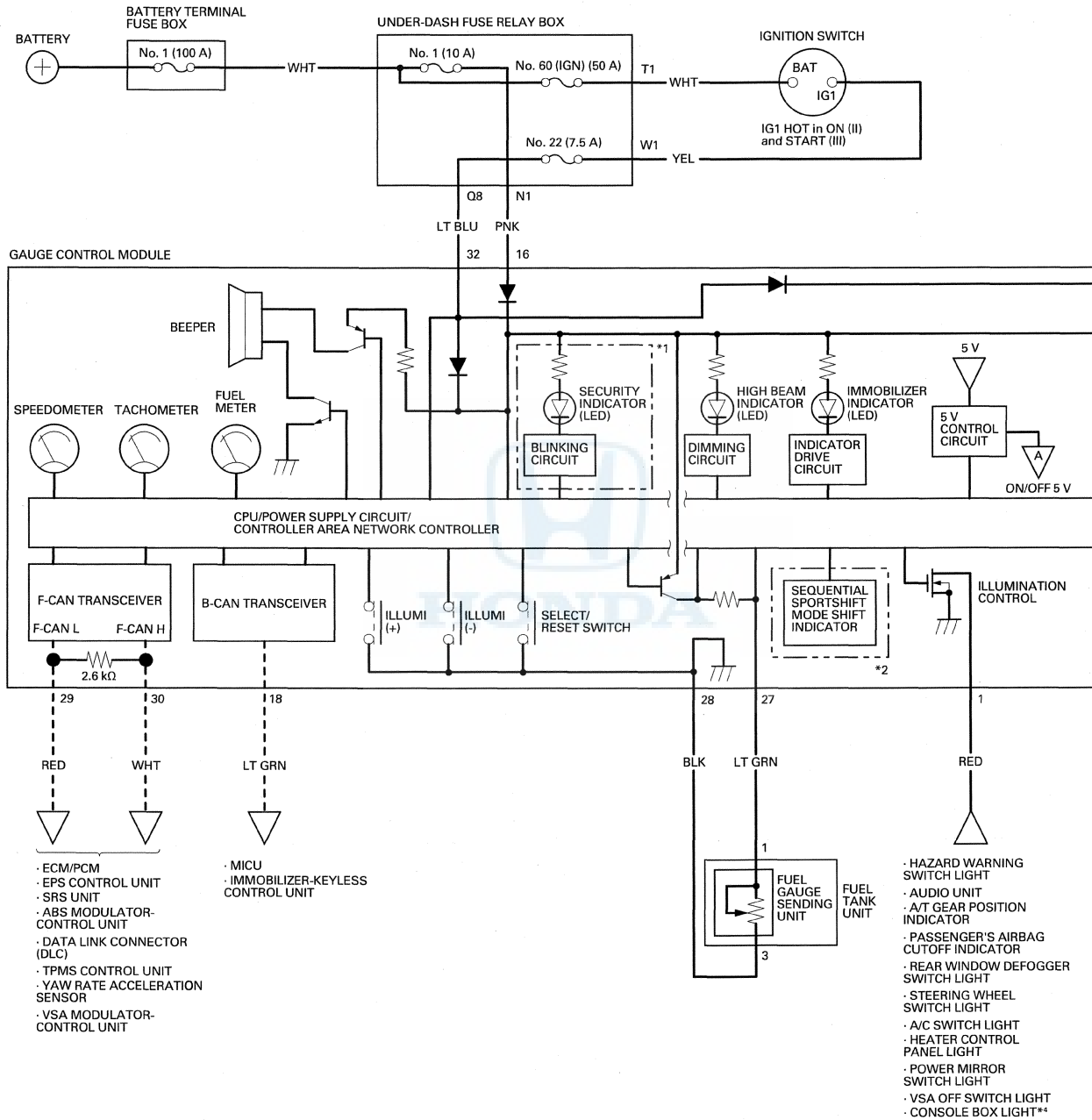
Turn the ignition switch to LOCK (0).

NOTE: If the vehicle speed exceeds 1.2 mph (2 km/h), the self-diagnostic function ends.



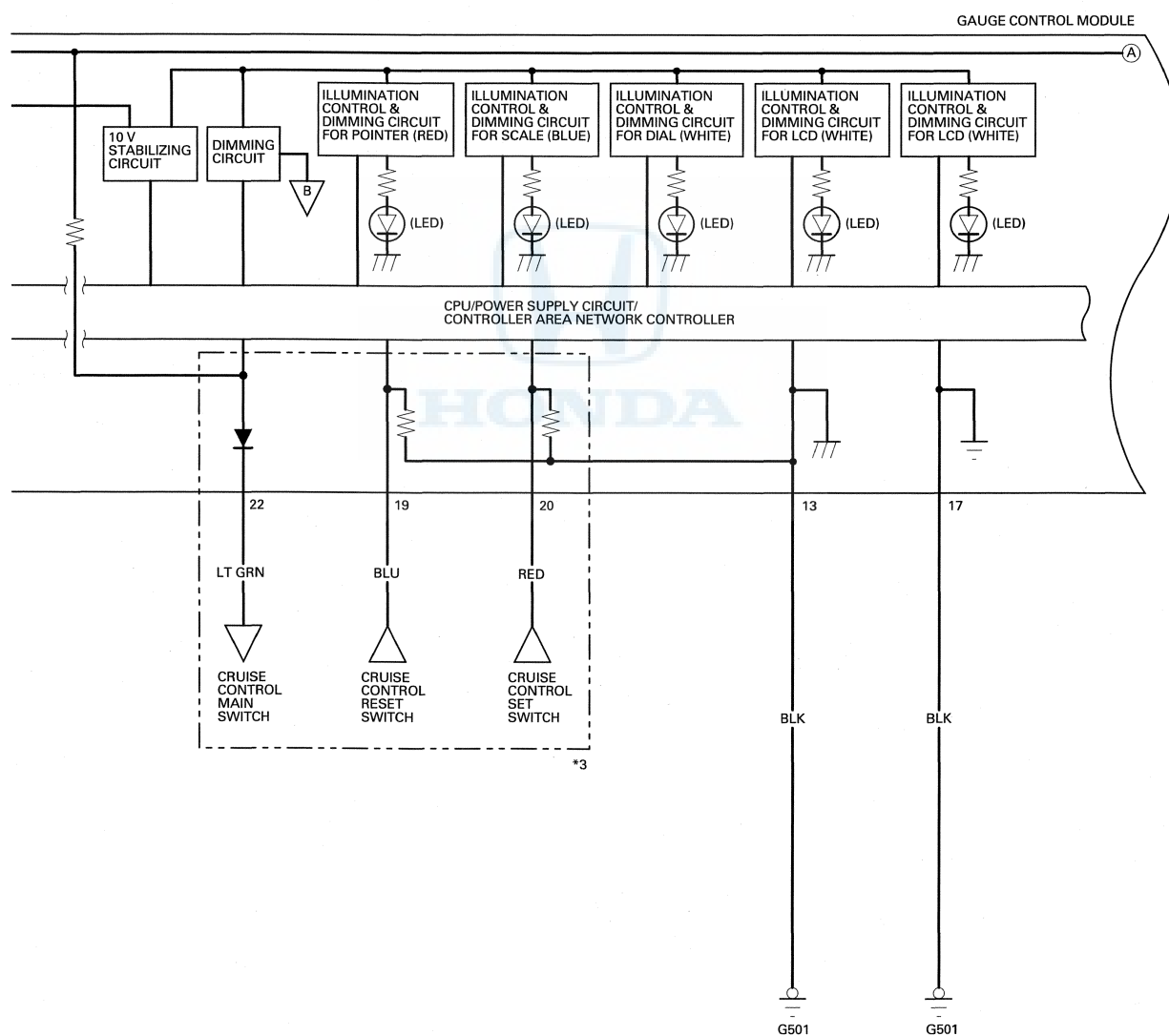
Gauges

Circuit Diagram





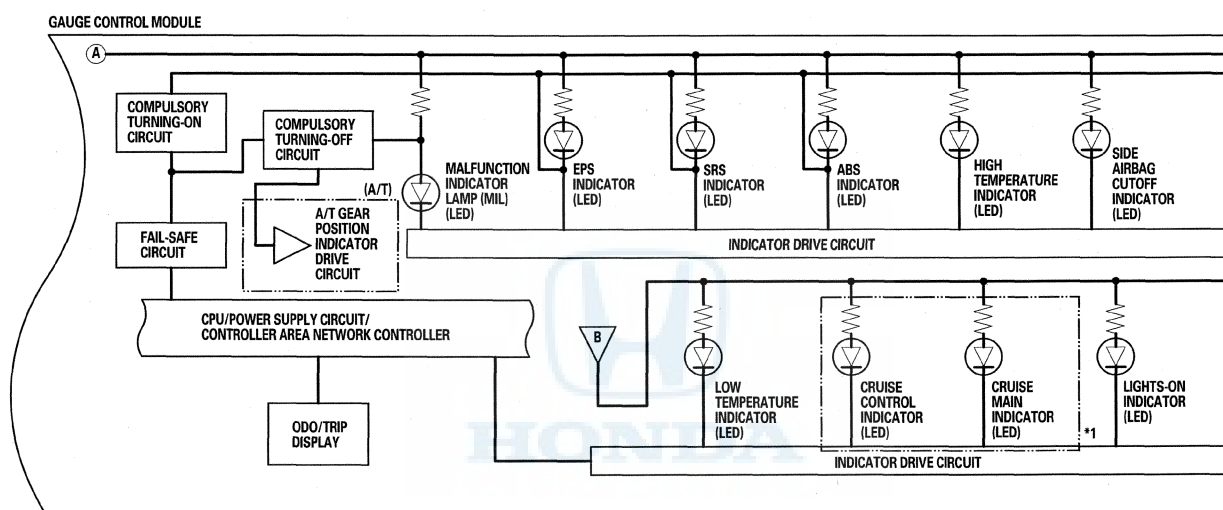
- *1 : With security
 - *2 : With paddle shifter +/-
 - *3 : With cruise control
 - *4 : '12 model
- : CAN line



(cont'd)

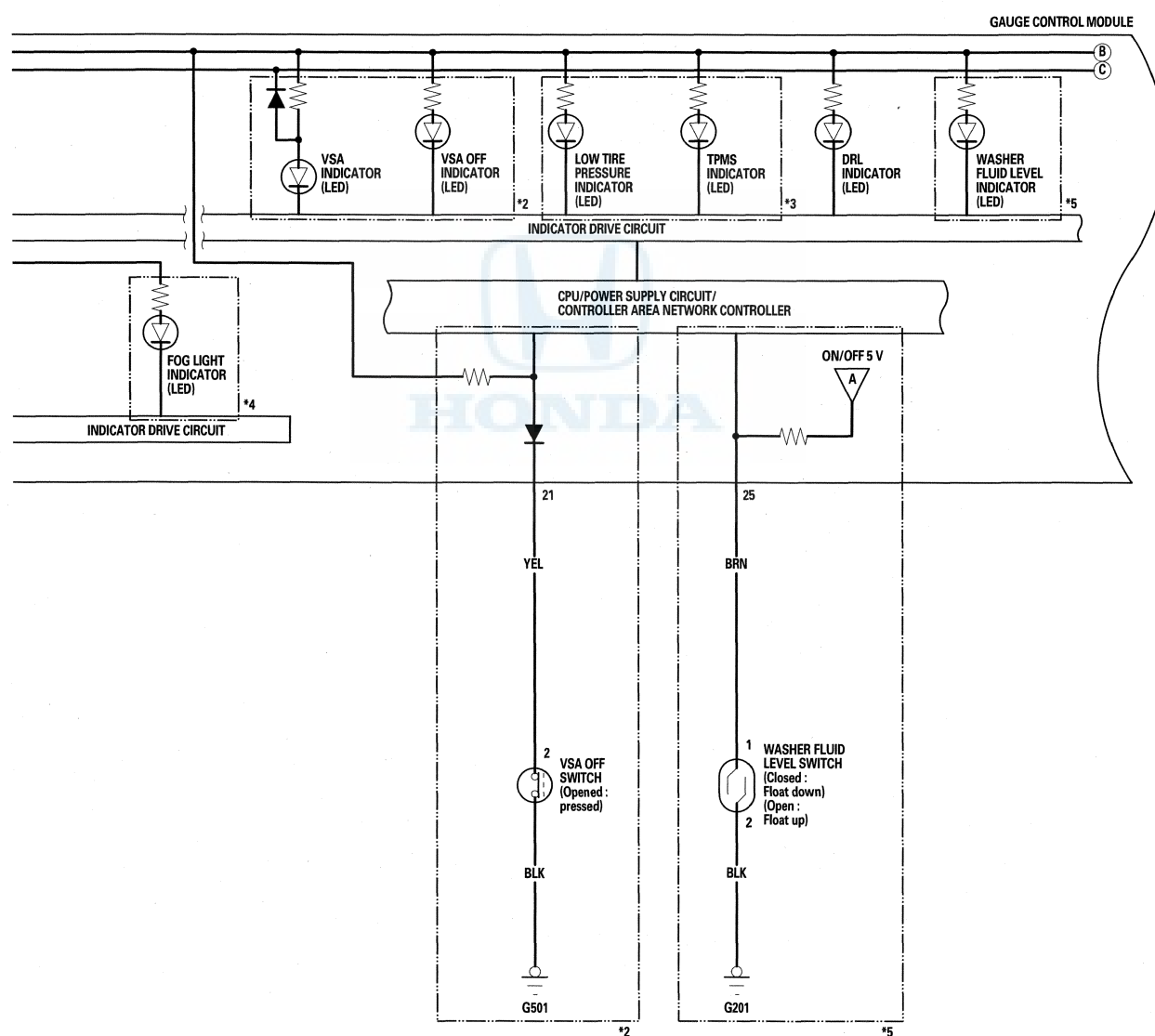
Gauges

Circuit Diagram (cont'd)





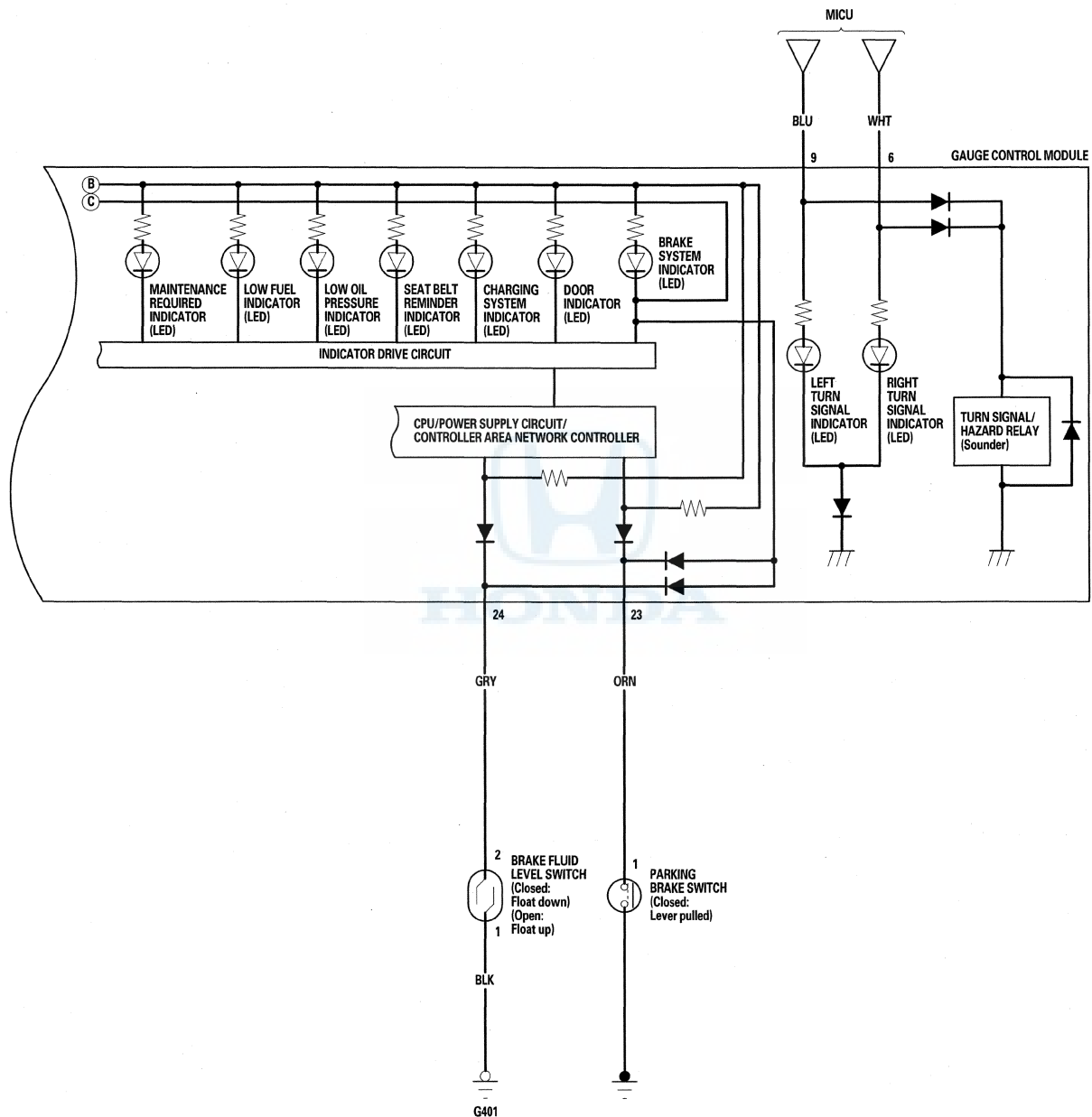
- *1 : With cruise control
- *2 : With VSA
- *3 : With TPMS
- *4 : With fog lights
- *5 : Canada models



(cont'd)

Gauges

Circuit Diagram (cont'd)





DTC Troubleshooting

DTC B1152: Gauge control module internal (EEPROM) error

NOTE: If you are troubleshooting multiple DTC's, be sure to follow the instruction in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Check for DTCs with the HDS.

Is DTC B1152 indicated?

YES—Replace the gauge control module (see page 22-294). ■

NO—Intermittent failure, the gauge control module is OK at this time. ■

DTC B1155: Gauge control module lost communication with MICU (headlight switch message)

DTC B1156: Gauge Control Module lost communication with MICU (wiper switch message)

DTC B1157: Gauge control module lost communication with the MICU (MICU message)

DTC B1159: Gauge control module lost communication with the MICU (DOORSW message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC B1155, B1156, B1157, or B1159 indicated?

YES—Faulty gauge control module; replace the gauge control module (see page 22-294).

NO—Intermittent failure, the gauge control module is OK at this time. Check for loose or poor connections between the gauge control module and the MICU. ■

(cont'd)

Gauges

DTC Troubleshooting (cont'd)

DTC B1168: Gauge control module lost communication with the PCM (Engine messages)

DTC B1169: Gauge control module lost communication with the PCM (A/T messages)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC B1168 or B1169 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

5. Check for Fuel and Emission system DTCs with the HDS (see page 11-3).

Are any DTCs indicated?

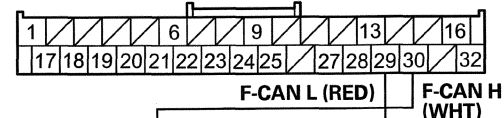
YES—Go to the indicated DTC's troubleshooting, then recheck.

NO—Go to step 6.

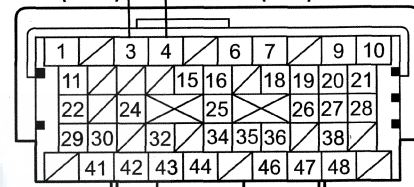
6. Turn the ignition switch to LOCK (0).
7. Disconnect the gauge control module 32P connector.
8. Jump the SCS line with the HDS.
9. Disconnect ECM/PCM connector A (49P).

10. Check for continuity between gauge control module 32P connector terminals No. 29 and No. 30 and ECM/PCM connector terminals A (49P) terminals No. 4 and No. 3 respectively.

GAUGE CONTROL MODULE 32P CONNECTOR
Wire side of female terminals



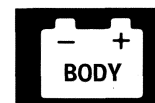
ECM/PCM CONNECTOR A (49P)
Terminal side of female terminals



Is there continuity?

YES—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/PCM (see page 11-7), and recheck. If the indication goes away, replace the original ECM/PCM (see page 11-215). If the DTC is still present, replace the gauge control module (see page 22-294). ■

NO—Repair an open or high resistance in the wires. ■



DTC B1170: Gauge control module lost communication with the VSA/ABS modulator-control unit (VSA/ABS message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC B1170 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

5. Check for DTCs in the VSA or ABS system with the HDS.

Are any DTCs indicated?

YES—Go to the indicated DTC's troubleshooting, then recheck. ■

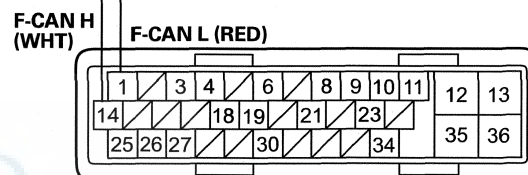
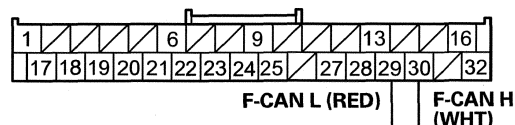
NO—

- With VSA system: Go to step 6.
- With ABS system: Go to step 10.

6. Turn the ignition switch to LOCK (0).
7. Disconnect the gauge control module 32P connector.
8. Disconnect the VSA modulator-control unit 36P connector.

9. Check for continuity between gauge control module 32P connector terminals No. 29 and No. 30 and VSA modulator-control unit 36P connector terminals No. 1 and No. 14 respectively.

GAUGE CONTROL MODULE 32P CONNECTOR Wire side of female terminals



VSA MODULATOR-CONTROL UNIT 36P CONNECTOR Wire side of female terminals

Is there continuity?

YES—Substitute a known-good VSA modulator-control unit, and recheck. If the indication goes away, replace the original VSA modulator-control unit. If the DTC is still present, replace the gauge control module (see page 22-294). ■

NO—Repair an open in the wires. ■

10. Turn the ignition switch to LOCK (0).
11. Disconnect the gauge control module 32P connector.
12. Disconnect the ABS modulator-control unit 25P connector.

(cont'd).

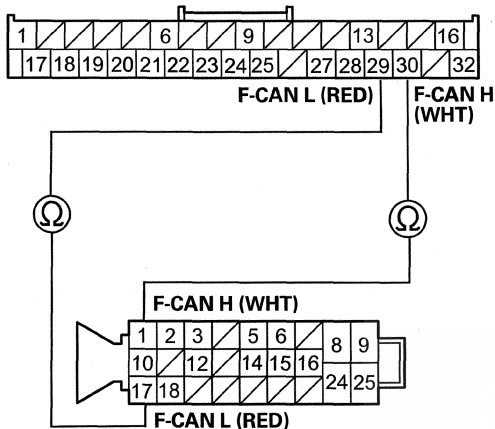
Gauges

DTC Troubleshooting (cont'd)

13. Check for continuity between gauge control module 32P connector terminals No. 29 and No. 30 and ABS modulator-control unit 25P connector terminals No. 17 and No. 1 respectively.

GAUGE CONTROL MODULE 32P CONNECTOR

Wire side of female terminals



ABS MODULATOR-CONTROL UNIT 25P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Substitute a known-good ABS modulator-control unit, and recheck. If the indication goes away, replace the original ABS modulator-control unit. If the DTC is still present, replace the gauge control module. (see page 22-294)

NO—Repair an open in the wires. ■

DTC B1173: Gauge control module lost communication with TPMS control unit (TPMS message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC B1173 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

5. From the system select menu, select TPMS.

Does the HDS communicate with the TPMS control unit?

YES—Go to step 6.

NO—Go to symptom troubleshooting TPMS indicator does not go off, and no DTCs are stored (see page 18-69). ■

6. Check for DTCs in the TPMS with the HDS.

Are any DTCs indicated?

YES—Go to the indicated DTCs troubleshooting, then recheck.

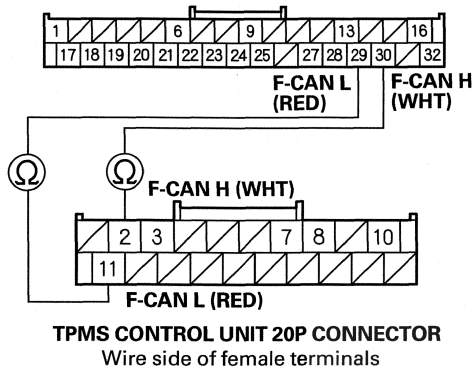
NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).
8. Disconnect the gauge control module 32P connector.
9. Disconnect the TPMS control unit 20P connector.



10. Check for continuity between gauge control module 32P connector terminals No. 29 and No. 30 and TPMS control unit 20P connector terminals No. 11 and No. 2 respectively.

GAUGE CONTROL MODULE 32P CONNECTOR
Wire side of female terminals



Is there continuity?

YES—Substitute a known-good TPMS control unit, and recheck. If the indication goes away, replace the original TPMS control unit. If the DTC is still present, replace the gauge control module (see page 22-294). ■

NO—Repair open in the wires. ■

DTC B1183: Gauge control module lost communication with EPS Unit

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC B1183 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

5. Check for DTCs in the EPS with the HDS.

Are any DTCs indicated?

YES—Go to the indicated DTC's troubleshooting, then recheck. ■

NO—Go to step 6.

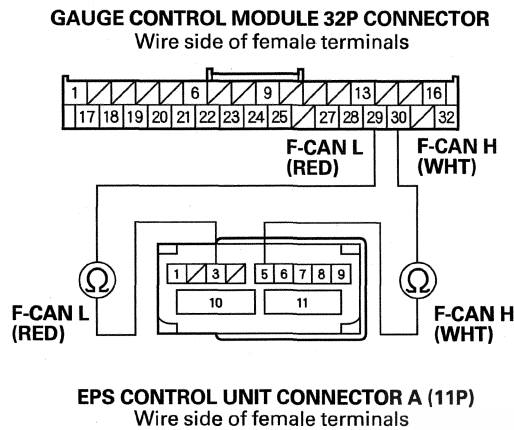
6. Turn the ignition switch to LOCK (0).
7. Disconnect the gauge control module 32P connector.
8. Disconnect EPS control unit connector A (11P).

(cont'd)

Gauges

DTC Troubleshooting (cont'd)

9. Check for continuity between gauge control module 32P connector terminals No. 29 and No. 30 and EPS control unit connector A (11P) terminals No. 3 and No. 5 and body ground respectively.



Is there continuity?

YES—Substitute a known-good EPS control unit, and recheck. If the indication goes away, replace the original EPS control unit. If the DTC is still present, replace the gauge control module (see page 22-294). ■

NO—Repair open in the wires. ■

DTC B1187: Gauge control module lost communication with the SRS Unit (SRS message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC B1187 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections. ■

5. From the system select menu, select SRS.

Does the HDS communicate with the SRS unit?

YES—Go to step 6.

NO—Go to SRS indicator does not go off, and no DTCs are stored (see page 24-165). ■

6. Check for DTCs in the SRS with the HDS.

Are any DTCs indicated?

YES—Go to the indicated DTCs troubleshooting, then recheck. ■

NO—Go to step 7.

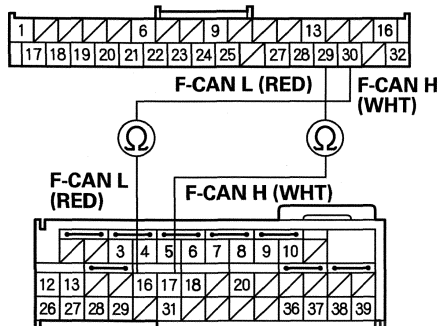
7. Turn the ignition switch to LOCK (0).
8. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.
9. Disconnect the gauge control module 32P connector.
10. Disconnect SRS unit connector A (39P).



11. Check for continuity between gauge control module 32P connector terminals No. 29 and No. 30 and SRS unit connector A (39P) terminals No. 17 and No. 16 respectively.

GAUGE CONTROL MODULE 32P CONNECTOR

Wire side of female terminals



SRS UNIT CONNECTOR A (39P)

Wire side of female terminals

Is there continuity?

YES—Substitute a known-good SRS unit, and recheck. If the indication goes away, replace the original SRS unit. If the DTC is still present, replace the gauge control module (see page 22-294). ■

NO—Repair open in the wires. ■

DTC B1188: Gauge control module lost communication with the MICU (RM message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC B1188 indicated?

YES—Faulty gauge control module; replace the gauge control module (see page 22-294).

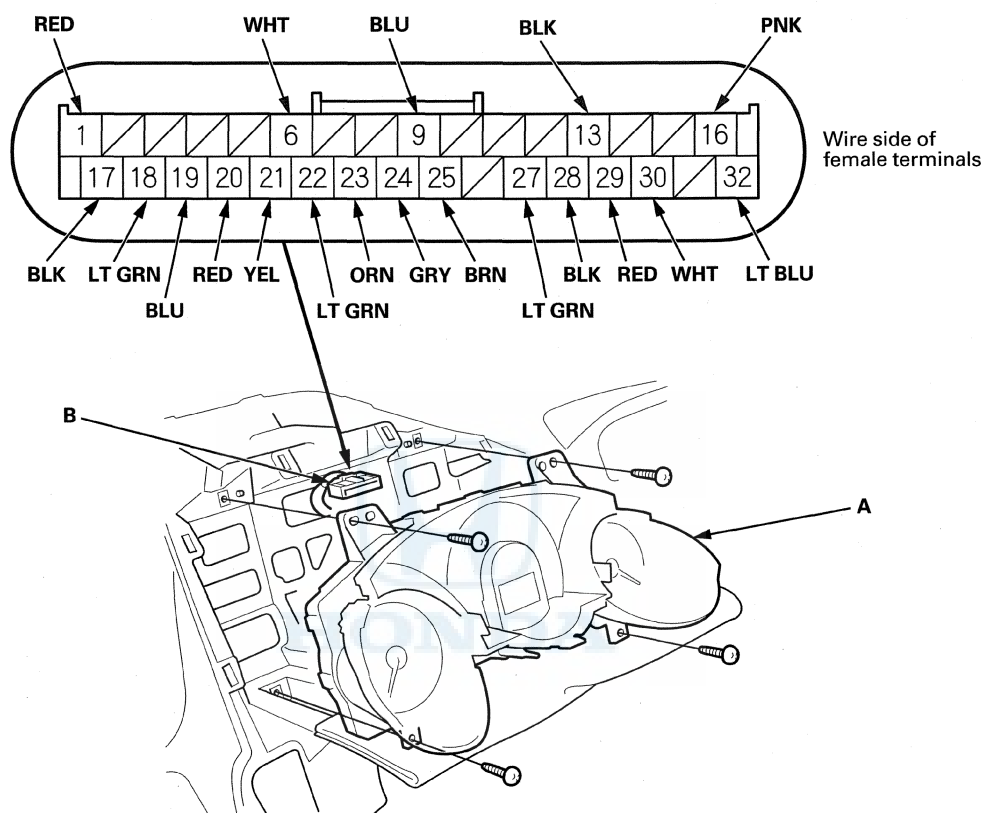
NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the gauge control module and the MICU. ■

Gauges

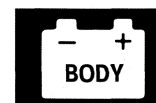
Gauge Control Module Input Test

NOTE: Before testing, do the gauge control module self-diagnostic function (see page 22-274), and make sure the B-CAN communication line is OK.

1. Turn the ignition switch to LOCK (0).
2. Remove the gauge control module (A) (see page 22-294), and disconnect the 32P connector (B) from it.



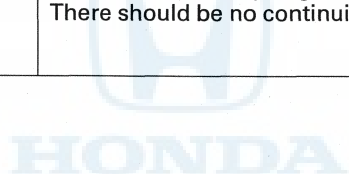
3. Inspect the connector and socket terminals to be sure they are all making good contact.
 - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
 - If the terminals are OK, go to step 4.



4. With the connector still disconnected, do these input tests at the following connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 5.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
1	RED	Combination light switch ON	Attach to ground with a jumper wire: The dash lights should come on full bright.	<ul style="list-style-type: none">• Faulty LEDs and bulbs• An open or high resistance in the wire
6	WHT	Ignition switch ON (II), turn signal switch in RIGHT	Measure the voltage to ground: There should be battery voltage when the lights are flashing.	<ul style="list-style-type: none">• Faulty MICU• Faulty combination light switch• An open or high resistance in the wire
9	BLU	Ignition switch ON (II), turn signal switch in LEFT	Measure the voltage to ground: There should be battery voltage when the lights are flashing.	<ul style="list-style-type: none">• Faulty MICU• Faulty combination light switch• An open or high resistance in the wire
18	LT GRN	Disconnect under-dash fuse/relay box connector Q (16P)	Check for continuity between the terminal No. 18 and under-dash fuse/relay box connector Q (16P) terminal No. 3: There should be continuity.	An open or high resistance in the B-CAN wire
		Disconnect the immobilizer control unit 7P connector	Check for continuity to ground: There should be no continuity.	An open or high resistance in the B-CAN wire



(cont'd)

Gauges

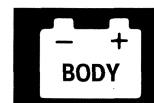
Gauge Control Module Input Test (cont'd)

5. Reconnect the 32P connector to the gauge control module, and do these input tests at the following connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the gauge control module must be faulty; replace it (see page 22-294).

Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
16	PNK	Under all conditions	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 1 (10 A) fuse in the under-dash fuse/relay box • An open or high resistance in the wire
32	LT BLU	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. 22 (7.5 A) fuse in the under-dash fuse/relay box • Blown No. 60 (50 A) fuse in the under-dash fuse/relay box • Faulty ignition switch • An open or high resistance in the wire
13	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
17	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
25*	BRN	Ignition switch ON (II), washer fluid is half or more in the washer reservoir	Measure the voltage to ground: There should be about 5 V.	<ul style="list-style-type: none"> • Faulty washer fluid level switch • A short to ground in the wire
		Ignition switch ON (II), washer fluid is empty in the washer reservoir	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G201) or an open in the ground wire • Faulty washer fluid level switch • An open or high resistance in the wire
24	GRY	Ignition switch ON (II), brake fluid is full in the reservoir	Measure the voltage to ground: There should be about 5 V.	<ul style="list-style-type: none"> • Faulty brake fluid level switch • A short to ground in the wire
		Ignition switch ON (II), brake fluid is low in the reservoir	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G401) or an open in the ground wire • Faulty brake fluid level switch • An open or high resistance in the wire
23	ORN	Ignition switch ON (II), parking brake lever pulled	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty parking brake switch • An open or high resistance in the wire
		Ignition switch ON (II), parking brake lever released	Measure the voltage to ground: There should be about 5 V.	<ul style="list-style-type: none"> • Faulty parking brake switch • A short to ground in the wire

*: Canada models



Rewriting the ODO Data and Transferring the Maintenance Minder™ Data to a New Gauge Control Module

NOTE:

- Obtain a new gauge control module before starting the rewriting process.
- Rewriting is not possible on a gauge control module that will not communicate with the HDS.
- Make sure that the HDS shows the correct VIN for the vehicle you are working on.
- Once you have started this procedure, you must complete it before removing the data link connector (DLC).
- Connect a battery jumper box (not a battery charger) to ensure that correct battery voltage is maintained.

Rewriting and Transferring

1. Before replacing the gauge control module, connect the HDS.
2. Select GAUGES from the BODY ELECTRICAL system select menu with the HDS.
3. Select GAUGE CONTROL MODULE REPLACEMENT (ODO Rewrite) from the ADJUSTMENT MENU, and follow the instructions on the display to retrieve the ODO value and the Maintenance Minder Information.
4. Replace the gauge control module (see page 22-294).
5. Follow the instructions on the display to write the new ODO value and Maintenance Minder Data to the new gauge control module. If the data transfer fails, refer to the instructions below to release the locked ODO value.

How to release locked odometer mileage to the original gauge control module

If, after you attempt to transfer mileage, the odometer display has dashes (— — —), is garbled, or shows an incorrect value, the original gauge control module needs to be unlocked and restored to its original state:

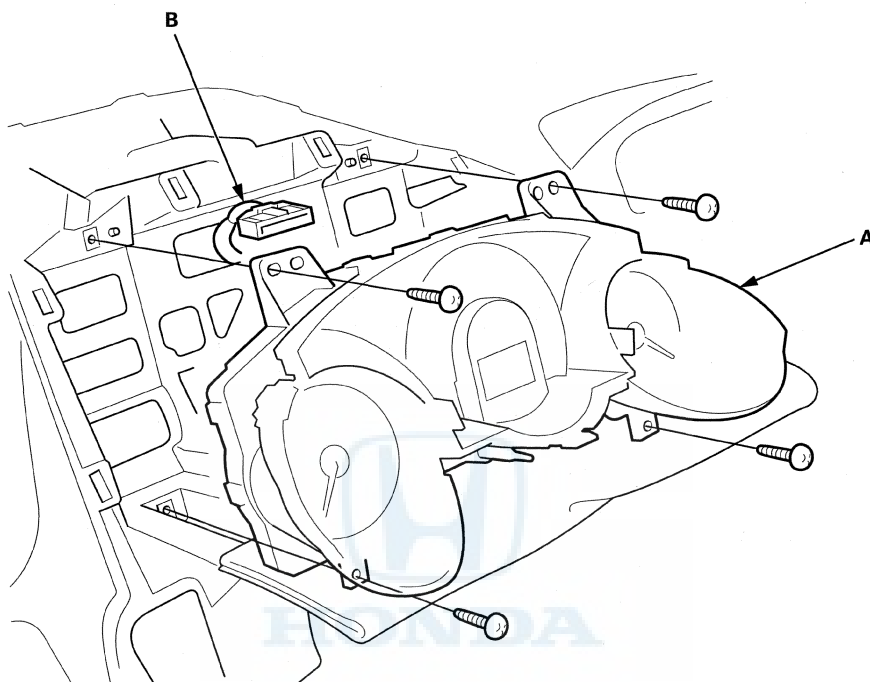
1. Confirm that you have the latest HDS version of software.
2. Make sure that the HDS shows the correct VIN for the vehicle you are working on.
3. With the ignition switch in LOCK (0), reconnect the original gauge control module.
4. Completely re-boot the HDS.
5. Clear any stored DTCs.
6. Navigate to BODY ELECTRICAL/GAUGES/ADJUSTMENT/GAUGE CONTROL MODULE REPLACEMENT.
7. Select LOCK RELEASE.
8. Follow the prompts and the odometer mileage will be restored.
9. Start over and make sure the screen prompts are followed.

Gauges

Gauge Control Module Replacement

NOTE: Before replacing the gauge control module, retrieve the ODO value and the maintenance minder information from the gauge control module with the HDS (see page 22-293).

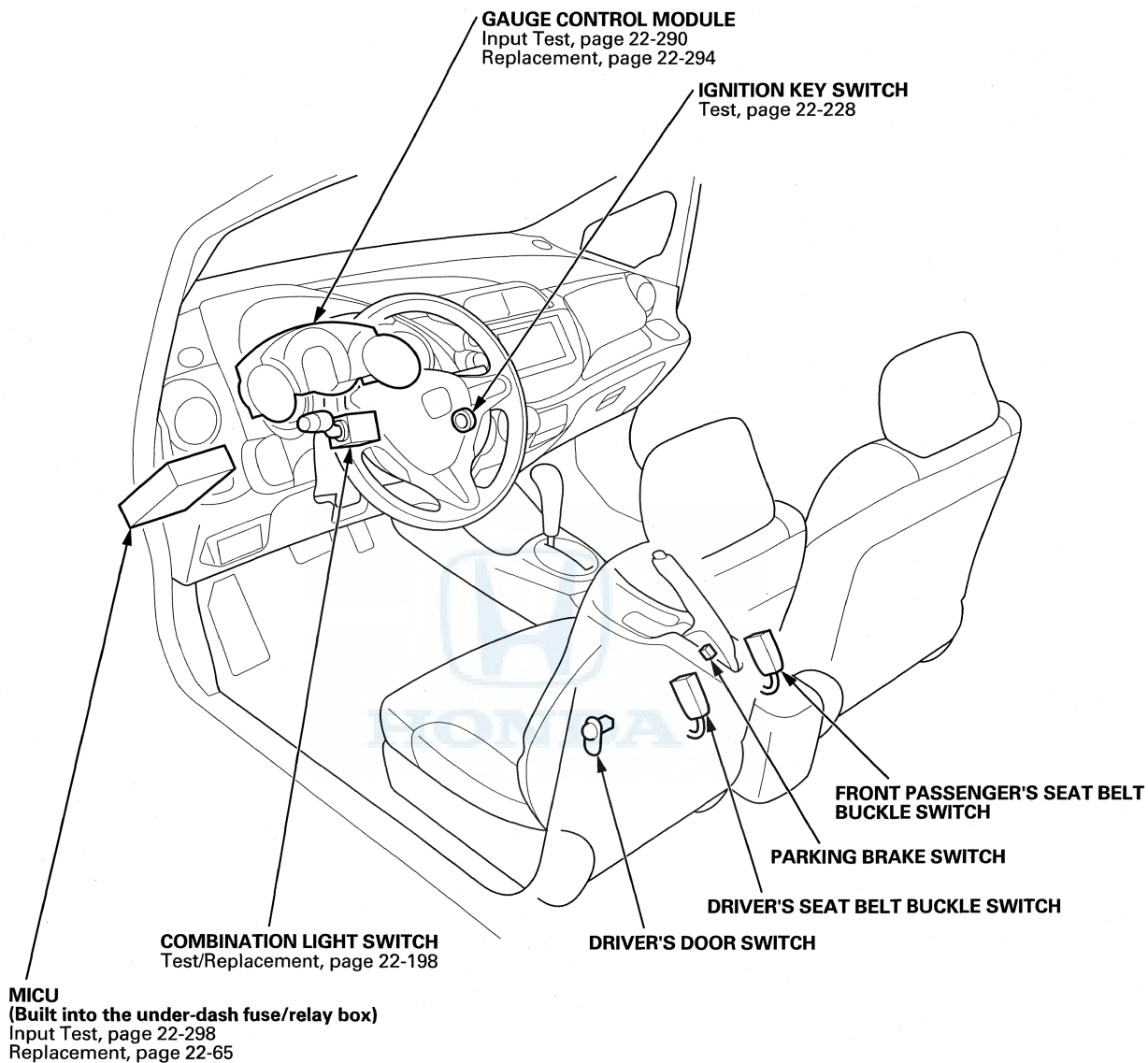
1. Remove the instrument panel (see page 20-96).
2. Remove the four screws from the gauge control module (A).



3. Disconnect the 32P connector (B) from the gauge control module.
4. Install the gauge control module in the reverse order of removal.
5. Write the ODO value and maintenance minder information to the new gauge control module (see page 22-293).

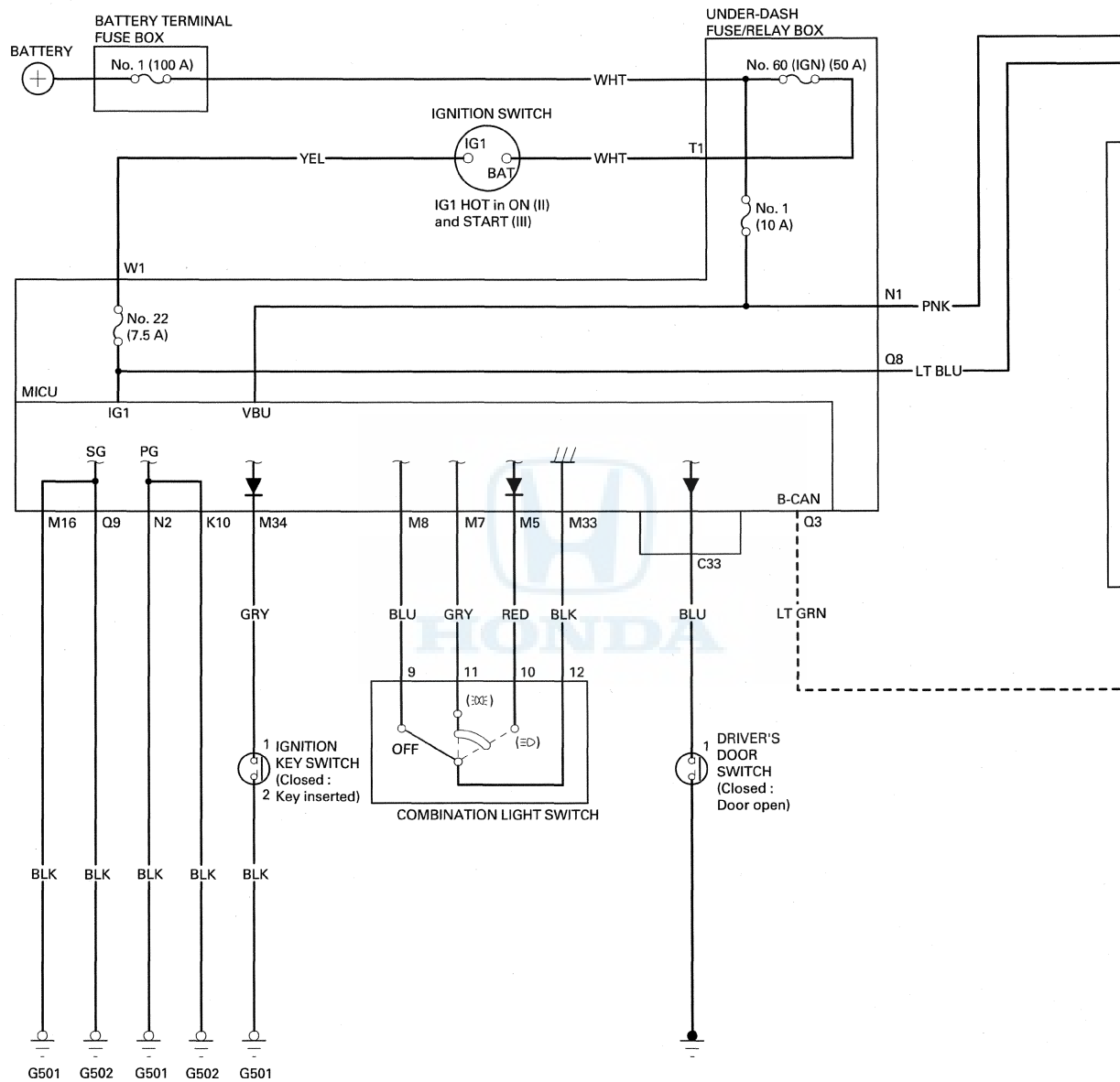


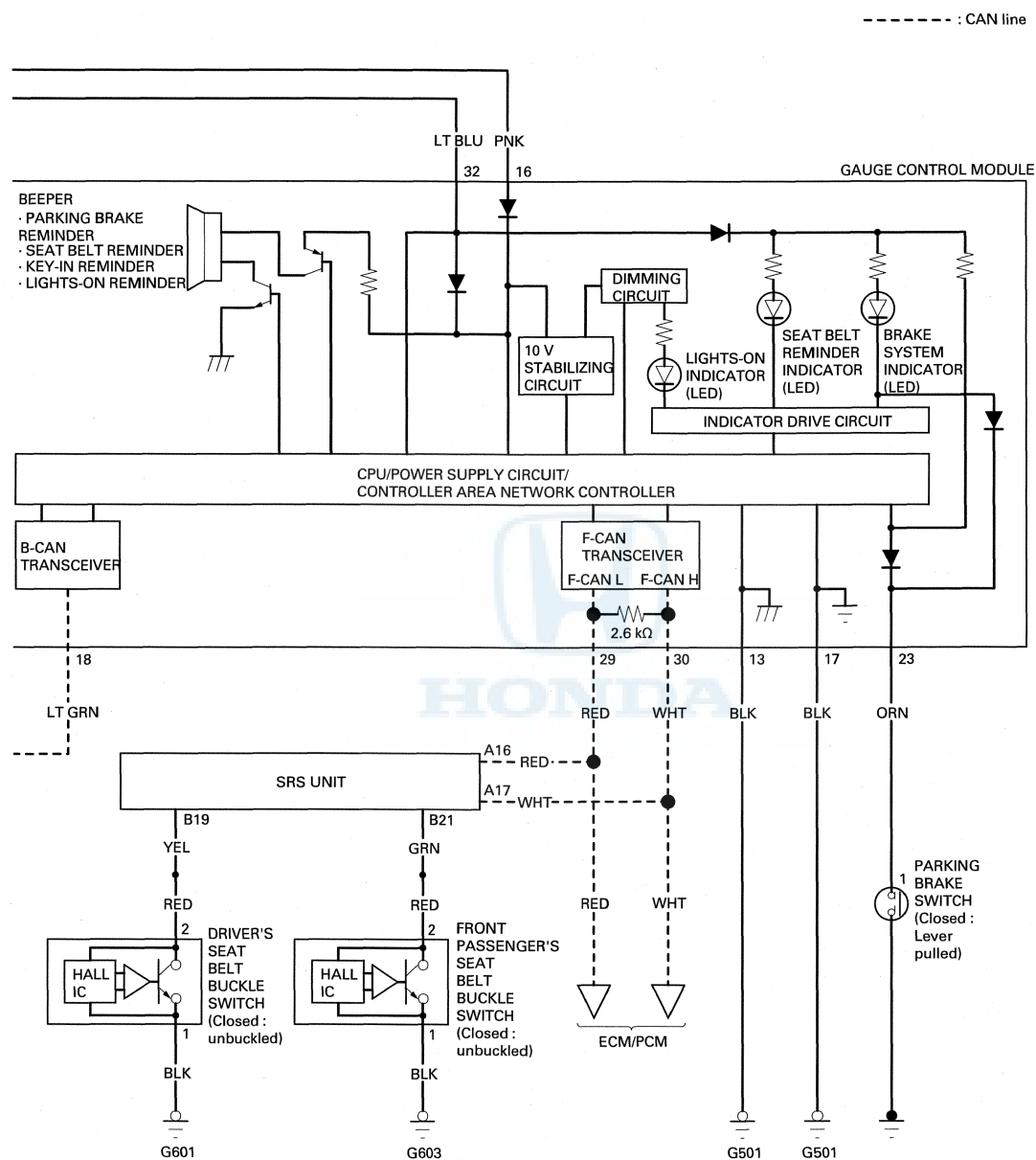
Component Location Index



Reminder Systems

Circuit Diagram





Reminder Systems

Control Unit Input Test

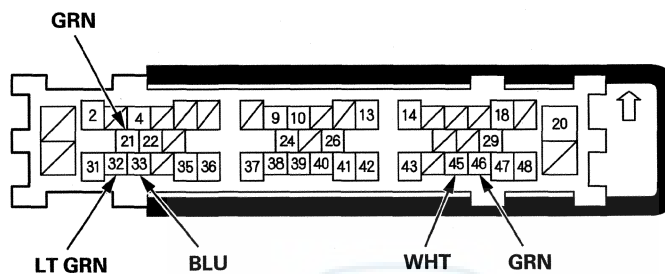
NOTE: Before testing, do the gauge control module self-diagnostic function (see page 22-274) to make sure the beeper and the indicators in the gauge control module work properly, and the B-CAN and F-CAN lines are OK.

MICU

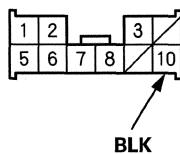
1. Turn the ignition switch to LOCK (0).
2. Remove the fuse access panel (see page 20-97).
3. Disconnect under-dash fuse/relay box connectors C, K, M, N, and Q.

NOTE: All connector views are shown from wire side of female terminals.

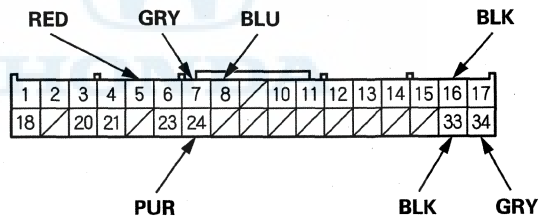
CONNECTOR C (49P)



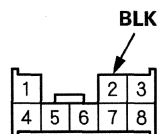
CONNECTOR K (10P)



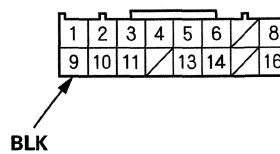
CONNECTOR M (34P)



CONNECTOR N (8P)



CONNECTOR Q (16P)



4. Inspect the connector and socket terminals to be sure they are all making good contact.
 - If the terminals are bent, loose, or corroded, repair them as necessary and recheck the system.
 - If the terminals are OK, go to step 5.



5. Reconnect the connectors, turn the ignition switch to ON (II), and do these input tests at the following connectors.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 6.

Cavity	Wire	Test condition	Test: Desired result	Possible cause if result is not obtained
K10	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) • An open or high resistance in the wire
Q9	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G502) • An open or high resistance in the wire
M16	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
N2	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
C33	BLU	Driver's door open	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty driver's door switch • An open or high resistance in the wire
		Driver's door closed	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty driver's door switch • A short to ground in the wire
M34	GRY	Ignition key inserted into the ignition switch	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) or an open in the ground wire • Faulty ignition key switch • An open or high resistance in the wire
		Ignition switch in LOCK (0) position and ignition key removed from the ignition switch	Measure the voltage to ground: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty ignition key switch • A short to ground in the wire
M8 M33	BLU	Combination light switch OFF	Measure the voltage between terminals M8 and M33: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty combination light switch • An open or high resistance in the wire
	BLK	Combination light switch in any other position than OFF	Measure the voltage between terminals M8 and M33: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty combination light switch • A short to ground in the wire
M7 M33	GRY	Combination light switch (PARKING position) ON	Measure the voltage between terminals M7 and M33: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty combination light switch • An open or high resistance in the wire
	BLK	Combination light switch OFF	Measure the voltage between terminals M7 and M33: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty combination light switch • A short to ground in the wire
M5 M33	RED	Combination light switch (Headlight position) ON	Measure the voltage between terminals M5 and M33: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Faulty combination light switch • An open or high resistance in the wire
	BLK	Combination light switch OFF	Measure the voltage between terminals M5 and M33: There should be about 5 V or more.	<ul style="list-style-type: none"> • Faulty combination light switch • A short to ground in the wire

(cont'd)

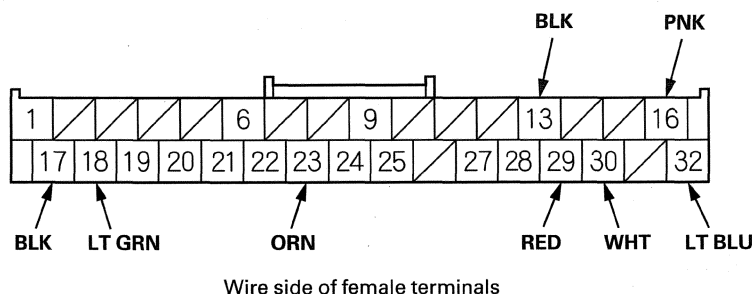
Reminder Systems

Control Unit Input Test (cont'd)

Gauge Control Module

6. Turn the ignition switch to LOCK (0).
7. Remove the gauge control module (see page 22-294), and disconnect the 32P connector from it.

GAUGE CONTROL MODULE 32P CONNECTOR



8. Inspect the connector and socket terminals to be sure they are all making good contact.
 - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
 - If the terminals are OK, go to step 9.
9. Reconnect the connector to the gauge control module, turn the ignition switch to ON (II), and do these input tests at the following connector.
 - If any test indicates a problem, find and correct the cause, then recheck the system.
 - If all the input tests prove OK, go to step 10.

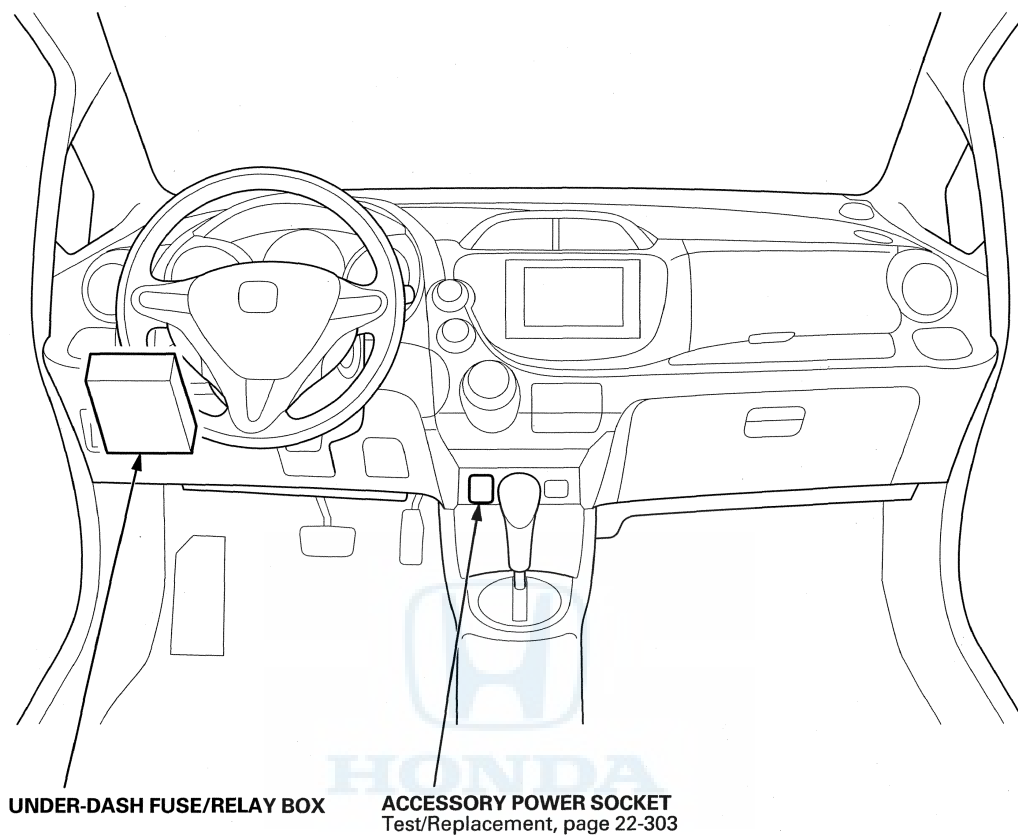
Cavity	Wire	Test condition	Test: Desired result	Possible cause if desired result is not obtained
16	PNK	Under all conditions	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none">• Blown No. 1 (10 A) fuse in the under-dash fuse/relay box• Faulty under-dash fuse/relay box• An open or high resistance in the wire
32	LT BLU	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none">• Blown No. 22 (7.5 A) fuse in the under-dash fuse/relay box• Faulty under-dash fuse/relay box• An open or high resistance in the wire
13	BLK	In all ignition switch positions	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none">• Poor ground (G501)• An open or high resistance in the wire
23	ORN	Parking brake lever pulled	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none">• Faulty parking brake switch• An open or high resistance in the wire
		Parking brake lever released	Measure the voltage to ground: There should be about 5 V.	<ul style="list-style-type: none">• Faulty parking brake switch• A short to ground in the wire

10. Do the Gauge Control Module Self-diagnostic Function (see page 22-274), and check the beeper and the seat belt reminder indicator.
 - If the beeper sounds and the seat belt reminder indicator flashes, go to step 11.
 - If the beeper does not sound or the seat belt reminder indicator does not flash, replace the gauge control module (see page 22-294).
11. Substitute a known-good gauge control module, and recheck the system.
 - If the symptom is gone, the gauge control module is faulty; replace it (see page 22-294).
 - If the symptom is still present, the MICU is faulty; replace the under-dash fuse/relay box (see page 22-65).

Accessory Power Sockets



Component Location Index

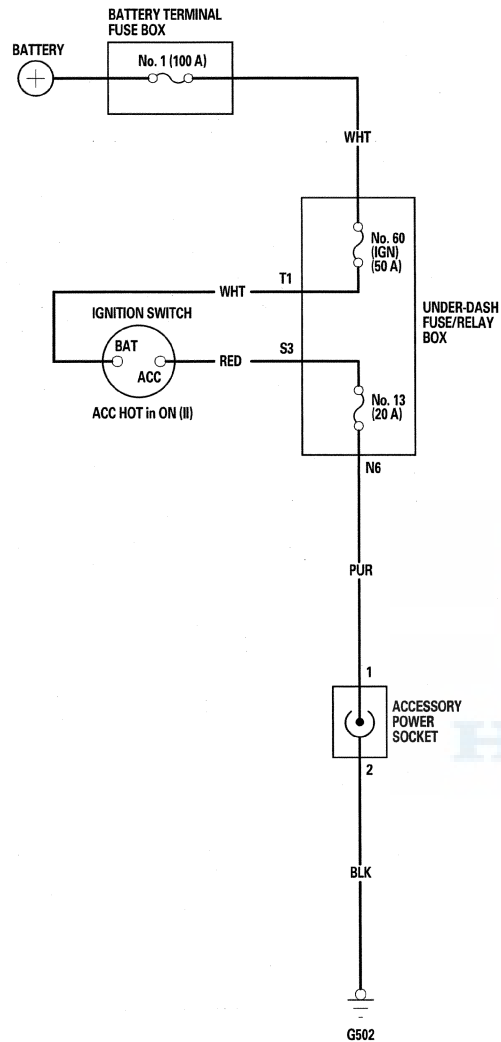


UNDER-DASH FUSE/RELAY BOX

ACCESSORY POWER SOCKET
Test/Replacement, page 22-303

Accessory Power Sockets

Circuit Diagram

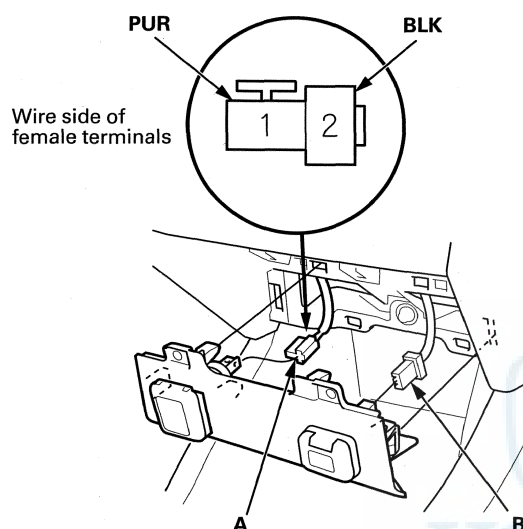




Accessory Power Socket Test/Replacement

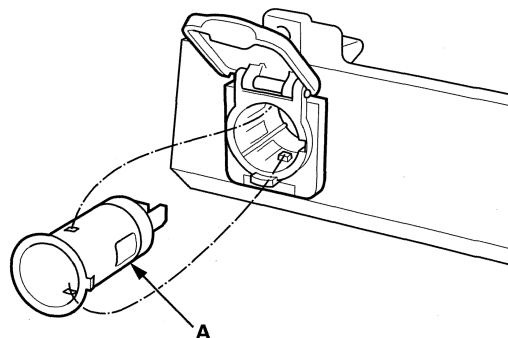
NOTE: If the accessory power socket does not work, check the No. 13 (20 A) fuse in the under-dash fuse/relay box and ground (G502) first.

1. Remove the dashboard center lower trim (see page 20-100).
2. Disconnect the 2P connector (A) and the AUX connector (B) (if equipped).

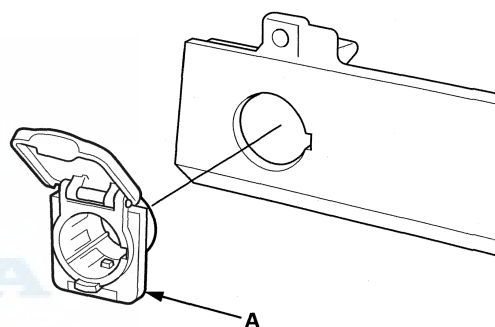


3. Inspect the connector terminals to be sure they are all making good contact.
 - If the terminals are bent, loose, or corroded, repair them as necessary and recheck the system.
 - If the terminals look OK, go to step 4.
4. Turn the ignition switch to ACC (I).
5. Measure the voltage between the accessory power socket 2P connector terminal No. 1 and body ground. There should be battery voltage.
 - If there is battery voltage, go to step 6.
 - If there is no battery voltage, check for an open in the wire.
6. Measure the voltage between the accessory power socket terminals No. 1 and No. 2. There should be battery voltage.
 - If there is battery voltage, go to step 7.
 - If there is no battery voltage, check for open in the wire or ground (G502).

7. Remove the socket (A).



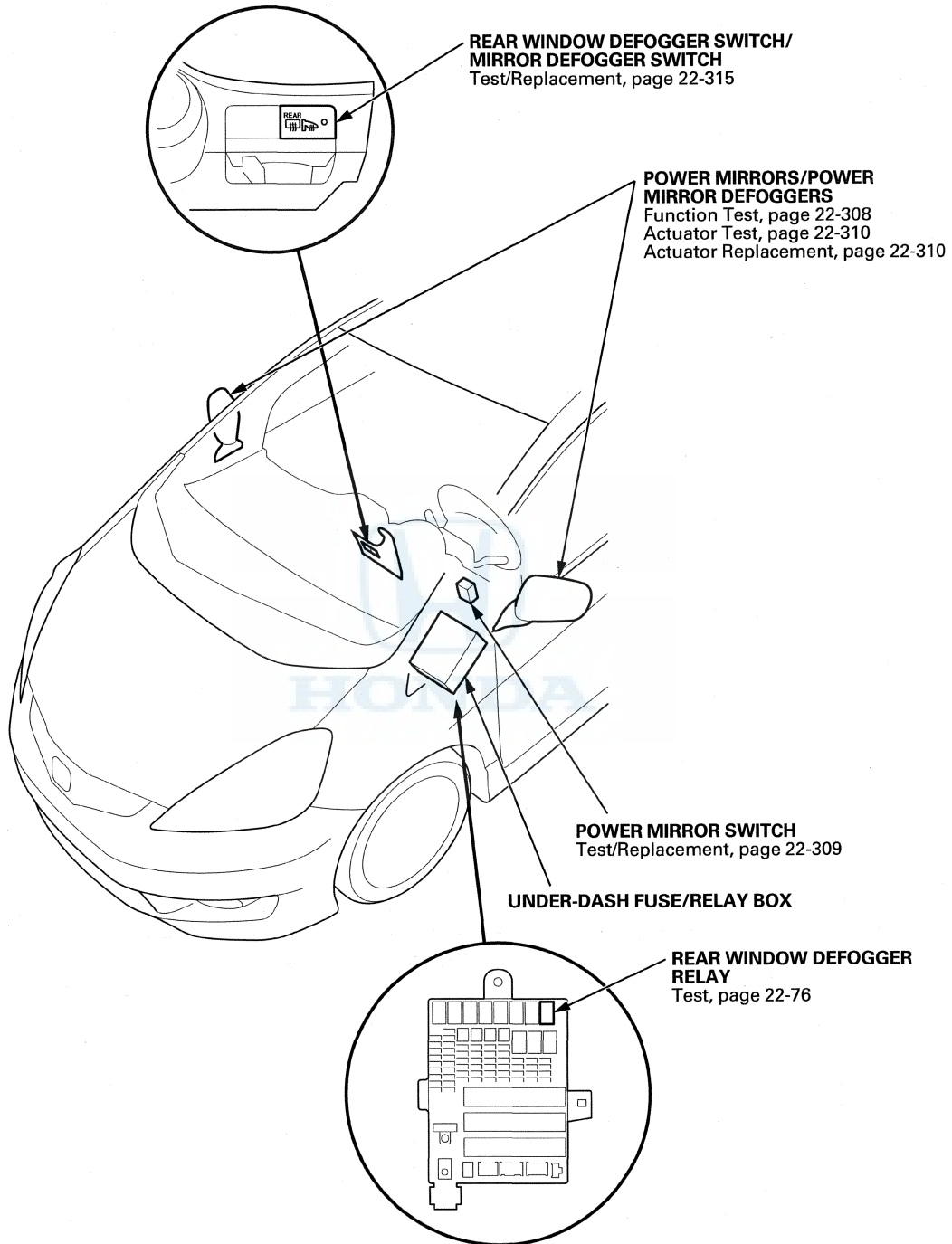
8. Remove the housing (A) from the panel.



9. Install the power socket in the reverse order of removal.

Power Mirrors

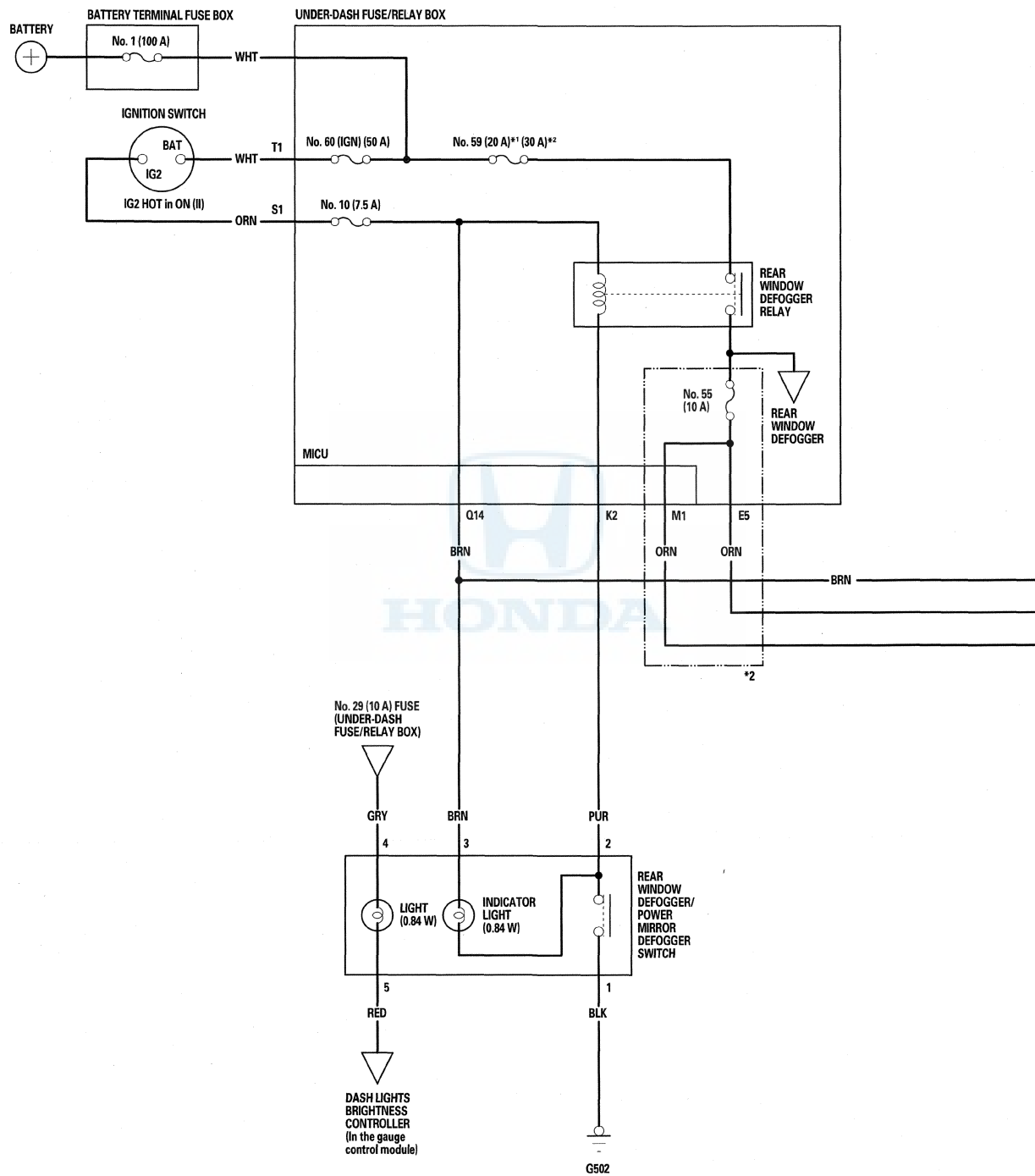
Component Location Index





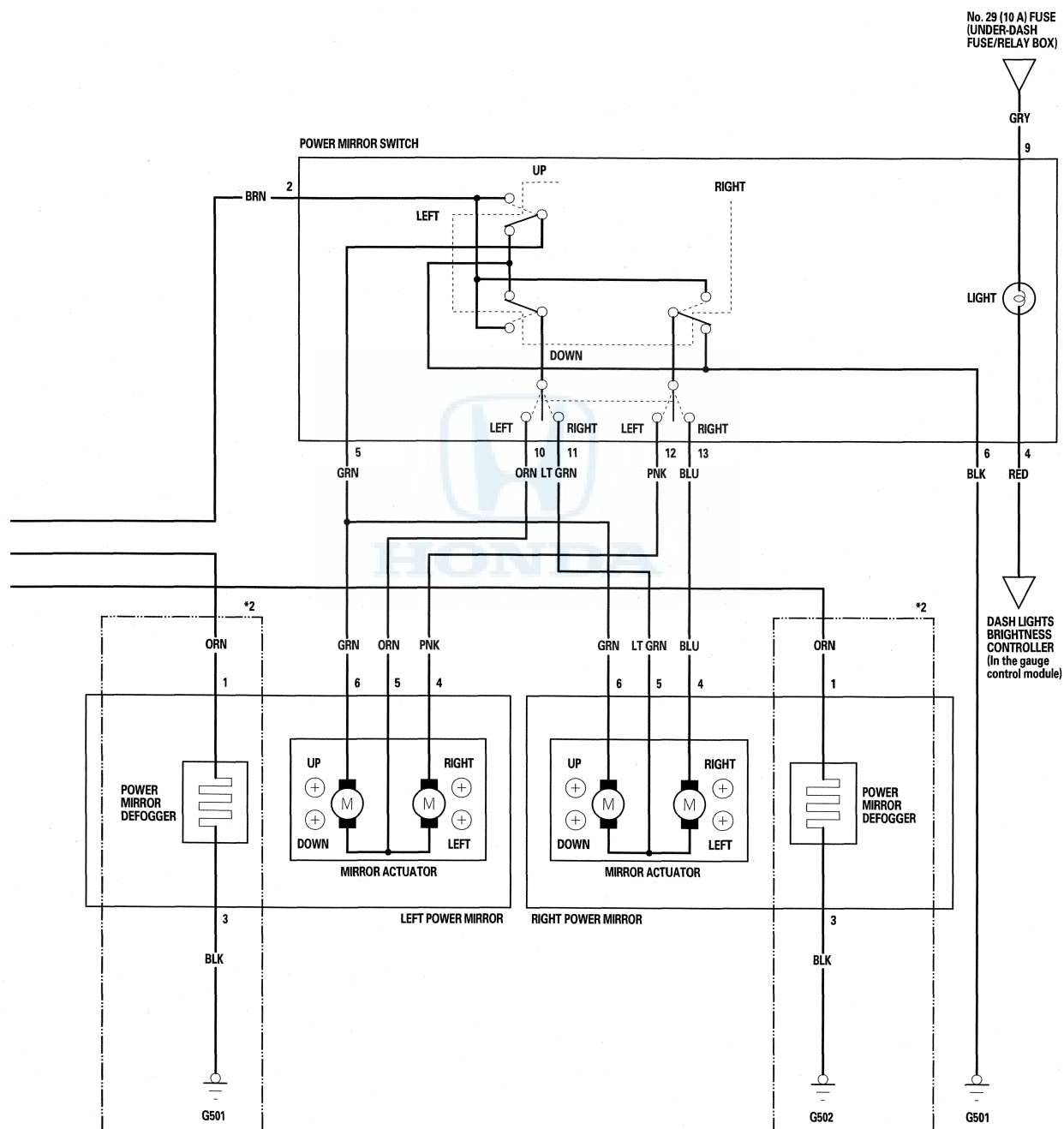
Power Mirrors

Circuit Diagram





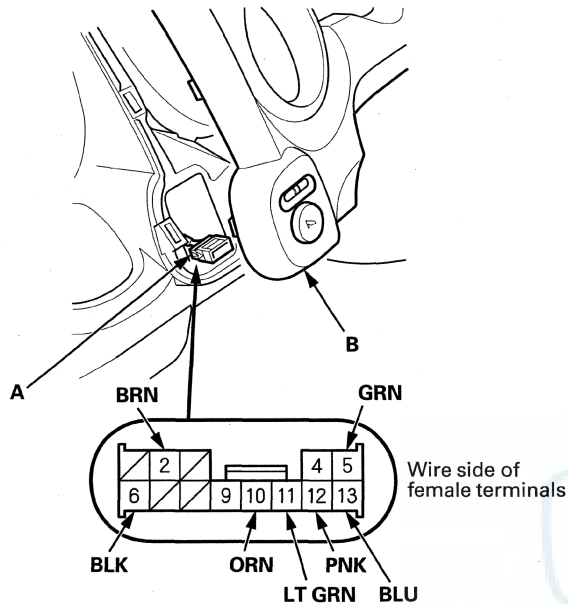
*1 : Without power mirror defogger
*2 : With power mirror defogger



Power Mirrors

Function Test

1. Remove the instrument panel (see page 20-96).
2. Disconnect the 13P connector (A) from the power mirror switch (B).



3. Choose the appropriate test based on the symptom:
 - Both mirrors don't work, go to step 4.
 - Right mirror doesn't work, go to step 6.
 - Left mirror doesn't work, go to step 7.

Both mirrors

4. Measure the voltage between power mirror switch 13P connector terminal No. 2 and body ground with the ignition switch to ON (II).
There should be battery voltage.
 - If there is no battery voltage, check for:
 - Blown No. 10 (7.5 A) fuse in the under-dash fuse/relay box.
 - An open in the BRN wire.
 - If there is battery voltage, go to step 5.
5. Measure the voltage between the terminal No. 6 and body ground while you operate the mirrors.
There should be less than 0.2 V.
 - If there is 0.2 V or more, check for:
 - An open or high resistance in the BLK wire.
 - Poor ground (G501).
 - If the voltage is as specified, check both mirrors individually.

Right mirror

6. Connect the terminal No. 2 to the terminal No. 11, and the terminal No. 5 (then No. 13) to the terminal No. 6 with jumper wires, and turn the ignition switch to ON (II). The right mirror should tilt down, then swing left.
 - If the mirror does not tilt down (or does not swing left), check for open in the GRN (or BLU) wire between the right mirror and the power mirror switch 13P connector.
 - If the mirror neither tilts down nor swings left, repair open in the LT GRN wire.
 - If the wires are OK, check the right mirror actuator (see page 22-310).
 - If the mirror works properly, check the power mirror switch (see page 22-309).

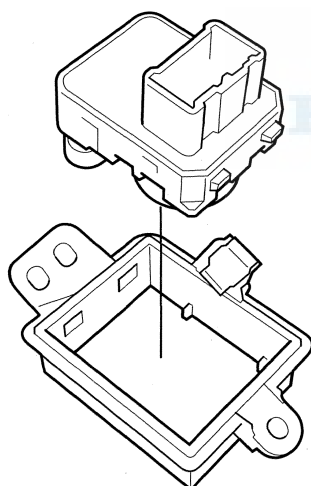
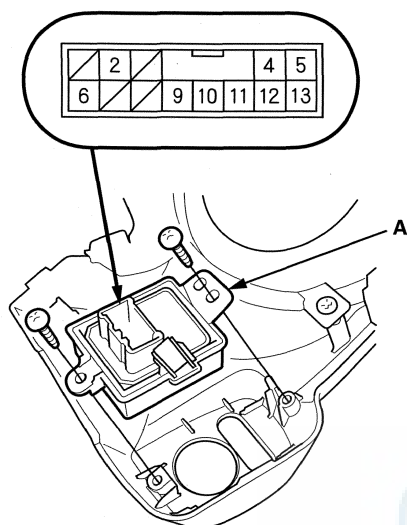
Left mirror

7. Connect the terminal No. 2 to the terminal No. 10, and the terminal No. 5 (then No. 12) to the terminal No. 6 with jumper wires, and turn the ignition switch to ON (II). The left mirror should tilt down, then swing left.
 - If the mirror does not tilt down (or does not swing left), check for open in the GRN (or PNK) wire between the left mirror and the power mirror switch 13P connector.
 - If the mirror neither tilts down nor swings left, repair open in the ORN wire.
 - If the wires are OK, check the left mirror actuator (see page 22-310).
 - If the mirror works properly, check the power mirror switch (see page 22-309).



Power Mirror Switch Test/Replacement

1. Remove the instrument panel (see page 20-96).
2. Disconnect the 13P connector from the power mirror switch (A).



3. Check for continuity between the terminals in each switch position according to the table.

Power Mirror Switch

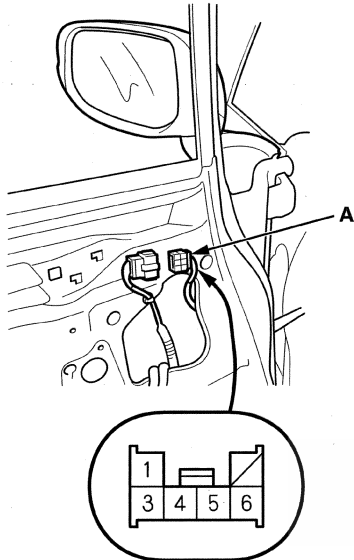
Terminal		2	5	6	10	11	12	13
Position								
R	UP	○	○	○	○	○		
	DOWN	○	○	○	○	○		
	LEFT	○		○	○	○		○
	RIGHT	○		○	○	○		○
L	UP	○	○	○	○	○		
	DOWN	○	○	○	○	○		
	LEFT	○		○	○	○		○
	RIGHT	○		○	○	○		○

4. If the continuity is not as specified, remove the screws and the covers and replacement the power mirror switch.
5. Install in the reverse order of removal.

Power Mirrors

Power Mirror Actuator Test

1. Remove the front door panel (see page 20-6).
2. Disconnect the power mirror 6P connector (A).



Wire side of female terminals

3. Check actuator operation by connecting power and ground according to the table.

Power Mirror Actuator

Terminal	6	5	4
Position			
TILT UP	⊕	⊖	
TILT DOWN	⊖	⊕	
SWING LEFT		⊕	⊖
SWING RIGHT		⊖	⊕

4. If the mirror fails to work properly, check for an open in the wire between the connector and the mirror holder. If the wire is OK, replace the mirror actuator (see page 22-310).

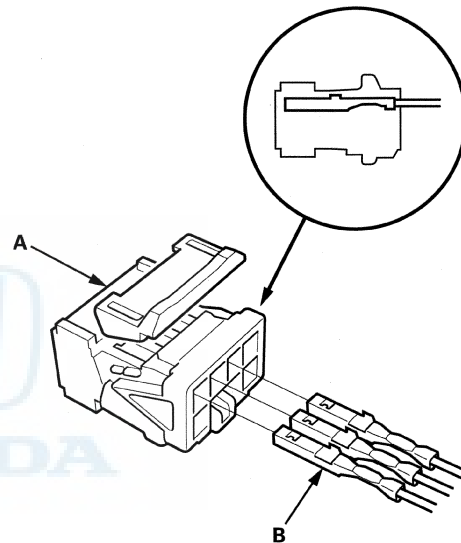
Defogger Test

5. Measure the resistance between terminals No. 1 and No. 3 of the 6P connector. There should be about 7 Ω .
6. If the resistance is not as specified, check for an open in the wire between the connector and the mirror holder. If the wire is OK, replace the mirror holder (see page 20-39).

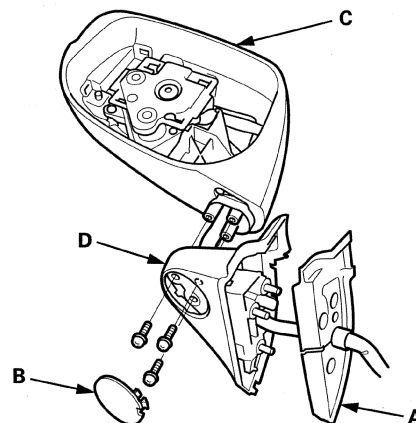
Power Mirror Actuator Replacement

Removal

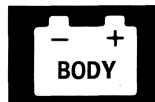
1. Remove these items:
 - Mirror holder (see page 20-39)
 - Power mirror (see page 20-38)
2. Record the power mirror connector terminals location and the wire harness colors.
3. Disassemble the power mirror connector (A), and remove the terminals (B) from the connector.



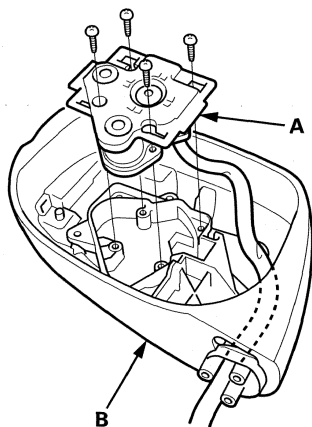
4. Remove the gasket (A) and the cover (B).



5. Remove the three screws, and separate the mirror housing (C) from the bracket (D).

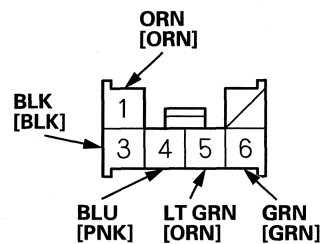


6. Remove the four screws, and separate the power mirror actuator (A) from the housing (B).



Installation

1. Route the wire harness of the new actuator through the hole in the bracket and gasket, then install the parts in the reverse order of removal.
2. Insert the new actuator terminals into the connector in the original arrangement.



Wire side of female terminals

[]: Left mirror

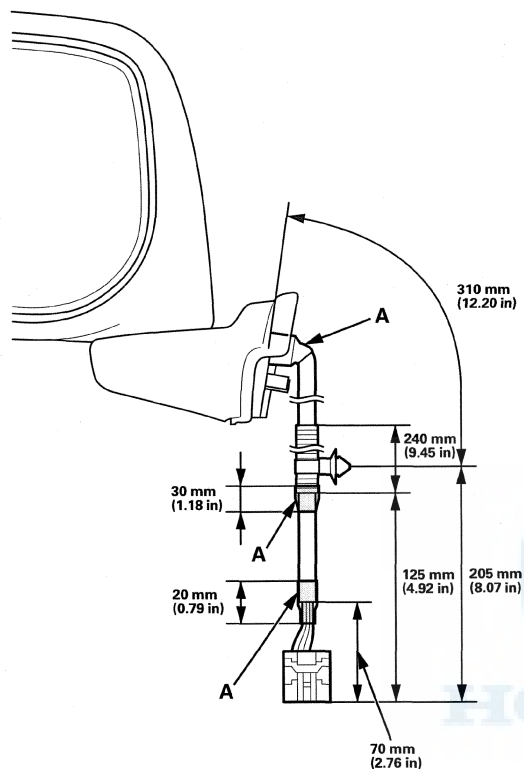


(cont'd)

Power Mirrors

Power Mirror Actuator Replacement (cont'd)

3. Apply tape in the areas shown (A), to seal the wire harness.



4. Reassemble in the reverse order of disassembly.

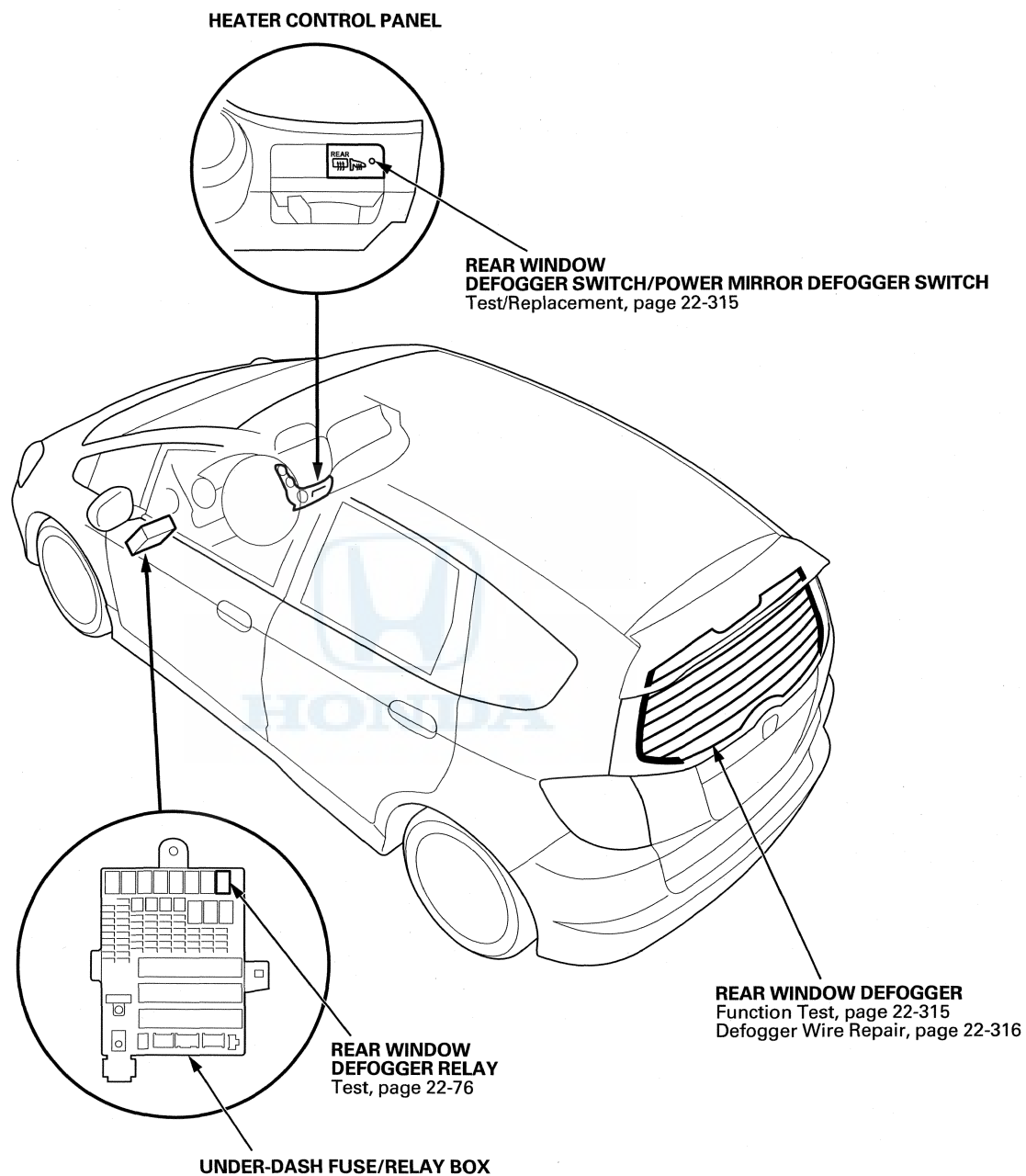
NOTE: Be careful not to break the mirror when reinstalling it to the actuator.

5. Reinstall the mirror assembly on the door.
6. Operate the power mirror to ensure smooth operation.

Rear Window Defogger

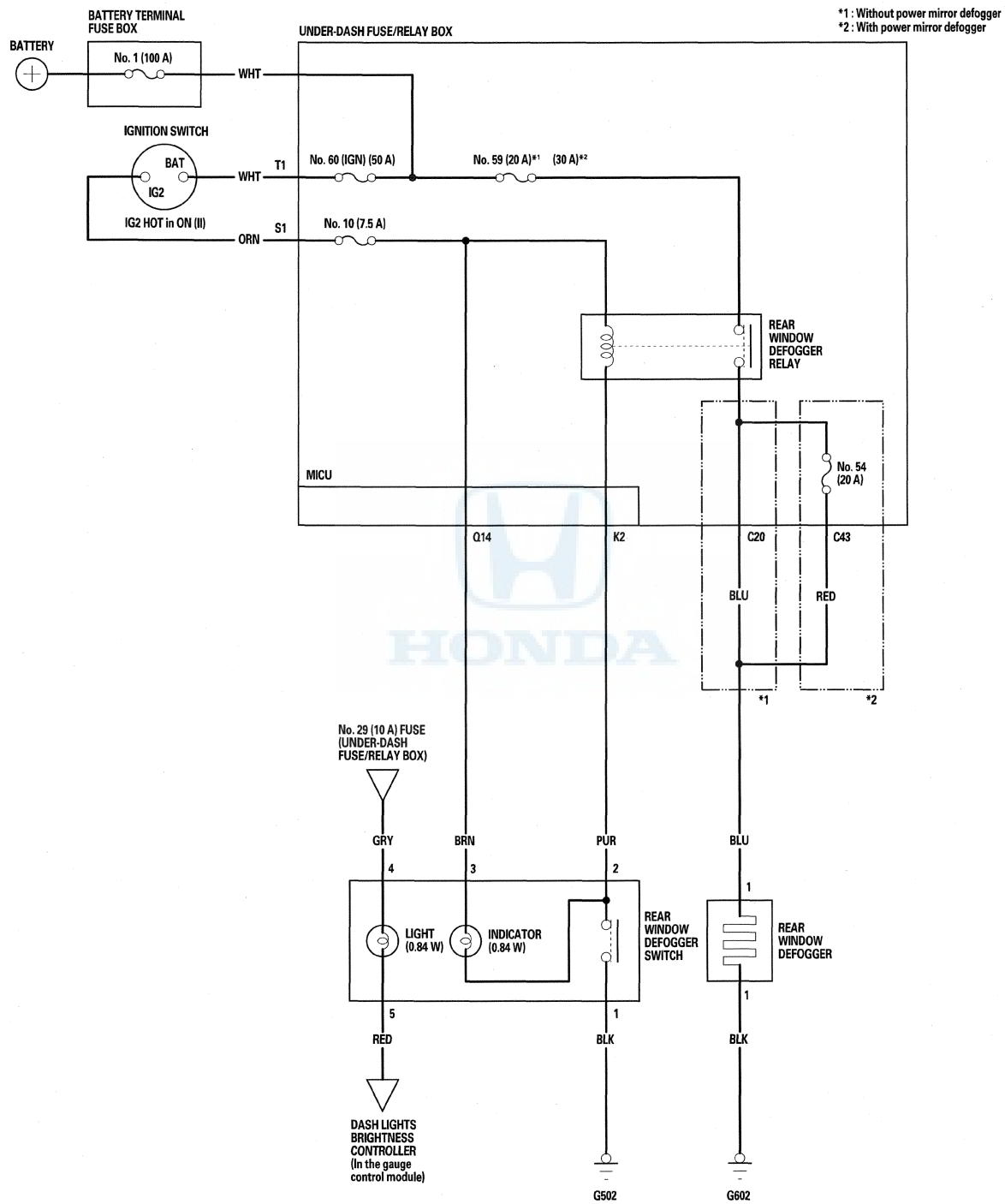


Component Location Index



Rear Window Defogger

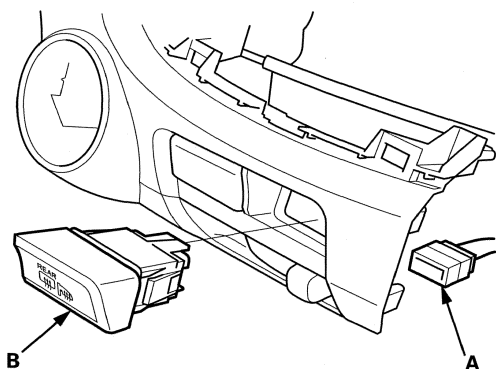
Circuit Diagram





Switch Test/Replacement

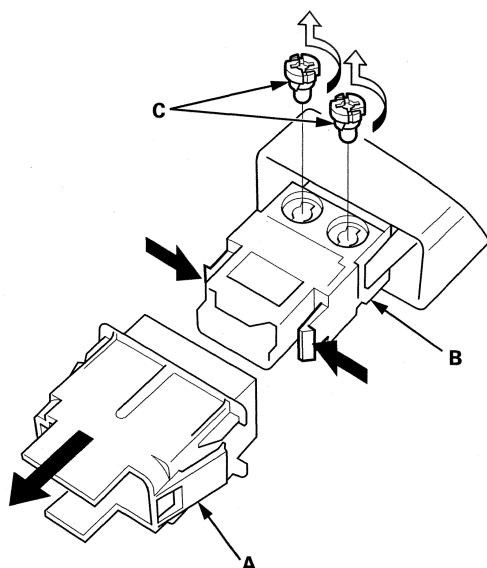
1. Remove the heater control panel (see page 21-13).
2. Disconnect the 5P connector (A), and remove the rear window defogger switch (B).



3. Check for continuity between the terminals in each switch position according to the table.

Terminal	5	4	1	2	3
Position					
OFF	○	○	○	○	○
ON	○	○	○	○	○

4. If the continuity is not as specified, remove the cover (A), and replace the switch (B) or bulb (C).



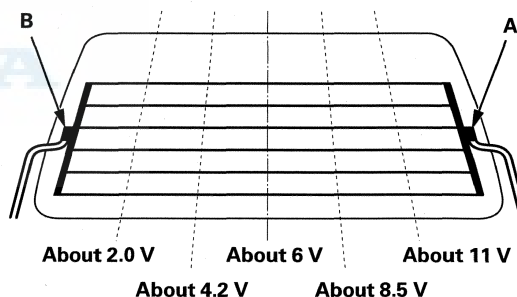
Function Test

NOTE:

- Before testing, check the No. 10 (7.5 A) and No. 59 (20 A) [(30 A)], fuse in the under-dash fuse/relay box.
- Aftermarket window tinting should be removed before testing.
- When testing the defogger, hold a cup of hot steaming water near the glass. The steam can help diagnose a broken or under-performing defogger grid.
- Be careful not to scratch or damage the defogger wires with the tester probe.

[]: With power mirror defogger

1. Turn the ignition switch to ON (II), then turn the rear window defogger switch ON.
2. Measure the voltage between rear window defogger A (1P) positive terminal and body ground. There should be battery voltage.
 - If there is no voltage, check for:
 - Faulty rear window defogger relay.
 - Faulty rear window defogger switch.
 - An open or high resistance in the BLU wire to the positive terminal.
 - If there is battery voltage, go to step 3.



3. Measure the voltage between rear window defogger B (1P) negative terminal and body ground. There should be less than 0.2 V.

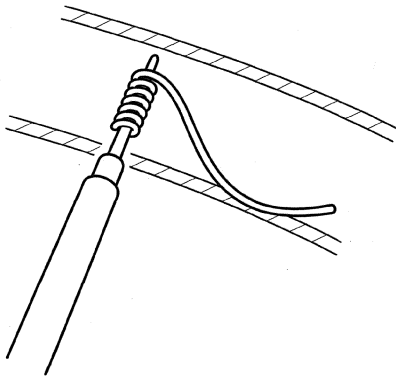
If there is greater than 0.2 V, check for an open in the ground (BLK) wire or poor ground (G602). If there is 0.2 V or less, go to step 4.

(cont'd)

Rear Window Defogger

Function Test (cont'd)

4. To avoid damaging the defogger grid, wrap a single strand of bare copper wire or aluminum foil around the voltmeter probe. Use the foil or wire as a contact brush when moving across the defogger grid.



5. Touch the voltmeter positive probe along each defogger wire, and the negative probe to the negative terminal.

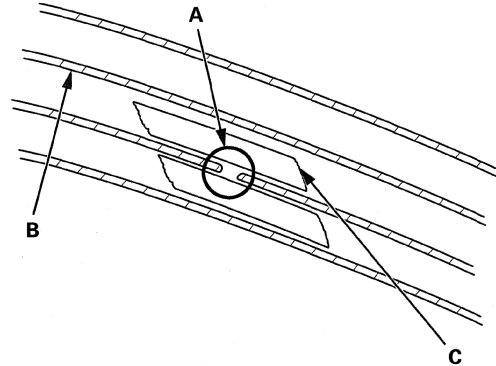
NOTE: Touch the copper wire or aluminum foil wrapped around the probe, not the probe, to avoid damaging the defogger wires.

- If the voltage is as specified, the defogger wire up to that point is OK.
- If the voltage is not as specified, repair the defogger wire.
 - If voltage is more than specified at one of the points, there is a break or high resistance toward the negative half of the wire.
 - If voltage is less than specified at one of the points, there is a break or high resistance toward the positive half of the wire.

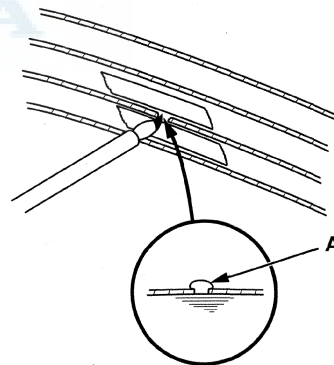
Defogger Wire Repair

NOTE: To make an effective repair, the broken section must be no longer than 25 mm (1.0 in).

1. Lightly rub the area around the broken section (A) with fine steel wool, then clean it with isopropyl alcohol.



2. Carefully mask above and below the broken portion of the defogger wire (B) with cellophane tape (C).
3. Using a small brush, apply a heavy coat of silver conductive paint (commercially available) (A) extending about 1/8" on both sides of the break. Allow 25 minutes to dry.

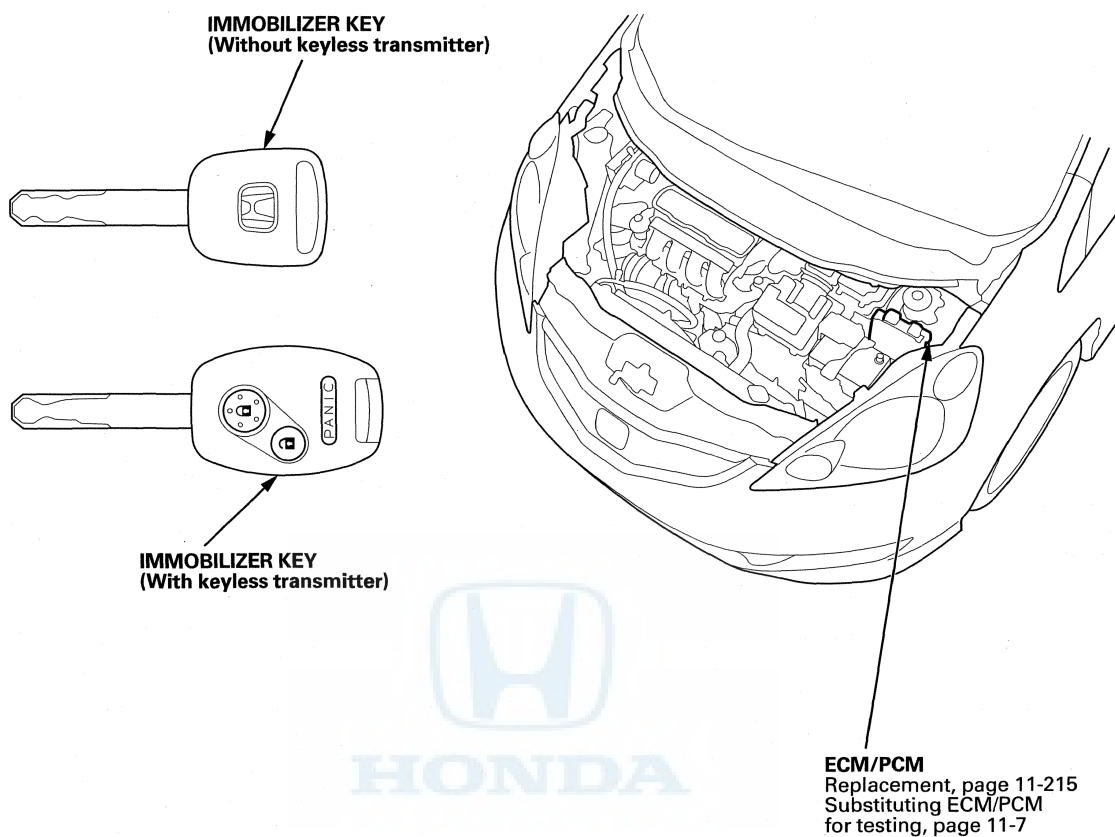


4. Do the function test to confirm that the wire is repaired.
5. Apply a second coat of paint in the same way. Let it dry 3 hours before removing the tape.

Immobilizer System



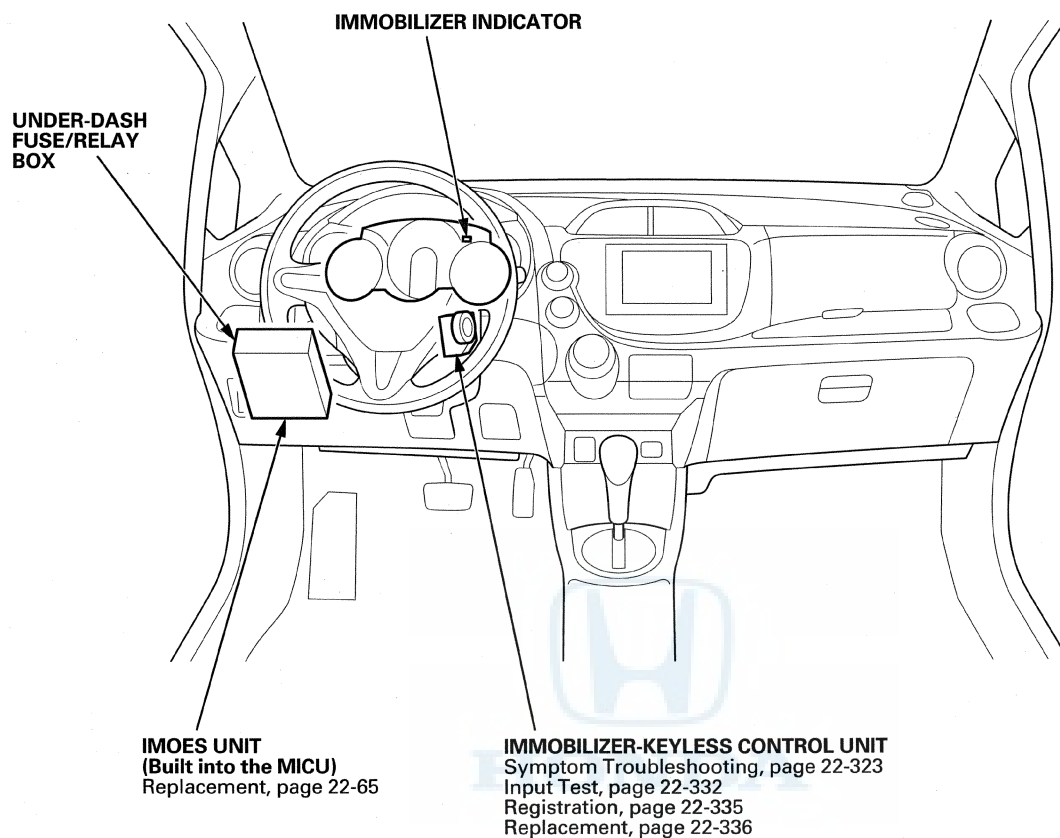
Component Location Index

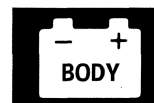


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Immobilizer System

Component Location Index (cont'd)





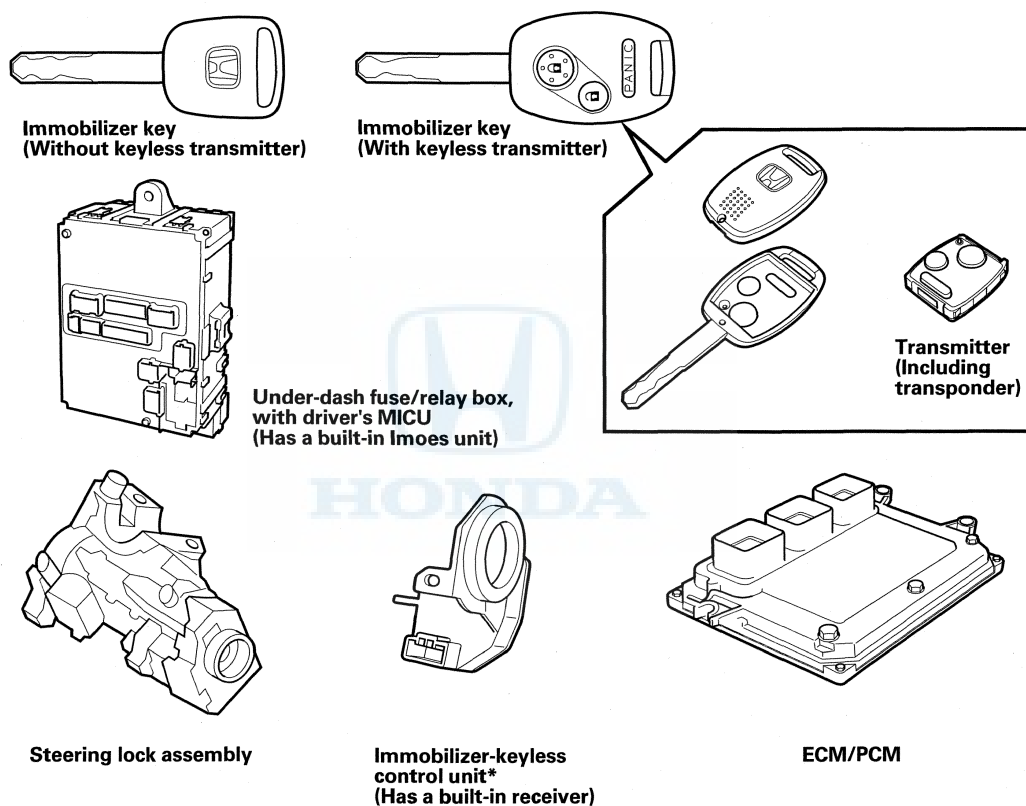
System Description

The vehicle is equipped with a Type VII immobilizer system that disables the vehicle unless a programmed ignition key is used.

This system consists of a transponder combined with a keyless transmitter, an immobilizer-keyless control unit, the MICU (has a built-in imoes unit), an immobilizer indicator, and the ECM/PCM.

When the immobilizer key (programmed by the HDS) is inserted into the ignition switch and turned to ON (II), the immobilizer-keyless control unit sends a signal to the transponder. The transponder then sends a coded signal back to the immobilizer-keyless control unit which then sends a coded signal to the ECM/PCM and the MICU (imoes unit).

The ECM/PCM and MICU (imoes unit) identify this coded signal, then voltage is supplied to the fuel pump.

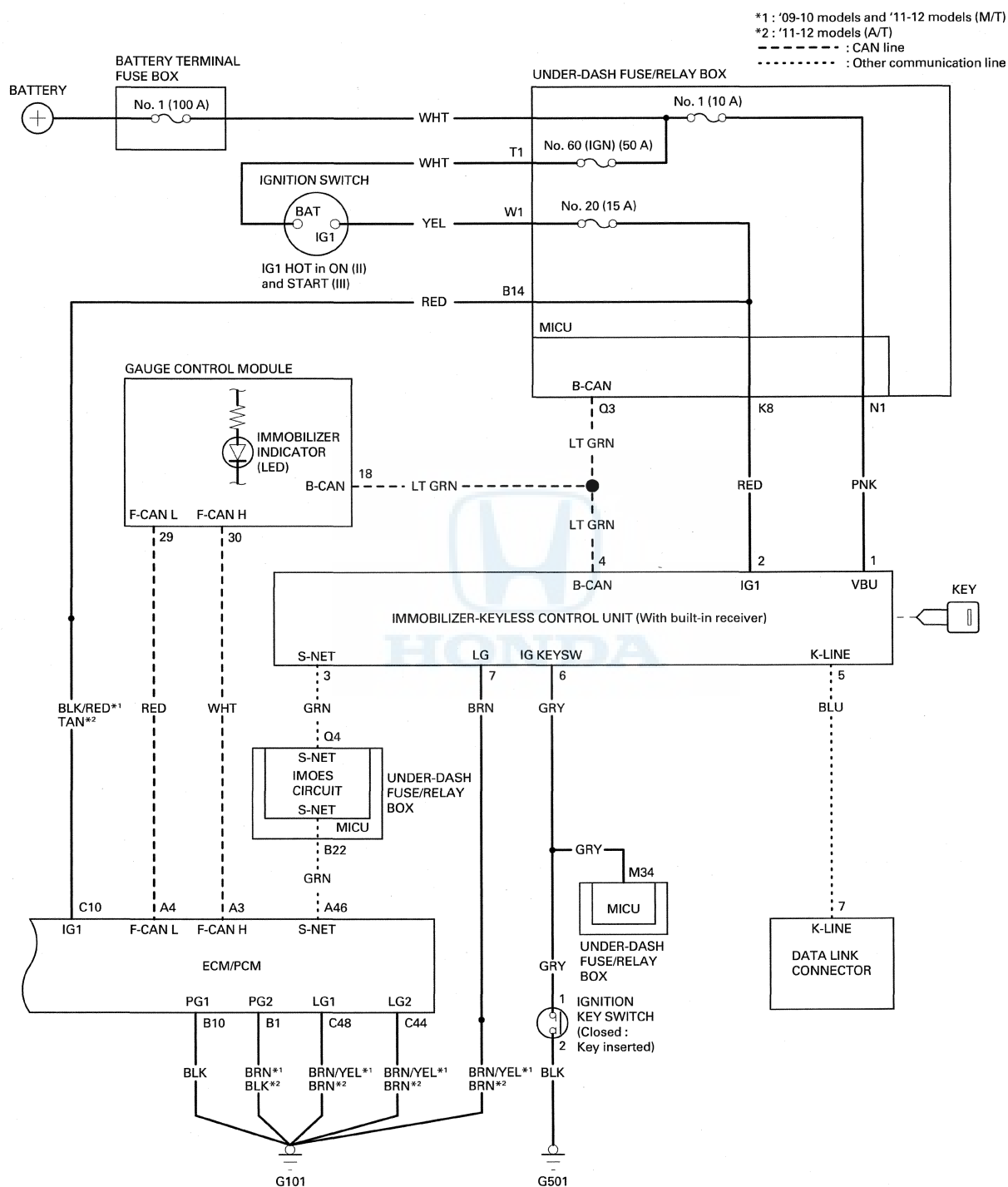


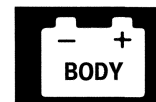
*: The immobilizer-keyless control unit can store up to 6 immobilizer keys per vehicle; the original 2 keys that came with the vehicle, and up to four more keys can be added.

If the wrong key is used or the code was not received or recognized the indicator flashes once, then it blinks until the ignition switch is turned to LOCK (0). When the ignition switch is turned to the LOCK (0) position, the indicator blinks ten times to signal that unit has reset correctly, then the indicator goes off.

Immobilizer System

Circuit Diagram





DTC Troubleshooting

DTC B1905: Immobilizer unit lost communication with MICU(door lock switch message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC B1905 indicated?

YES—Faulty immobilizer-keyless control unit; replace the immobilizer-keyless control unit (see page 22-336).

NO—Intermittent failure, the immobilizer-keyless control unit is OK at this time. Check for loose or poor connections between the immobilizer-keyless control unit and the MICU. ■

DTC B1906: Immobilizer unit lost communication with Gauge control module (A/T message)

NOTE: If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Clear the DTCs with the HDS.
2. Turn the ignition switch to LOCK (0) and then back to ON (II).
3. Wait for at least 6 seconds.
4. Check for DTCs with the HDS.

Is DTC B1906 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Check for loose or poor connections between the gauge control module and the immobilizer-keyless control unit. ■

5. From the BODY ELECTRICAL SYSTEM SELECT menu, select B-CAN CONTROL UNITS INFORMATION, and then select CHECK CONNECTED CONTROL UNITS.

Is the gauge control module detected?

YES—Go to step 8.

NO—Go to step 6.

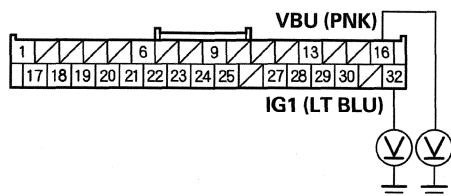
(cont'd)

Immobilizer System

DTC Troubleshooting (cont'd)

6. Measure the voltage between gauge control module 32P connector terminals No. 16 and No. 32 and body ground individually.

GAUGE CONTROL MODULE 32P CONNECTOR



Wire side of female terminals

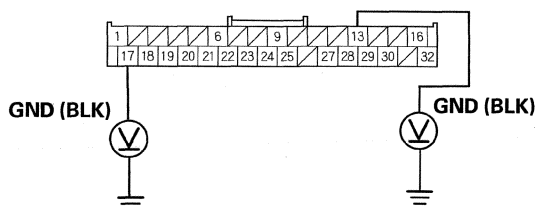
Is there battery voltage?

YES—Go to step 8.

NO—Check the No. 1 (10 A) and the No. 20 (15 A) fuses in the under-dash fuse/relay box. If the fuse is blown, replace the fuse and recheck the DTCs. If the fuses are OK, repair an open in the wire between the under-dash fuse/relay box and the gauge control module.■

7. Measure the voltage between gauge control module 32P connector terminals No. 13 and No. 17 and body ground individually.

GAUGE CONTROL MODULE 32P CONNECTOR



Wire side of female terminals

Is there less than 0.2 V?

YES—Go to step 8.

NO—Repair an open or high resistance in the wire or poor ground (G501).■

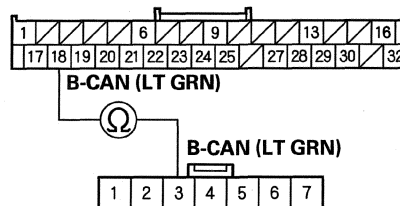
8. Turn the ignition switch to LOCK (0).

9. Disconnect immobilizer-keyless control unit 7P connector.

10. Check for continuity between immobilizer-keyless control unit 7P connector terminal No. 4 and the gauge control module 32P connector terminal No. 18.

GAUGE CONTROL MODULE 32P CONNECTOR

Wire side of female terminals



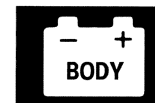
IMMOBILIZER-KEYLESS CONTROL UNIT 7P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Replace the gauge control module (see page 22-294).■

NO—Repair an open or high resistance in the wire.■



Symptom Troubleshooting Information

General Check Before Troubleshooting

Before troubleshooting the immobilizer system, check the following general items and solve any applicable system issues:

- The battery is low; charge the battery fully, then troubleshoot the immobilizer system.
- The ignition key is not a genuine Honda part; use a Honda-approved key blank, register the key, then troubleshoot the immobilizer system.
- A key ring, keys, or a key case is used; remove the key from it, and troubleshoot the immobilizer system with the key only.
- An aftermarket electrical part is installed; remove it, then troubleshoot the immobilizer system.

Symptom Troubleshooting Using the Immobilizer Indicator Lighting Pattern

The pattern of the immobilizer indicator can help troubleshoot the condition of the immobilizer system. Here are descriptions of the four possible patterns:

Normal operation

If the immobilizer code is identified, the immobilizer indicator quickly flashes once when the ignition switch is turned to ON (II).

The immobilizer indicator does not come on when the ignition switch is turned to LOCK (0).

Immobilizer code is not identified

If the immobilizer code is not identified, the immobilizer indicator quickly flashes once, then will blink until the ignition switch is turned to LOCK (0). When the ignition switch is turned to LOCK (0), the indicator blinks ten times, then goes OFF.

The state of the immobilizer key registration and the S-NET line can be checked by doing a SYSTEM CHECK (see page 22-328) and STATUS LOG CHECK (see page 22-330) with the HDS.

Immobilizer indicator does not come on

If the immobilizer indicator does not come on after turning the ignition switch to ON (II), there is an open or short in the F-CAN lines between the ECM/PCM and the gauge control module. Watch the malfunction indicator lamp (MIL). If the MIL stays on, go to PGM-FI system troubleshooting (see page 11-3).

Immobilizer indicator does not go off

If the immobilizer indicator does not go off after turning the ignition switch to ON (II), do the gauge control module self-diagnostic function (see page 22-274). If the indicator drive circuit is OK, do the SYSTEM CHECK (see page 22-328) and STATUS LOG (see page 22-330) CHECK with the HDS.

(cont'd)

Immobilizer System

Symptom Troubleshooting Information (cont'd)

Symptom Troubleshooting Using Malfunctioning Circuit Functions

If a malfunction occurs in the immobilizer circuit, use the table to cross-reference the malfunction criteria to the line(s) that should be checked in the table:

Function Line Error		Immobilizer Indicator	Engine Start	Key Registration	Tester Communication	Keyless Operation
Terminal No.	Cause of Malfunction					
1 (PNK)	VBU line open or short	Comes on, then goes off.	Possible	Possible	Possible	Impossible
2 (RED)	IG1 line open or short	Blinking	Impossible	Impossible	Impossible	Possible
3 (GRN)	S-NET line open or short	Blinking	Impossible	Possible	Impossible	Possible
4 (LT GRN)	B-CAN line open or short	Comes on, then goes off.	Possible	Possible	Immobilizer: Possible Keyless: Impossible	Impossible
5 (BLU)	K-LINE line open or short	Comes on, then goes off.	Possible	Impossible	Impossible	Possible
6 (GRY)	IG KEYSW line open	Comes on, then goes off.	Possible	Possible	Possible	Possible (in spite of the key is in the ignition switch)
	IG KEYSW line short to ground					Impossible
7 (BRN)	GND (LG) line open	Blinking	Impossible	Impossible	Impossible	Impossible

System Check (Current status) and Status Log (History log if the immobilizer system kept engine from running)

NOTE: The HDS can be used to:

- Check the state of the immobilizer key registration and the S-NET line by doing a SYSTEM CHECK.
- Check the number of times the immobilizer-keyless control unit does not permit the engine to run by checking the STATUS LOG (see page 22-330).

1. Connect the HDS to the data link connector (DLC), then turn the ignition switch to ON (II) and follow the prompts to the SYSTEM SELECTION MENU.

NOTE: If the HDS does not communicate with the vehicle, go to DLC circuit troubleshooting (see page 11-193).

2. At SYSTEM SELECTION MENU, enter IMMOBILIZER, then select the IMMOBILIZER SETUP.
3. Do the SYSTEM CHECK (see page 22-328). If there is a system check number, do the troubleshooting for the item indicated.
4. Check the STATUS LOG using the HDS (see page 22-330). Troubleshooting the line with the highest counts first. If all the lines are 0 (zero), the problem may not be caused by the immobilizer system; check for ignition or fuel problems. Refer to PGM-FI System Symptom Troubleshooting (see page 11-3).

NOTE: Once repaired, clear the status log by removing the No. 1 (10 A) fuse in the under-dash fuse/relay box or disconnecting the battery.



Symptom Troubleshooting Index

1. Troubleshoot the immobilizer system in the order shown:

Order of Priority	Symptom	Possible cause
1	Immobilizer indicator blinks.	Symptom troubleshooting (see page 22-326).
2	Engine does not start with the immobilizer key.	Symptom troubleshooting (see page 22-327).
3	Immobilizer indicator does not come on.	Check the MIL indication. <ul style="list-style-type: none">• If the MIL comes on, go to the PGM-FI System MIL circuit troubleshooting (see page 11-192).• If the MIL does not come on, go to the gauge control module self-diagnostic function (see page 22-274).
4	Immobilizer indicator does not go off.	Symptom troubleshooting (see page 22-327).



Immobilizer System

Symptom Troubleshooting

Immobilizer indicator blinks

NOTE: Before troubleshooting, check the items listed in "General Check before Troubleshooting" (see page 22-323).

1. Turn the ignition switch to LOCK (0).
2. Connect the HDS, then turn the ignition switch to ON (II).
3. From the SYSTEM SELECTION MENU, enter IMMOBI, select IMMOBILIZER SETUP, then select System Check, Number of Keys, and Status Log.
4. Select the SYSTEM CHECK.

Is SYSTEM CHECK indicated?

YES—Troubleshoot the immobilizer system according to the result of the SYSTEM CHECK (see page 22-328). ■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Enter the vehicle, and remove the ignition key from the ignition switch, then close the all doors.
7. Operate the keyless transmitter LOCK and UNLOCK several times in the vehicle.

Do the door lock actuators work normally?

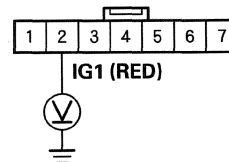
YES—Go to step 8.

NO—Check for a poor ground (G101) and/or an open in the wire between the immobilizer-keyless control unit 7P connector terminal No. 7 and body ground (G101). ■

8. Turn the ignition switch to ON (II).

9. Back-probe and measure the voltage between immobilizer-keyless control unit 7P connector terminal No. 2 and body ground.

IMMOBILIZER-KEYLESS CONTROL UNIT 7P CONNECTOR



Wire side of female terminals

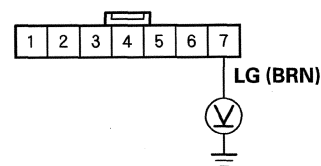
Is there battery voltage?

YES—Go to step 10.

NO—Check for a blown No. 20 (15 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair an open in the RED wire between the under-dash fuse/relay box and the immobilizer-keyless control unit. ■

10. Back-probe and measure the voltage between immobilizer-keyless control unit 7P connector terminal No. 7 and body ground.

IMMOBILIZER-KEYLESS CONTROL UNIT 7P CONNECTOR



Wire side of female terminals

Is there less than 0.2 V ?

YES—Replace the immobilizer-keyless control unit (see page 22-336). ■

NO—Repair poor connection or an open or high resistance between immobilizer-keyless control unit 7P connector terminal No. 7 and body ground G101. ■



Engine does not start with the immobilizer key

NOTE: Before troubleshooting, check the items listed in "General Check before Troubleshooting" (see page 22-323).

1. Try to start the engine.

Does the engine start?

YES—Intermittent failure, the vehicle is OK at this time. Check STATUS LOG (see page 22-330). ■

NO—Go to step 2.

2. Turn the ignition switch to LOCK (0).
3. Turn the ignition switch to ON (II), and check the immobilizer indicator.

Does the indicator blink once, then stay off?

YES—Go to step 4.

NO—Go to Immobilizer indicator blinks troubleshooting (see page 22-326). ■

4. Turn the ignition switch to START (III).

Does the starter motor run?

YES—Go to step 5.

NO—Go to Starting System, and check the starter motor (see page 4-10). ■

5. Try to start the engine with the immobilizer key.

Does the engine start?

YES—Go to step 6.

NO—Go to the PGM-FI System Symptom Troubleshooting (see page 11-3). ■

6. Wait for a few minutes with the engine running.

Does the engine stop?

YES—Go to the PGM-FI System Symptom Troubleshooting (see page 11-3). ■

NO—The system is OK at this time. ■

Immobilizer indicator does not go off

1. Turn the ignition switch to LOCK (0).
2. Connect the HDS to the data link connector (DLC).
3. Turn the ignition switch to ON (II).
4. From the SYSTEM SELECTION MENU, enter IMMOBI, select IMMOBILIZER SET UP, then select SYSTEM CHECK, NUMBER OF KEYS, and STATUS LOG.

Note: If the HDS does not communicate with the immobilizer-keyless control unit, check the power, ground, and K-line connectors.

5. Do the SYSTEM CHECK with the HDS.

Is N-1 indicated?

YES—Do the indicator drive circuit check (see page 22-274). If the indicator does not go off; replace the gauge control module (see page 22-294). ■

NO—Substitute a known-good immobilizer-keyless control unit, then register it and recheck. If the symptom goes away, replace the original immobilizer-keyless control unit (see page 22-336). ■

Immobilizer System

System Check

1. Connect the HDS to the data link connector (DLC).
2. Turn the ignition switch to ON (II).
3. On the HDS screen, at SYSTEM SELECTION MENU, enter IMMOBI, then select IMMOBILIZER SETUP, select SYSTEMCHECK, NUMBER OF KEYS and STATUS LOG, then select SYSTEM CHECK.

Note: If the HDS does not communicate with the immobilizer keyless control unit, check the power, ground, and K-line connectors.

4. If the HDS displays N-1, the immobilizer system is OK at this time, refer to the STATUS LOG. If the HDS displays any other messages, check as follows:

System Check No.	Status Log. Indication	System Check	Possible Failures
N-1	Possible	Normal	
A-1	Possible	The key is not registered	<ul style="list-style-type: none"> • This key is not registered in the immobilizer-keyless control unit. Try to register keys by using "KEYS". • No communication between the antenna and the immobilizer key because of interference from metal such as key chains/key rings/other keys. • Low battery voltage.
A-2	Possible	Communication error between the key and immobilizer-keyless control unit	<ul style="list-style-type: none"> • Intermittent interruption between transponder and immobilizer-keyless control unit. • The immobilizer key type is different. It is not for this vehicle but for another one or for another company's one. • Key failure (transponder failure) • No communication between the antenna and the immobilizer key because of interference from metal such as key chains/key rings/other keys. • Low battery voltage.
A-3	Possible	No communication between the key and immobilizer-keyless control unit	<ul style="list-style-type: none"> • The ignition switch was turned to ON (II) with a non-immobilizer key. • The immobilizer key type is different. It is not for this vehicle but for another one or for another company's one. • Key failure (transponder failure) • No communication between the antenna and the immobilizer key because of interference from metal such as key chains/key rings/other keys. • Low battery voltage. • Immobilizer-keyless control unit failure
B-1	Possible	The ECM/PCM is not registered	<ul style="list-style-type: none"> • The ECM/PCM was not registered. Try to register the ECM/PCM using "REPLACE ECM/PCM". • No communication between the ECM/PCM and the immobilizer-keyless control unit because of low battery voltage. • No communication between the immobilizer-keyless control unit and the ECM/PCM because of interference. • Open in the IG1 line
B-2	Possible	Error of communication format in ECM/PCM	<ul style="list-style-type: none"> • The ECM/PCM was not registered. Try to register the ECM/PCM using "REPLACE ECM/PCM". • No communication between the ECM/PCM and the immobilizer-keyless control unit because of low battery voltage. • No communication between the immobilizer-keyless control unit and the ECM/PCM because of interference.



System Check No.	Status Log. Indication	System Check	Possible Failures
C-1	Possible	The imoes unit is not registered	<ul style="list-style-type: none"> • Imoes unit was not registered. • No communication between the imoes unit and the immobilizer-keyless control unit because of low battery voltage. • No communication between the imoes unit and the immobilizer-keyless control unit because of interference. • Try to register the imoes unit with the HDS.
C-2	Possible	Error of communication format between Imoes unit.	<ul style="list-style-type: none"> • Imoes unit was not registered. • No communication between the imoes unit and the immobilizer-keyless control unit because of low battery voltage. • No communication between the imoes unit and the immobilizer-keyless control unit because of interference. • Try to register the imoes unit with the HDS.
D-1	Possible	S-NET line short	<ul style="list-style-type: none"> • S-NET line short from the ECM/PCM to the immobilizer-keyless control unit. (S-NET line short) • No communication between the ECM/PCM and the immobilizer-keyless control unit because of low battery voltage. • No communication between the immobilizer-keyless unit and the ECM/PCM because of interference. • Immobilizer-keyless control unit failure • ECM/PCM failure
D-2	Possible	No communication between imoes unit and immobilizer-keyless control unit (S-NET line)	<ul style="list-style-type: none"> • Blown fuse • S-NET line open from the imoes unit to the immobilizer-keyless control unit. (S-NET line open) • No communication between the imoes unit and the immobilizer-keyless control unit because of low battery voltage. • No communication between the imoes unit and the immobilizer-keyless control unit because of interference. • Immobilizer-keyless control unit failure • Imoes unit failure.
D-3	Possible	No communication between ECM/PCM and immobilizer-keyless control unit (S-NET)	<ul style="list-style-type: none"> • Blown fuse • S-NET line open from the ECM/PCM to the immobilizer-keyless control unit. • No communication between the ECM/PCM and the immobilizer-keyless control unit because of low battery voltage. • No communication between the immobilizer-keyless control unit and the ECM/PCM because of interference. • Immobilizer-keyless control unit failure • ECM/PCM failure
E-1	—	Initial registration of immobilizer-keyless control unit is not completed	The immobilizer-keyless control unit is not registered. Try to register the immobilizer-keyless control unit using the HDS.
E-2			
E-3			
E-4			
E-5			
F-1	—	Special Mode	Turn the ignition switch to ON (II) and to LOCK (0) with the registered key.
F-2			
F-3			
F-4			
F-5			

Immobilizer System

Status Log

If you suspect there is a immobilizer system problem, check the status log in the HDS.

1. Connect the HDS to the data link connector (DLC).
2. Turn the ignition switch to ON (II).
3. On the HDS screen, at SYSTEM SELECTION MENU, enter IMMOBI, then select IMMOBILIZER SETUP, select System Check, Number of Keys and Status Log, then select STATUS LOG.
4. Check the STATUS LOG count. Troubleshoot the status with the highest count first. If no counts are listed, the immobilizer system is OK. Continue with normal symptom troubleshooting.

Status Log No.	Detected Item	Probable Cause
A-1	KEY CODE MISMATCH ^① (Code format correct, but code data does not match)	<ul style="list-style-type: none"> • The key was not registered • Interference from metal such as key chains • Low battery voltage
A-2	KEY CODE MISMATCH ^② (Incorrect code format)	<ul style="list-style-type: none"> • Ignition switch was turned to ON (II) with another type of immobilizer key or aftermarket key • Interference from metal such as key chains • Low battery voltage
A-3	KEY CODE MISMATCH ^③ (No transponder detected)	<ul style="list-style-type: none"> • Ignition switch was turned to ON (II) with another type of immobilizer key or aftermarket key • Interference from metal such as key chains • Low battery voltage • Key failure • Immobilizer-keyless control unit failure
B-1	ECM/PCM CODE MISMATCH ^① (Code format correct, but code data does not match)	<ul style="list-style-type: none"> • ECM/PCM was not registered correctly • Low battery voltage • Poor or loose terminal connections at the immobilizer-keyless control unit • Communication line electrical noise
B-2	ECM/PCM MISMATCH ^② (Incorrect code format)	<ul style="list-style-type: none"> • ECM/PCM was not registered correctly • Low battery voltage • Poor or loose terminal connections at the immobilizer-keyless control unit • Communication line electrical noise
C-1	IMOES UNIT MISMATCH ^① (Code format correct, but data does not match)	<ul style="list-style-type: none"> • Imoes unit was not registered • The communication was not good between imoes unit and immobilizer-keyless control unit by battery voltage low • The communication was not good between imoes unit and immobilizer-keyless control unit by influence of some noise
C-2	IMOES UNIT MISMATCH ^② (Incorrect code format)	<ul style="list-style-type: none"> • Imoes unit was not registered correctly • The communication was not good between imoes unit and immobilizer-keyless control unit by battery voltage low • The communication was not good between imoes unit and immobilizer-keyless control unit by influence of some noise
D-1	S-NET LINE PROBLEM ^① (Short to ground)	<ul style="list-style-type: none"> • Low battery voltage • Poor or loose terminal connections at the immobilizer-keyless control unit and the ECM/PCM • Communication line electrical noise
D-2	S-NET LINE PROBLEM ^② (No communication)	<ul style="list-style-type: none"> • Blown fuse • Harness open from imoes unit to immobilizer-keyless control unit • The communication was not good between imoes unit and immobilizer-keyless control unit by battery voltage low • The communication was not good between imoes unit and immobilizer-keyless control unit by influence of some noise • Imoes unit failure • Immobilizer-keyless control unit failure



Status Log No.	Detected Item	Probable Cause
D-3	S-NET LINE PROBLEM③ (Open line or ECM/PCM failure)	<ul style="list-style-type: none">• Open or short in the harness from the ECM/PCM to the immobilizer-keyless control unit• Low battery voltage• Poor or loose terminal connections at the immobilizer-keyless control unit and the ECM/PCM• Communication line electrical noise• Poor S-NET data communication due to electrical interference



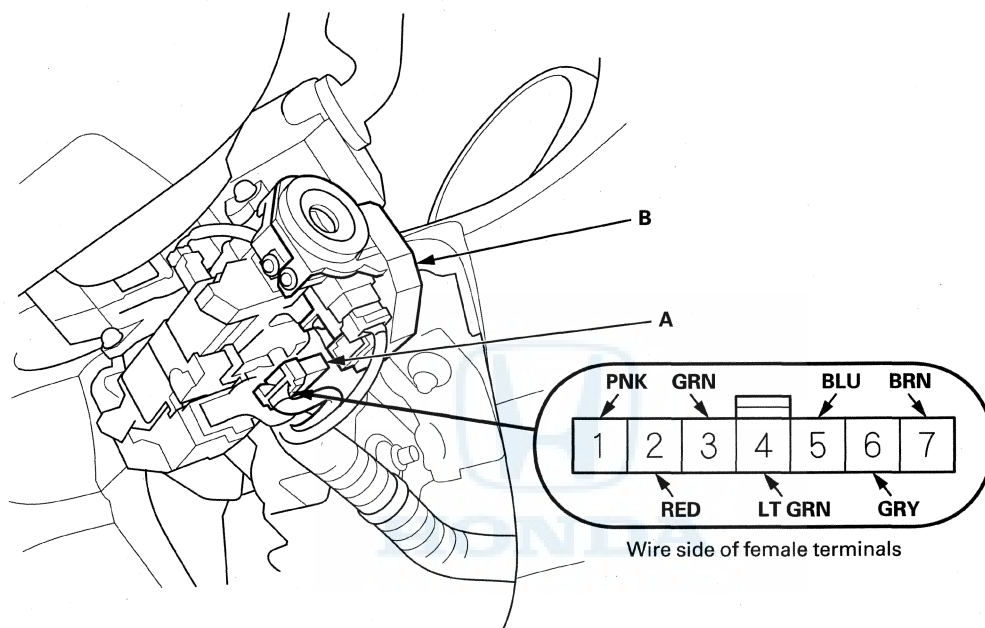
Immobilizer System

Immobilizer-Keyless Control Unit Input Test

NOTE:

- SRS components are located in this area. Review the SRS component locations (see page 24-13), and precautions and procedures (see page 24-15) before doing repairs or servicing.
- Before testing, troubleshoot the multiplex integrated control unit first, using B-CAN System Diagnosis Test Mode A (see page 22-107).

1. Remove the steering column covers (see page 20-105).
2. Disconnect the 7P connector (A) from the immobilizer-keyless control unit (B).



3. Inspect the connector and socket terminals to be sure they are all making good contact.
 - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
 - If the terminals look OK, go to step 4.



4. With the connector still disconnected, do these input tests at the following connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, go to step 5.

Cavity	Wire	Terminal name	Test condition	Test: Desired result	Possible cause if desired result is not obtained
4	LT GRN	B-CAN	Disconnect the gauge control module 32P connector	Check for continuity between the terminal No. 4 and the gauge control module 32P connector terminal No. 18: There should be continuity.	An open or high resistance in the wire
			Disconnect driver's under-dash fuse/relay box connector Q (16P)	Check for continuity between the terminal No. 4 and driver's under-dash fuse/relay box connector Q (16P) terminal No. 3: There should be continuity.	An open or high resistance in the wire
3	GRN	S-NET	Disconnect ECM/PCM connector A (49P)* (see page 11-6)	Measure the voltage to ground: There should be about 5 V.	<ul style="list-style-type: none">• A short to ground in the wire• An open or high resistance in the wire
			Disconnect ECM/PCM connector A (49P)* (see page 11-6)	Check for continuity between the terminal No. 3 and ECM/PCM connector A (49P) terminal No. 46: There should be continuity.	An open or high resistance in the wire

*: To disconnect the ECM/PCM connectors, turn the ignition switch to LOCK (0) and jump the SCS line with the HDS.

HONDA

(cont'd)

Immobilizer System

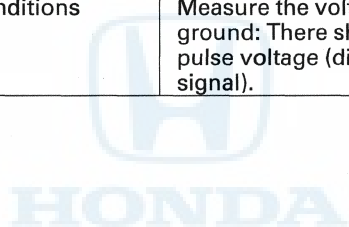
Immobilizer-Keyless Control Unit Input Test (cont'd)

5. Reconnect the connector to the immobilizer-keyless control unit, and do these input tests at the following connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, replace the immobilizer-keyless control unit (see page 22-336).

NOTE: After replacing the immobilizer-keyless control unit, do immobilizer registration (see page 22-335).

Cavity	Wire	Terminal name	Test condition	Test: Desired result	Possible cause if desired result is not obtained
1	PNK	VBU	Under all conditions	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none">• Blown No. 1 (10 A) fuse in the under-dash fuse/relay box• An open or high resistance in the wire
2	RED	IG1	Ignition switch ON (II)	Measure the voltage to ground: There should be battery voltage.	<ul style="list-style-type: none">• Blown No. 20 (15 A) fuse in the under-dash fuse/relay box• An open or high resistance in the wire
7	BRN	LG	In all ignition switch position	Measure the voltage to ground: There should be less than 0.2 V.	<ul style="list-style-type: none">• Poor ground (G101)• An open or high resistance in the wire
5	BLU	K-LINE	Under all conditions	Measure the voltage to ground: There should be pulse voltage (digital signal).	<ul style="list-style-type: none">• Faulty control unit on the K-line• Short to ground in the K-line wire





Immobilizer Key Registration

NOTE:

- The HDS is required for registration of the immobilizer keys.
- Programming the immobilizer also programs the keyless transmitter.
- Check for aftermarket electrical equipment that can cause problems with transponder operation.
- The immobilizer-keyless control unit can store up to six immobilizer keys.

Add One New Key/Keyless Transmitter

1. Have a registered key, a new immobilizer key, and the first password from the iN system.
2. Connect the HDS to the data link connector (DLC).
3. Turn the ignition switch to ON (II).
4. Select IMMOBI from the SYSTEM SELECT menu, then select IMMOBILIZER SETUP.
5. Select Add and Delete keys, then Add 1 key.
6. Do the registration according to the instructions on the HDS screen.
7. Check if the engine can be started with the newly registered key check that the door locks operate using the immobilizer key transmitter.
8. When prompted by the HDS, do the keyless transmitter programming.

Add and Delete Keys/Keyless Transmitters, Then Select Delete or Add keys

1. Have all registered keys, all new keys, and the first password from the iN system.
2. Connect the HDS to the data link connector (DLC).
3. Turn the ignition switch to ON (II).
4. Select IMMOBI from the SYSTEM SELECT menu, then select IMMOBILIZER SETUP.
5. Select Add and Delete Keys, or Delete or Add Multiple Keys.
6. Do the registration according to the instructions on the HDS screen.
7. Check if the engine can be started with all the registered keys check that the door locks operate using the immobilizer key transmitter.
8. When prompted by the HDS, do the keyless transmitter programming.

All Keys are Lost

1. Prepare all new keys and have the immobilizer ECM/PCM code.
2. Connect the HDS to the data link connector (DLC).
3. Turn the ignition switch to ON (II).
4. Select IMMOBI from the SYSTEM SELECT menu, then select IMMOBILIZER SETUP.
5. Select Add and Delete keys, then All keys lost.
6. Do the registration according to the instructions on the HDS screen.
7. Check if the engine can be started using all the registered keys, and check that the door locks operate using the immobilizer key transmitter.
8. When prompted by the HDS, do the keyless transmitter programming.

Immobilizer System

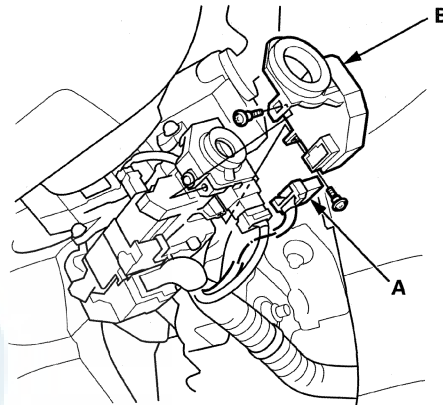
Registration for Immobilizer System

1. Have all registered keys and the PCM code.
2. Connect the HDS to the data link connector (DLC).
3. Turn the ignition switch to ON (II).
4. Select IMMOBI from the SYSTEM SELECTION MENU, then select the IMMOBILIZER SETUP.
5. Select REPLACE IMMOBILIZER/KEYLESS CONTROL UNIT REPLACE.
6. Do the registration according to the instructions on the HDS screen.
7. Check that the engine can be started with all registered keys.
8. When prompted by the HDS, do the keyless transmitter programming.

Immobilizer-Keyless Control Unit Replacement

NOTE: SRS components are located in the area. Review the SRS component locations (see page 24-13), and precautions and procedures (see page 24-15) before doing repairs or servicing.

1. Remove the steering column covers (see page 20-105).
2. Disconnect the 7P connector (A) from the immobilizer-keyless control unit (B).



3. Remove the two screws and the immobilizer-keyless control unit.
4. Install the immobilizer-keyless control unit in the reverse order of removal.
5. After replacement, register the immobilizer-keyless control unit (all of the customer's keys are required) (see page 22-335), and make sure the immobilizer system works properly.



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INTRODUCTION

How to Use This Manual

This manual is divided into multiple sections. The first page of each section is marked with a black tab that lines up with its corresponding thumb index tab on this page and the back cover. You can quickly find the first page of each section without looking through a full table of contents. The symbols printed at the top corner of each page can also be used as a quick reference system.


Each section includes:

1. A table of contents, or an exploded view index showing:
 - Parts disassembly sequence.
 - Bolt torques and thread sizes.
 - Page references to descriptions in text.
2. Disassembly/assembly procedures and tools.
3. Inspection.
4. Testing/troubleshooting.
5. Repair.
6. Adjustments.

Safety Messages

Your safety, and the safety of others, is very important. To help you make informed decisions, we have provided safety messages, and other safety information throughout this manual. Of course, it is not practical or possible to warn you about all the hazards associated with servicing this vehicle. You must use your own good judgment.

You will find important safety information in a variety of forms including:

- **Safety Labels** — on the vehicle.
- **Safety Messages** — preceded by a safety alert symbol  and one of three signal words, DANGER, WARNING, or CAUTION. These signal words mean:

DANGER

You WILL be KILLED or SERIOUSLY HURT if you don't follow instructions.

WARNING

You CAN be KILLED or SERIOUSLY HURT if you don't follow instructions.

CAUTION

You CAN be HURT if you don't follow instructions.

- **Instructions** — how to service this vehicle correctly and safely.

















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As you read this manual, you will find information that is preceded by a **NOTICE** symbol. The purpose of this message is to help prevent damage to your vehicle, other property, or the environment.

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Honda Motor Co., Ltd.
Service Publication Office

As sections with * include SRS components;
special precautions are required when servicing.

General Information	
Specifications	
Maintenance	
*Engine Electrical	
Engine Mechanical	
Engine Cooling	
Fuel and Emissions	
*Transaxle	
*Steering	
Suspension (Including TPMS)	
*Brakes (Including VSA)	
*Body	
*Heating, Ventilation, and Air Conditioning	
*Body Electrical	
*Audio, Navigation, and Telematics	
*Restraints	

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SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

The Fit SRS includes a driver's airbag in the steering wheel hub, a front passenger's airbag in the dashboard above the glove box, seat belt tensioners in the front seat belt retractors, side curtain airbags in the sides of the roof, and side airbags in the front seat-backs. Information necessary to safely service the SRS is included in this Service Manual. Items marked with an asterisk (*) on the contents page include or are located near SRS components. Servicing, disassembling, or replacing these items requires special precautions and tools, and should be done by an authorized Honda dealer.

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal or side collision, all SRS service work should be done by an authorized Honda dealer.
- Improper service procedures, including incorrect removal and installation of the SRS, could lead to personal injury caused by unintentional deployment of the airbags, side airbags, side curtain airbags, and/or seat belt tensioners.
- Do not bump or impact the SRS unit, front impact sensors, or side impact sensors, especially when the ignition switch is in ON (II), or for at least 3 minutes after the ignition switch is turned to LOCK (0); otherwise, the system may fail in a collision, or the airbags may deploy.
- SRS electrical connectors are identified by yellow color coding. Related components are located in the steering column, center console, dashboard, dashboard under cover, in the dashboard above the glove box, in the front seats, in the roof side, and around the floor. Do not use electrical test equipment on these circuits.



Audio, Navigation, and Telematics

Audio, Navigation, and Telematics

'09-11 models	23-1
'12 model	23-159



Audio, Navigation, and Telematics - '09-11 models

Audio, Navigation, and Telematics

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Navigation System

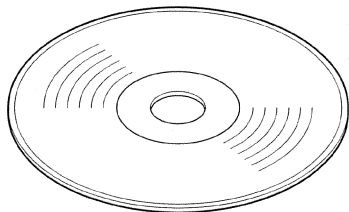
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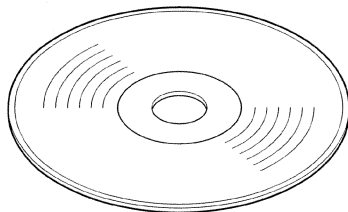
Audio, Navigation, and Telematics - '09-11 models

Special Tools

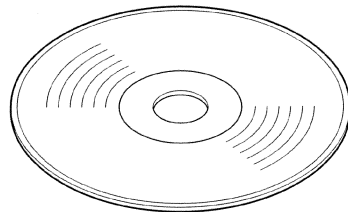
Ref.No.	Tool Number	Description	Qty
①	07AAZ-SDBA100	Diagnostic CD	1
②	07AAZ-SDBA200	Skip Test CD	1
③	07AAZ-SDBA300	Skip Test CD	1



①



②



③

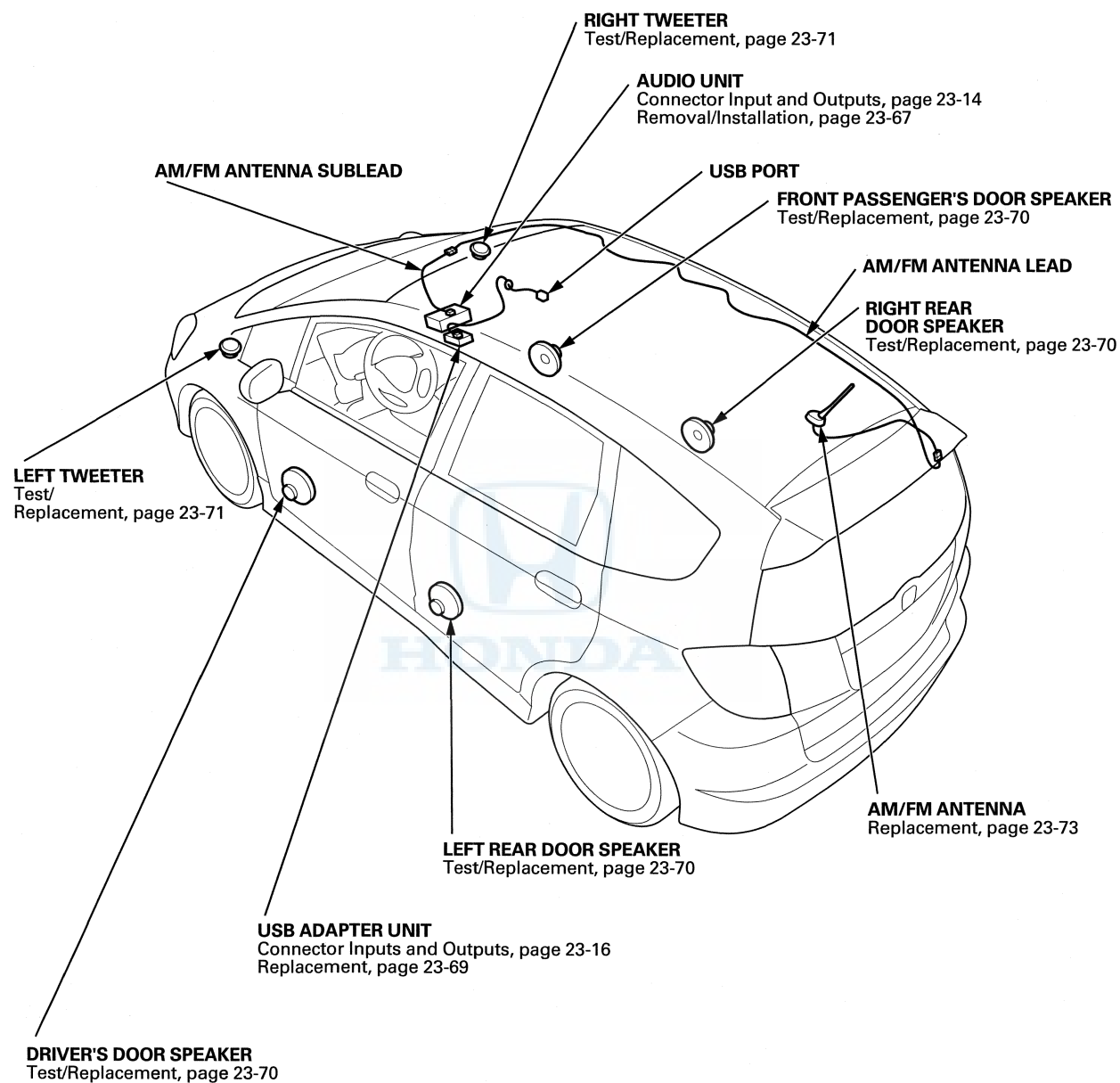


Audio System - '09-11 models



Component Location Index

Without navigation

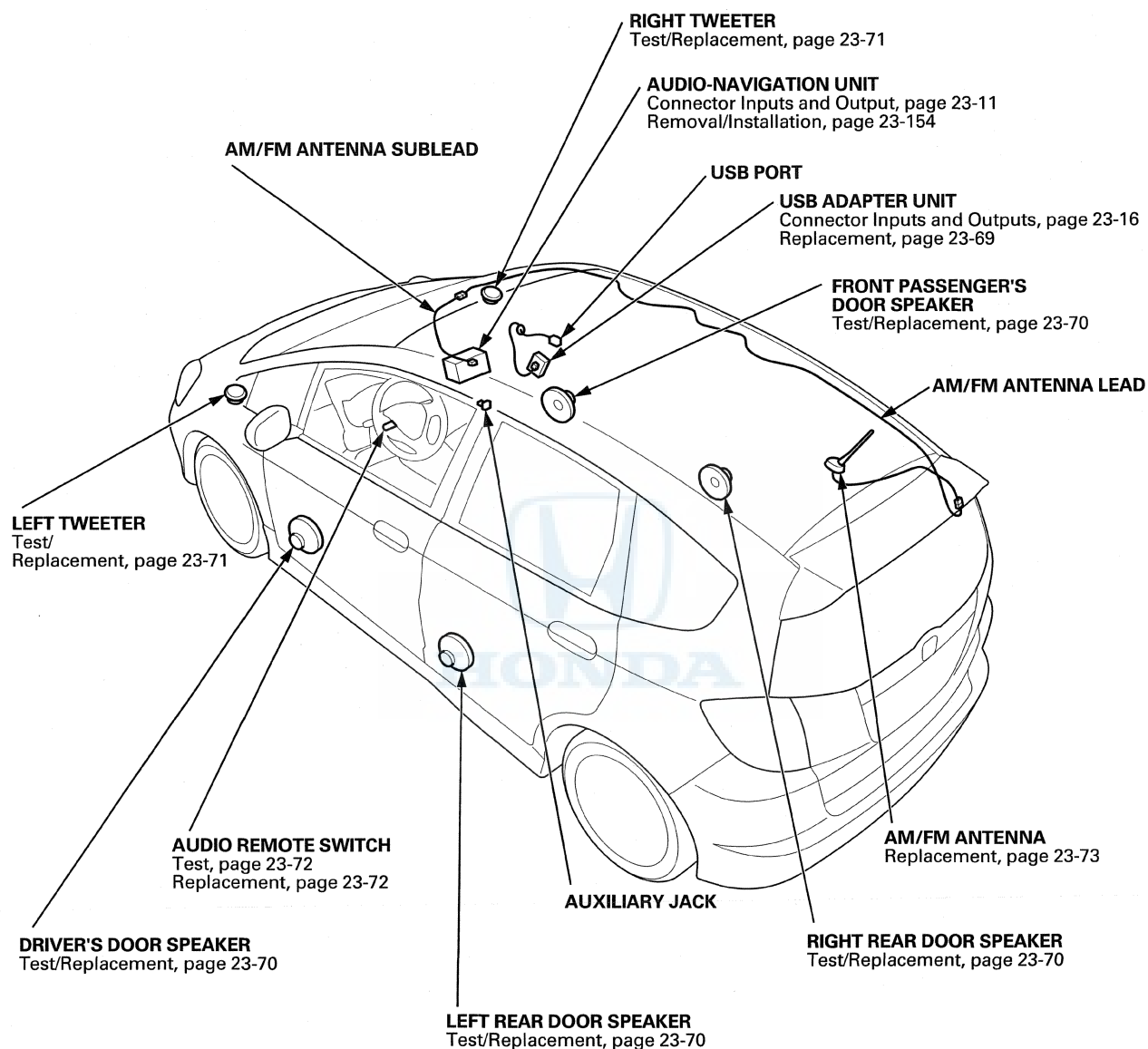


(cont'd)

Audio System - '09-11 models

Component Location Index (cont'd)

With navigation





Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Poor AM or FM radio reception or interference (with navigation)	Symptom Troubleshooting (see page 23-30)	<ul style="list-style-type: none"> AM/FM antenna lead and/or sublead short or open in the wire AM/FM antenna open
Poor AM or FM radio reception or interference (without navigation)	Symptom Troubleshooting (see page 23-32)	<ul style="list-style-type: none"> AM/FM antenna lead and/or sublead short or open in the wire AM/FM antenna open
Audio-navigation unit power switch will not turn on (No information display and no sound) (with navigation)	Symptom Troubleshooting (see page 23-35)	
Audio unit power switch will not turn on (No information display and no sound) (without navigation)	Symptom Troubleshooting (see page 23-37)	
Audio-navigation unit power switch will not turn off (with navigation)	Symptom Troubleshooting (see page 23-38)	
Audio unit power switch will not turn off (without navigation)	Symptom Troubleshooting (see page 23-38)	
No sound is heard from the speaker(s) (display is normal) (with navigation)	Symptom Troubleshooting (see page 23-39)	
No sound is heard from the speaker(s) (display is normal) (without navigation)	Symptom Troubleshooting (see page 23-41)	
Audio system sound is weak or distorted (display is normal)	Symptom Troubleshooting (see page 23-44)	
Radio preset memory is lost	Symptom Troubleshooting (see page 23-44)	<ul style="list-style-type: none"> Battery condition Battery cable condition
Volume does not change	Symptom Troubleshooting (see page 23-45)	
Volume does not increase with speed	Symptom Troubleshooting (see page 23-45)	
Volume is too high or too low when driving at freeway speeds	Symptom Troubleshooting (see page 23-46)	
Radio tuner does not change stations	Symptom Troubleshooting (see page 23-47)	
Display does not dim or brighten with dimmer (without navigation)	Symptom Troubleshooting (see page 23-47)	
Audio-navigation unit button illumination does not work (with navigation)	Symptom Troubleshooting (see page 23-48)	
Audio unit button illumination does not work (without navigation)	Symptom Troubleshooting (see page 23-49)	
Audio remote switch does not work properly (with navigation)	Symptom Troubleshooting (see page 23-50)	
Audio unit button does not work (without navigation)	Symptom Troubleshooting (see page 23-52)	
Audio unit disc indicator does not work (without navigation)	Symptom Troubleshooting (see page 23-52)	
Audio disc does not load	Symptom Troubleshooting (see page 23-53)	
Audio disc does not eject	Symptom Troubleshooting (see page 23-53)	

(cont'd)

Audio System - '09-11 models

Symptom Troubleshooting Index (cont'd)

Symptom	Diagnostic procedure	Also check for
Audio disc cannot be inserted and/or ejected (with navigation)	Symptom Troubleshooting (see page 23-54)	
Audio disc does not play	Symptom Troubleshooting (see page 23-54)	
Audio disc skips	Symptom Troubleshooting (see page 23-55)	Tire pressure (over-inflated), disc smudged, dirty, or scratched
USB input sound is low or cannot be heard	Symptom Troubleshooting (see page 23-56)	Compatibility of the USB devices (see owner's manual)
USB device does not function	Symptom Troubleshooting (see page 23-57)	Compatibility of the USB devices (see owner's manual)
Auxiliary input sound is low or cannot be heard (with navigation)	Symptom Troubleshooting (see page 23-60)	
PC card will not play/card icon on audio screen cannot be selected (with navigation)	Symptom Troubleshooting (see page 23-62)	





System Description

Overview

The audio unit acts as the processor for all audio functions. Select audio functions from the audio unit buttons (on the center panel) or the audio remote switch (on the steering wheel)*. The audio display provides the current audio status. The audio unit also supports playback function of compressed audio files (MP3/WMA) recorded on CD-R/RW.

There is an auxiliary jack (AUX) in the center panel*. The system will accept auxiliary audio input using a 3.5 mm stereo miniplug.

The audio unit has a built-in EEPROM (electrically erasable programmable read-only memory). This memory holds the audio presets (AM/FM radio frequency, sound settings, etc.) even when the battery is disconnected.

A security signal is daisy-chained between the audio and vehicle components and integrated into the vehicle's security system.

Speed-sensitive volume compensation (SVC)

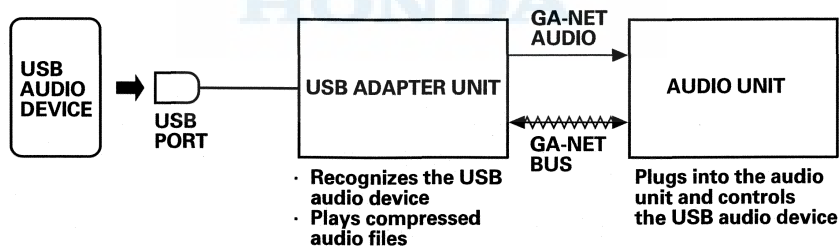
The audio system is equipped with speed-sensitive volume compensation (SVC). The audio unit receives the vehicle speed pulse (VSP) from the ECM/PCM. The system processes the speed input and increases the audio system volume level as the vehicle speed increases to compensate for the interior noises that occur at higher speeds. When the vehicle slows down, the volume returns to its normal level. The SVC has four settings: SVC OFF, LOW, MID, and HIGH that can be adjusted using the audio unit. The factory default setting is MID (see the owner's manual for more information).

USB adapter

The audio system supports the external compressed audio files input using a USB adapter. The audio unit supports GA-Net address and commands for the USB adapter unit. While connecting the USB audio device to the USB adapter, the audio unit can control the USB audio device. Also, the audio unit can provide power to the USB audio device through the USB. Connect the USB audio device using the USB adapter cable located in the glove box (see Owner's Manual).

NOTE: Not all players and player functions work with the USB adapter. See the owner's manual for more information.

*: With navigation



(cont'd)

Audio System - '09-11 models

System Description (cont'd)

NOTE: All items may not apply to this vehicle. See the owner's manual for more information.

Audio Glossary

Item	Definition
Active noise cancellation	The active noise cancellation system cancels some of the vehicle noise. This occurs in the 1,500–2,400 rpm range. Microphones detect the low frequency sound, and the system outputs a canceling sound from the audio speaker.
AM (Amplitude Modulation)	The type of transmission used in the standard radio broadcast band from 530 to 1710 kHz.
Amplifier	A device that increases the level of a signal by increasing the current or voltage.
Antenna	A device used to send or receive electromagnetic waves through the air.
ATA (PC Card)	A type of card that is used for playing WMA and MP3 music files in the PC card slot.
Audio remote switch	The switches on the steering wheel that control the audio system.
Auxiliary jack	Allows the customer to use a portable audio device to input audio recordings.
Balance	A control that changes the relative volume of the left and right channels.
Band	A range of frequencies between two definite limits. Bands are assigned by the Federal Communications Commission for specific uses.
Bass	An adjustment for the low frequency sounds of around 160 Hz and below.
Bluetooth Audio	Allows the customer to play audio recordings stored on their cell phone through the audio system.
Byte	A unit of storage for computer files and memory. A CD holds approximately 700 million bytes.
Compact flash	A standard for small-size (3 x 4 cm), memory cards used in mobile computers, PDAs, and digital cameras. Compact flash memory cards are available in size of 32 MB up to 4 GB or more and can be played in the audio PC slot.
CD	A 4.5-inch plastic disc containing digital audio recording that is played optically on a laser equipped player. Never use discs with a paper label. In a hot vehicle, labels can curl up and jam the unit.
CD changer	CD player that can store and play more than one CD. Two types are available. Some units accept CDs fed into the changer one at a time, and others accept a magazine (with CDs stacked in a container).
CD player	A component designed to play compact disc recordings using a laser optical pickup. The signal from a CD player usually requires amplification.
CSF (Cold Start Fix) screens	These screens are displayed if the system requires a GPS initialization. The vehicle should be moved outside into an open area away from buildings/power lines.
db (Decibels)	A method of measuring sound or radio signal strength received by the audio unit antenna.
Distortion	Inexact reproduction of an audio signal caused by playing music at levels the audio system cannot handle.
DUET	A serial data communication line used for sub display.
DVD (Digital Versatile Disc)	A 4.5-inch CD-like format used for storing movies with digital audio and video features. The DVD-A format is a DVD format designed for DVD audio systems. Some vehicles can play DVD and DVD-A formats.
Equalizer	A device that changes the relative volume of individual frequency bands to suit personal tastes of the listener.
Fader	The control that adjusts the relative volume levels of front and rear speakers in a four-speaker system.
Format	To prepare a PC Card to receive files this function is done on a PC. Always choose either FAT or FAT32, as the NTFS format is not accepted by the system. Pick the default sectors for the format method selected.
FM (Frequency Modulation)	The form of modulation used for radio and television sound transmission in most of the world. Less prone to interference than AM. The FM broadcast band in North America covers roughly 87.7 to 107.9 MHz.
GA-Net	The GA-Net allows the audio unit to communicate with all the audio and navigation components in a vehicle. If there is an open in the GA-Net or components, the entire audio and navigation system may appear inoperative.



Audio Glossary (cont'd)

Item	Definition
GB (Gigabyte)	A unit of memory or disk storage equal to one billion bytes (1000 million bytes).
HDD (External)	Abbreviation for hard disc drive. They are sensitive to heat and it is not recommended that they be used in the PC card slot for playing audio files.
HDD (Internal)	Abbreviation for hard disc drive. Some audio-navigation units use an HDD to store navigation software, map data, customer information, and music. The HDD replaces the navigation DVD.
Hz (Hertz)	The unit of frequency equal to one cycle per second (cps). One kilohertz (kHz) equals 1,000 cps; one megahertz (MHz) equals 1 million cps.
Integrated amplifier	A component that combines a pre amp and a power amp into a single unit. A receiver combines an integrated amp and a tuner into a single unit.
LCD (Liquid Crystal Display)	A type of digital display that changes reflectance or transmittance when an electrical field is applied to it.
Memory	Circuitry or devices that hold information in electrical or magnetic form, such as the AM/FM radio presets.
MB (Megabyte)	One million bytes. Written as 1 MB. Megabytes are used as a measure of digital storage space. For example, a CD can hold 650 MB.
Mic (Microphone)	An abbreviation for microphone. For vehicles with navigation, the microphone accepts navigation voice commands to control audio and navigation functions.
Mute	When the navigation gives guidance, the front speakers are muted (no music). When you use the voice control system, all of the speakers are muted.
Noise	Unwanted random sounds like buzzing, hiss, pops, static, whine, etc.
PC card	The slot used for playing MP3 and WMA music files. The PC card is usually a combination of a small flash card in a PCMCIA adaptor that slides into the slot. The ATA, SD, and compact flash types of cards have been tested up to 1 GB.
PCMCIA	A computer standard for the slot that the PC card slides into. Another term for the PC card slot.
Processor	The part of an audio device that performs tasks/calculations. In the audio unit, the processor handles muting to allow the navigation system to speak its voice commands, and the decoding/playback of the sound files, etc.
Radio	A head unit that combines a tuner, a preamplifier, and often a power-amplifier.
Route guidance	Spoken voice used for turn-by-turn navigation from the audio speakers.
Stereo	A recording of at least two channels where you can hear sound or music from the left or right side.
SD (Secure Digital) card	This compact type of memory card allows for fast data transfer and has built-in security functions. SD cards have a small write-protection switch on the side.
SD module	Some audio-navigation units use an SD module to store navigation software, map data, and customer information. The SD module replaces the navigation DVD.
Shield	A metallic foil or braided wire layer surrounding conductors which are designed to prevent electrostatic or electromagnetic interference (noise) from external sources such as buzzing or popping sounds heard on the speakers.
Loudspeaker	A device that converts electrical energy into acoustical energy (sound).
SVC (Speed-sensitive volume compensation)	The SVC increases the audio volume to compensate for increased interior noise when the vehicle is driven at freeway speeds.
Subwoofer	A loudspeaker made to reproduce the lowest audio frequencies, from about 25 Hz to 125 Hz.
Track	A sound recording on a CD, tape, or PC Card.
Treble	An adjustment to control the volume of the high frequency sounds.
Tuner	A component (or part of a component) that receives radio signals and selects one broadcast from many.
Tweeter	A speaker designed to reproduce the higher frequencies (treble) only.
USB jack	See USB port.
USB port	Allows the customers to play data such as input audio recording from portable audio devices (such as i-pod) or data from USB flash memory. The USB is used for playing the compressed audio files (MP3, WMA, ACC, etc.) on the external device through the audio unit.

(cont'd)

Audio System - '09-11 models

System Description (cont'd)

Audio Glossary (cont'd)

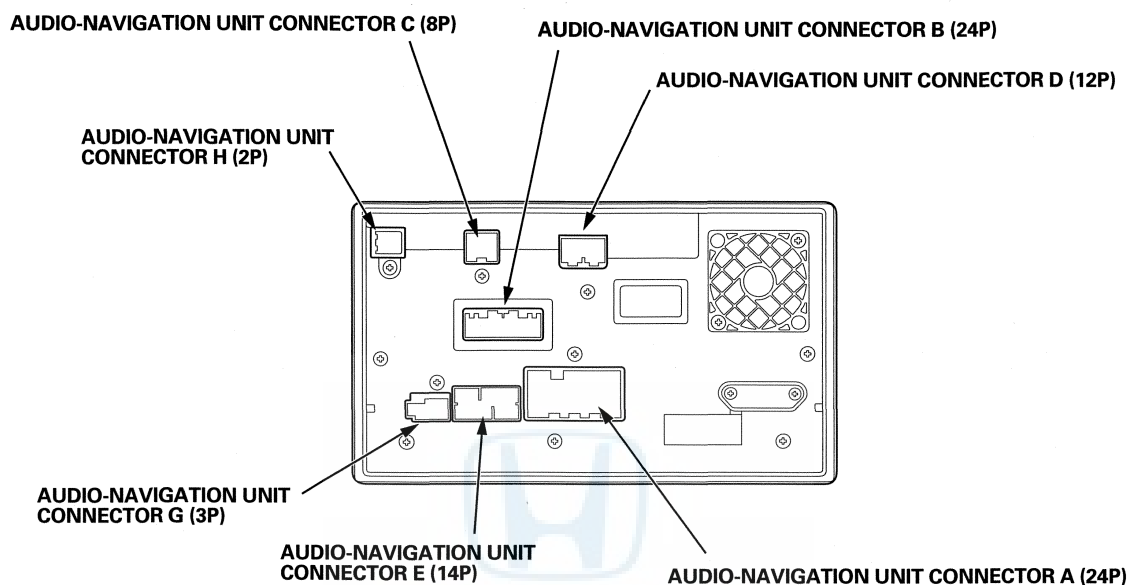
Item	Definition
Woofer	A speaker that is designed to reproduce low (bass) frequencies only.
XM radio	Satellite based radio transmission, which also uses a ground based repeater network to ensure seamless reception. The channels originate from XM's broadcast center, in Washington D.C. and uplink to two satellites. These satellites transmit the signal across the entire continental United States.
XM receiver	The external component that receives and processes the XM signals from the XM satellites and terrestrial (land) stations. The audio unit communicates to the XM receiver over the GA-Net bus.





Audio Unit Connector for Inputs and Outputs

With navigation



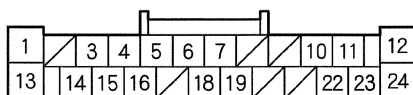
NOTE: Refer to the navigation section for audio-navigation unit connector C, D, and H inputs and outputs (see page 23-101).

(cont'd)

Audio System - '09-11 models

System Description (cont'd)

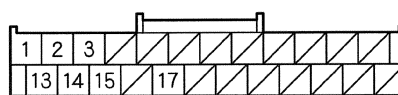
AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Cavity	Wire color	Connects to
A1	RED	Dashlights brightness controller (ILL-)
A3	BLU	Data link connector (DLC) (K-line)
A4	GRN	Security control unit (MICU) (SCTY)
A5	WHT	Audio remote switch (REMOTE GND)
A6	ORN	Right rear door speaker (RR R-)
A7	BLU	Right rear door speaker (RR R+)
A10	BRN	Left rear door speaker (RR L-)
A11	GRY	Left rear door speaker (RR L+)
A12	BLK	Body ground to G503 (GND)
A13	GRY	No. 29 (10 A) fuse in the under-dash fuse/relay box (ILL+)
A14	ORN	No. 14 (7.5 A) fuse in the under-dash fuse/relay box (ACC)
A15	BLU	ECM/PCM (Vehicle speed pulse) (VSP)
A16	PNK	Audio remote switch (REMOTE)
A18	RED	Front passenger's door speaker (-) (FR R-)
A19	BRN	Front passenger's door speaker (+) (FR R+)
A22	LT GRN	Driver's door speaker (-) (FR L-)
A23	LT BLU	Driver's door speaker (+) (FR L+)
A24	PNK	No. 1 (10 A) fuse in the under-dash fuse/relay box (+B)

AUDIO-NAVIGATION UNIT CONNECTOR B (20P)



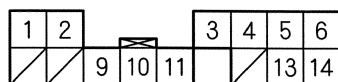
Wire side of female terminals

Cavity	Wire color	Connects to
B1	BLU	Auxiliary jack assembly (AUX SIG GND)
B2	GRY*	Shield for terminals No. 12, No. 23, and No. 24 (AUX SH GND)
B3	BRN	Auxiliary jack assembly (AUX GND)
B13	YEL	Auxiliary jack assembly (AUX L)
B14	GRN	Auxiliary jack assembly (AUX R)
B15	WHT	Auxiliary jack assembly (AUX DET)
B17	BLK	Ground (G502) (GND)

*: The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the schematic.



AUDIO-NAVIGATION UNIT CONNECTOR E (14P)

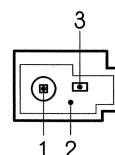


Wire side of female terminals

Cavity	Wire color	Connects to
E1	ORN	USB adapter unit (+B)
E2	BLU	USB adapter unit (SYS ACC)
E3	GRY*	Shield for terminals No. 9 and No. 10 (GA-NET BUS SH)
E4	GRY*	Shield for terminals No. 5, No. 6, No. 13, and No. 14 (AUDIO SH)
E5	BLK	USB adapter unit (AUDIO R+)
E6	WHT	USB adapter unit (AUDIO L+)
E9	YEL	USB adapter unit (GA-NET BUS+)
E10	GRN	USB adapter unit (GA-NET BUS-)
E11	PNK	USB adapter unit (GND)
E13	RED	USB adapter unit (AUDIO R-)
E14	GRN	USB adapter unit (AUDIO L-)

*: The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the schematic.

AUDIO-NAVIGATION UNIT CONNECTOR G (3P)



Terminal side of female terminals

Cavity	Wire color	Connects to
G1	—	AM/FM antenna (RF IN)
G2	—	Shield for terminal No. 1 (RF SH)
G3	—	AM/FM antenna (ANT +B)

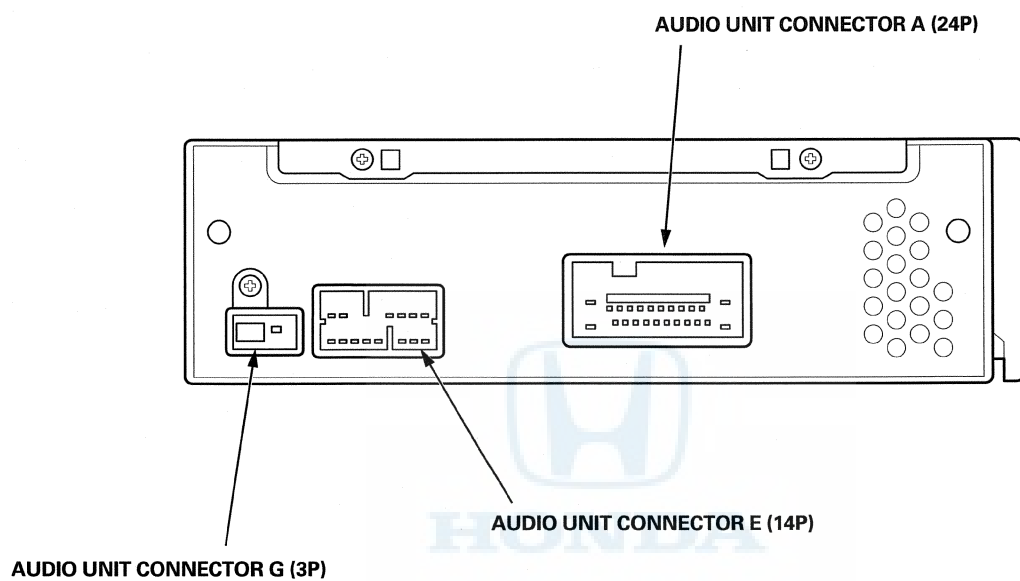
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Audio System - '09-11 models

System Description (cont'd)

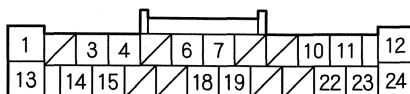
Audio Unit Connector Location

Without navigation





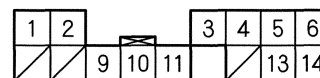
AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

Cavity	Wire color	Connects to
A1	RED	Dashlights brightness controller (ILL -)
A3	BLU	Data link connector (DLC) (K-line)
A4	GRN	Security control unit (MICU) (SCTY)
A6	ORN	Right rear door speaker (RR R -)
A7	BLU	Right rear door speaker (RR R +)
A10	BRN	Left rear door speaker (RR L -)
A11	GRY	Left rear door speaker (RR L +)
A12	BLK	Body ground to G503 (GND)
A13	GRY	No. 29 (10 A) fuse in the under-dash fuse/relay box (ILL +)
A14	ORN	No. 14 (7.5 A) fuse in the under-dash fuse/relay box (ACC)
A15	BLU	ECM/PCM (Vehicle speed pulse) (VSP)
A18	RED	Front passenger's door speaker (-) (FR R -)
A19	BRN	Front passenger's door speaker (+) (FR R +)
A22	LT GRN	Driver's door speaker (-) (FR L -)
A23	LT BLU	Driver's door speaker (+) (FR L +)
A24	PNK	No. 1 (10 A) fuse in the under-dash fuse/relay box (+B)

AUDIO UNIT CONNECTOR E (14P)

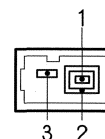


Wire side of female terminals

Cavity	Wire color	Connects to
E1	ORN	USB adapter unit (+B)
E2	BLU	USB adapter unit (SYS ACC)
E3	GRY*	Shield for terminals No. 9 and No. 10 (GA-NET BUS SH)
E4	PNK*	Shield for terminals No. 5, No. 6, No. 13, and No. 14 (AUDIO SH)
E5	BRN	USB adapter unit (AUDIO R +)
E6	WHT	USB adapter unit (AUDIO L +)
E9	YEL	USB adapter unit (GA-NET BUS +)
E10	GRN	USB adapter unit (GA-NET BUS -)
E11	BLK	USB adapter unit (GND)
E13	RED	USB adapter unit (AUDIO R -)
E14	LT BLU	USB adapter unit (AUDIO L -)

*: The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the schematic.

AUDIO UNIT CONNECTOR G (3P)



Terminal side of female terminals

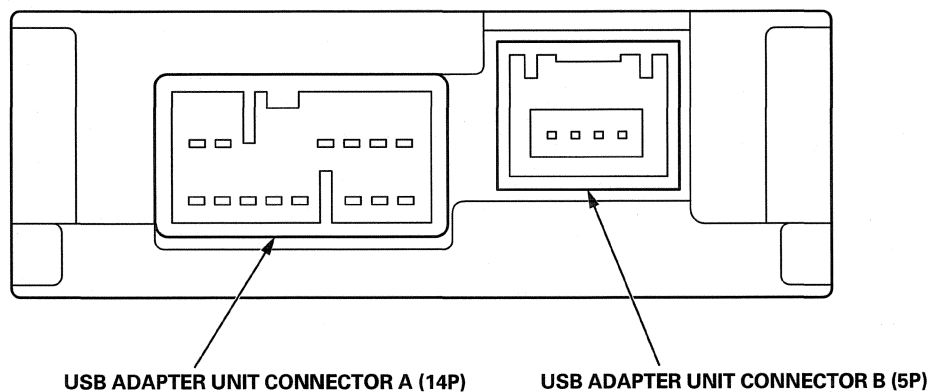
Cavity	Wire color	Connects to
G1	—	AM/FM antenna (RF IN)
G2	—	Shield for terminal No. 1 (RF SH)
G3	—	AM/FM antenna (ANT +B)

(cont'd)

Audio System - '09-11 models

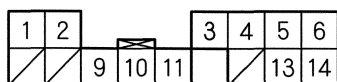
System Description (cont'd)

USB Adapter Connector for Inputs and Outputs





USB ADAPTER UNIT CONNECTOR A (14P)



Wire side of female terminals

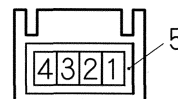
Cavity	Wire color	Connects to
A1	ORN	Audio unit or Audio-navigation unit (+B)
A2	BLU	Audio unit or Audio-navigation unit (SYS ACC)
A3	GRY ^{*1}	Shield for terminals No. 9 and No. 10 (GA-NET BUS SH)
A4	GRY ^{*1*2} PNK ^{*1*2}	Shield for terminals No. 5, No. 6, No. 13, and No. 14 (GA-NET AUDIO SH)
A5	BLK ^{*2} BRN ^{*3}	Audio unit or Audio-navigation unit (AUDIO R+)
A6	WHT	Audio unit or Audio-navigation unit (AUDIO L+)
A9	YEL	Audio unit or Audio-navigation unit (GA-NET BUS+)
A10	GRN	Audio unit or Audio-navigation unit (GA-NET BUS-)
A11	PNK ^{*2} BLK ^{*3}	Audio unit or Audio-navigation unit (GND)
A13	RED	Audio unit or Audio-navigation unit (AUDIO R-)
A14	GRN ^{*2} LT BLU ^{*3}	Audio unit or Audio-navigation unit (AUDIO L-)

*1: The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the schematic.

*2: With navigation

*3: Without navigation

USB ADAPTER UNIT CONNECTOR B (5P)



Terminal side of female terminals

Cavity	Wire color	Connects to
B1	—	USB adapter (USB VBUS)
B2	—	USB adapter (USB DATA-)
B3	—	USB adapter (USB DATA+)
B4	—	USB adapter (USB GND)
B5	—	Shield for terminals No. 1, No. 2, No. 3, and No. 4 (USB SH)

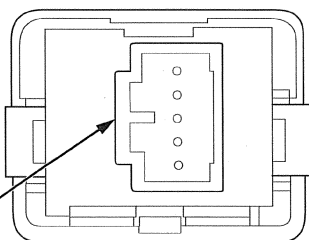
(cont'd)

Audio System - '09-11 models

System Description (cont'd)

Auxiliary Jack Assembly Connector for Inputs and Outputs

With navigation

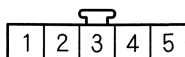


AUXILIARY JACK ASSEMBLY 5P CONNECTOR



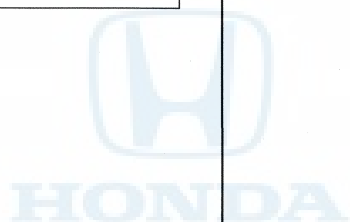


AUXILIARY JACK ASSEMBLY 5P CONNECTOR



Wire side of female terminals

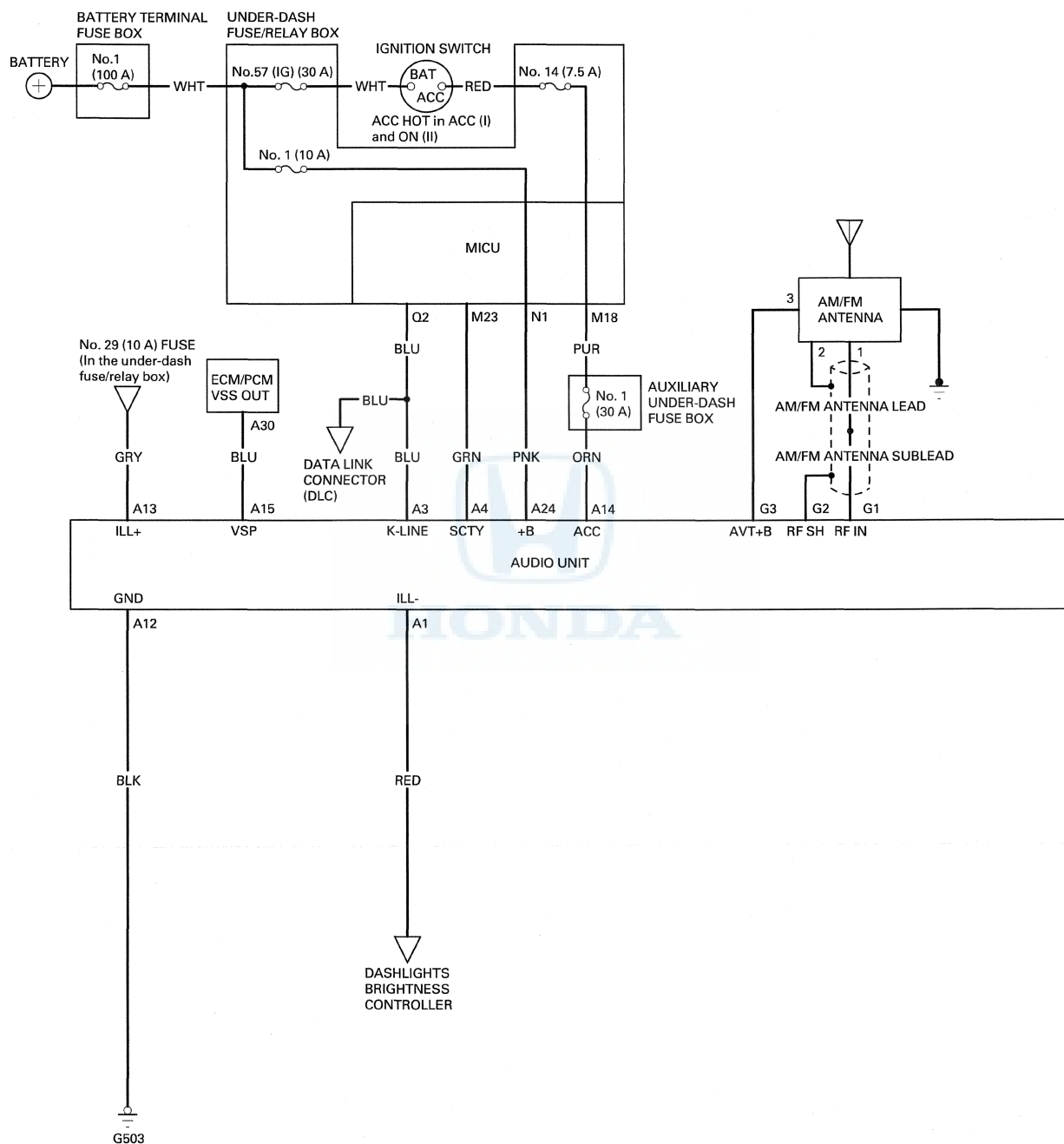
Cavity	Wire color	Connects to
1	WHT	Audio-navigation unit (AUX DET)
2	BRN	Audio-navigation unit (AUX GND)
3	BLU	Audio-navigation unit (AUX SIG GND)
4	YEL	Audio-navigation unit (AUX L)
5	GRN	Audio-navigation unit (AUX R)



Audio System - '09-11 models

Circuit Diagram

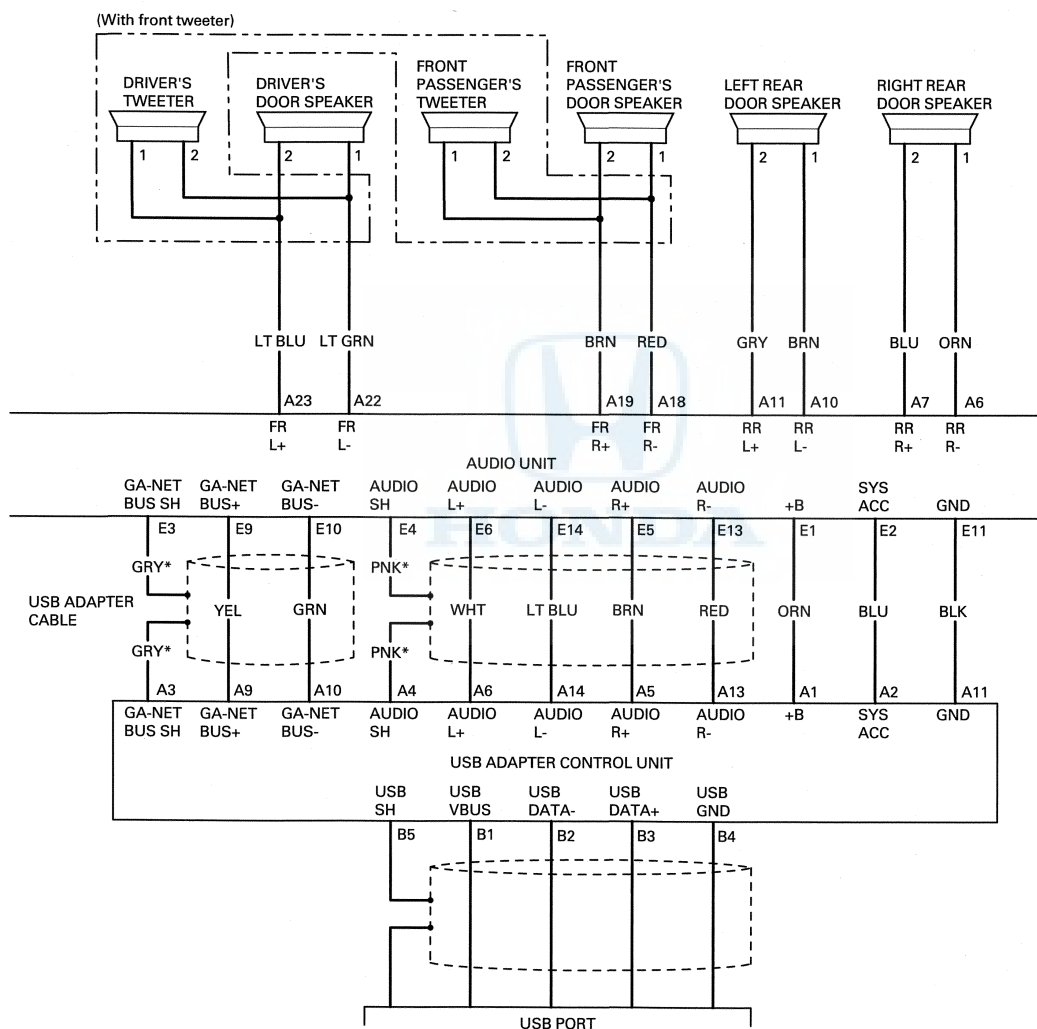
Without navigation





* : The shielded wires have a heat-shrunk tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the schematic.

----- : Shielding

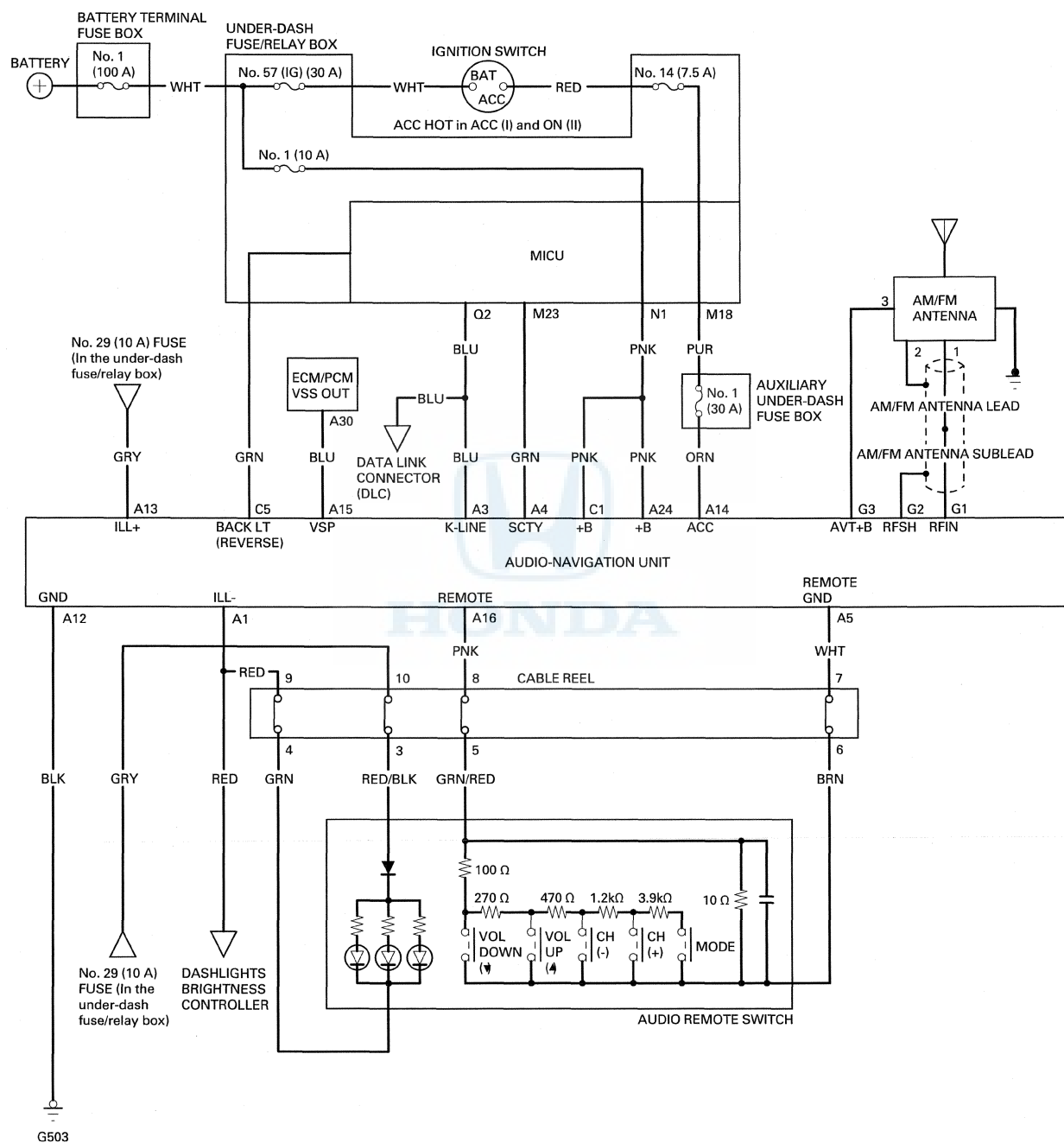


(cont'd)

Audio System - '09-11 models

Circuit Diagram (cont'd)

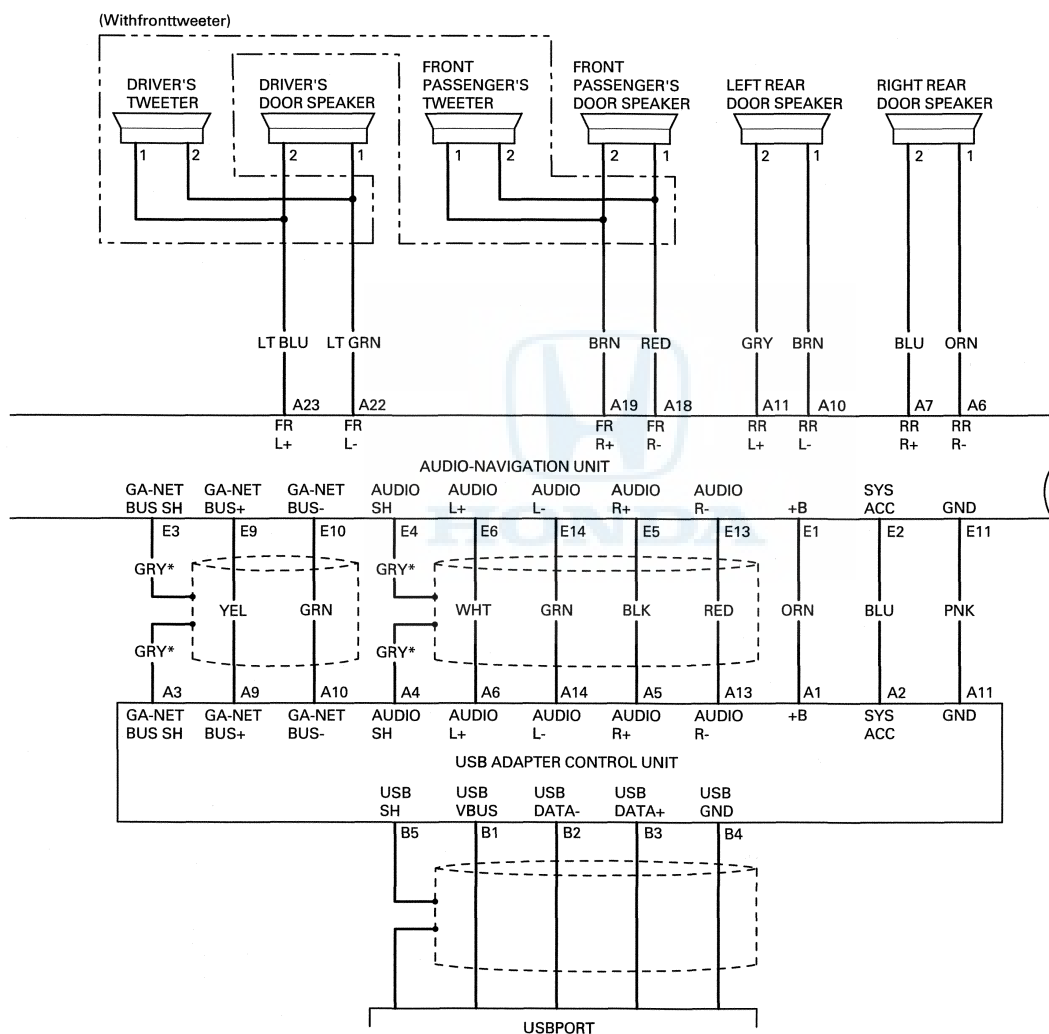
With navigation





* : The shielded wires have a heat-shrunk tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the schematic.

----- : Shielding

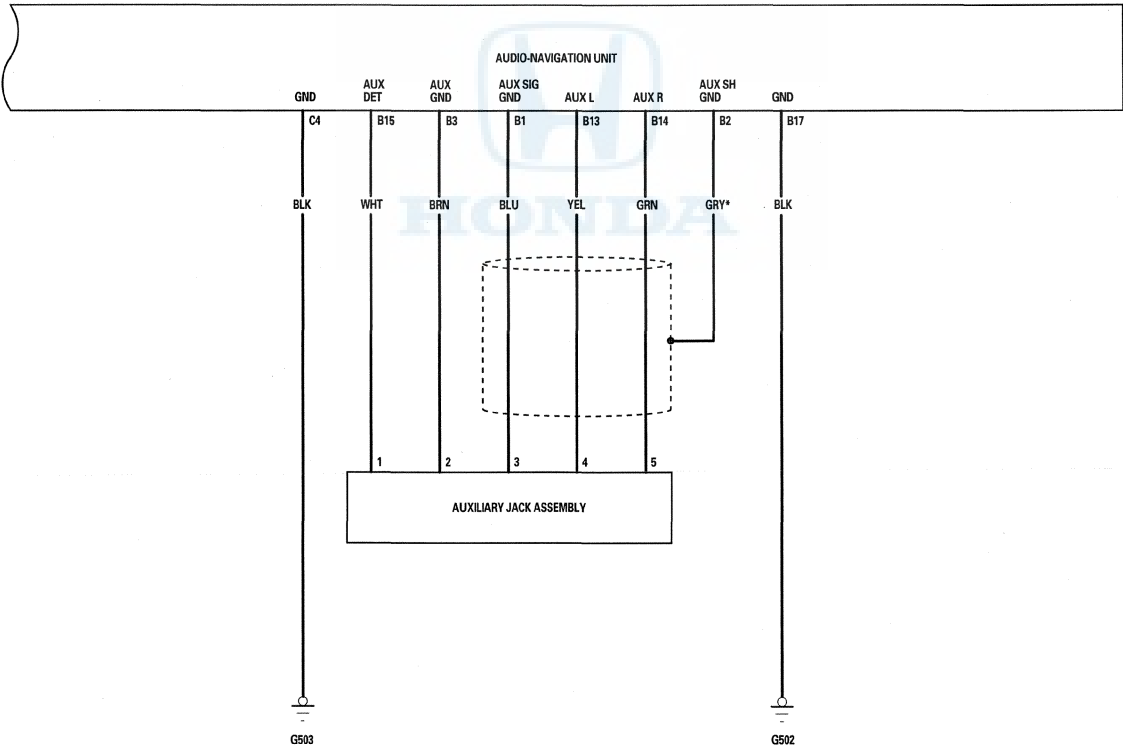


(cont'd)

Audio System - '09-11 models

Circuit Diagram (cont'd)

*: The shielded wires have a heat-shrunk tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the schematic.
----- : Shielding





Self-Diagnostic Function

The audio system has a self-diagnostic function.

The audio-navigation unit (with navigation) does not support this function.

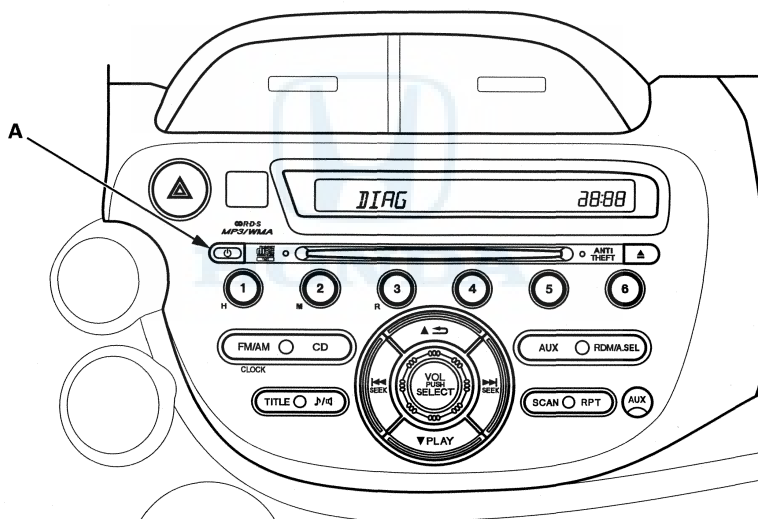
NOTE:

- Not all self-diagnostic functions appear on all models.
- There may be other self-diagnostic functions that are for factory use only.
- The self-diagnostic function does not find every problem with the audio system. Check any official Honda service website for more information about the audio system.

How to Obtain the Audio Unit Serial Number

NOTE: This procedure can only be done after the power has been disconnected and reconnected to the audio unit, and the audio unit displays CODE when the audio unit is turned on.

1. Turn the ignition switch to ON (II).
2. Make sure the audio system is turned off.
3. Press and hold the preset No. 1 and No. 6 buttons.
4. While holding the buttons, push the power button (A) on.



5. Release the buttons, and the self-diagnosis begins.
6. The display shows an 8-digit serial number, for example S/N 12345678, on the display.
7. Use all 8 numbers as the serial number when using the Interactive Network (iN) to retrieve the 5-digit anti-theft code.
8. The self-diagnostic mode ends when you turn off the audio unit or turn the ignition switch to LOCK (0).

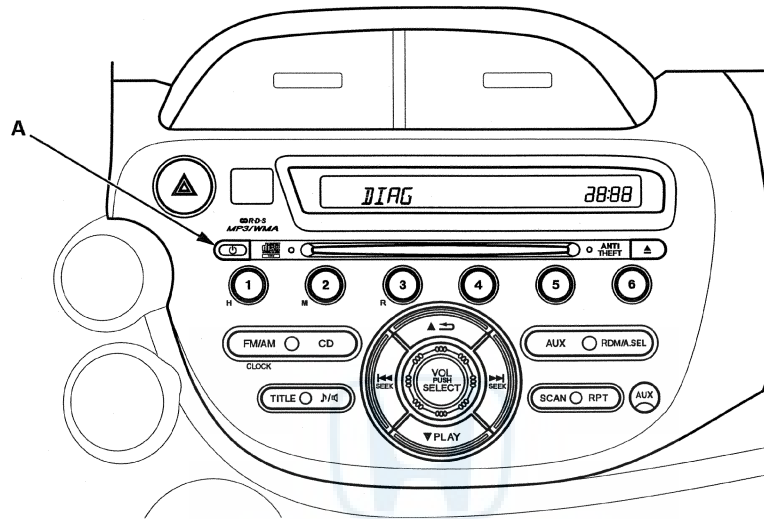
(cont'd)

Audio System - '09-11 models

Self-Diagnostic Function (cont'd)

How to Use the Audio System Self-diagnostic Function

1. Turn the ignition switch to ON (II).
2. Make sure the audio system is turned off.
3. Push and hold the preset No. 1 and No. 6 buttons.
4. While holding the buttons, push the power button (A) to on.



5. Release the buttons and the self-diagnostic mode begins.



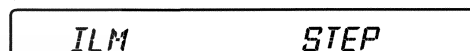
6. When you are in the self-diagnostic mode, pressing a preset button starts the diagnostic mode that is assigned to that preset switch.

	Button operation	Desired result	Diagnostic procedure
	Press the preset No. 2 button	The audio unit (center panel) switch name and/or value should be displayed (Except power button)	Audio unit button(s) does not work (see page 23-52).
A	Press the preset No. 3 button	All of the segments should turn on, then turn off.	This test checks if any audio unit LCD segments are stuck on or are dead (off). If there are any segments stuck on or are dead, replace the audio unit.
B	Press the preset No. 4 button	When the parking light switch is on, the illumination steps should change from — step to 22 step while adjusting the dash brightness control knob	<ul style="list-style-type: none"> • Audio unit button illumination does not work (see page 23-49). • Gauge control module (Lighting)
C	Press the preset No. 5 button	When you drive the vehicle, the VSP indicates the vehicle speed in km/h.	Volume does not increase with speed (see page 23-45).

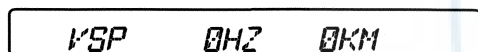
A



B



C



7. If the diagnosis result is not matching the desired result, do the applicable system troubleshooting.
8. The self-diagnostic mode ends when you turn off the audio unit or turn the ignition switch to LOCK (0).

(cont'd)

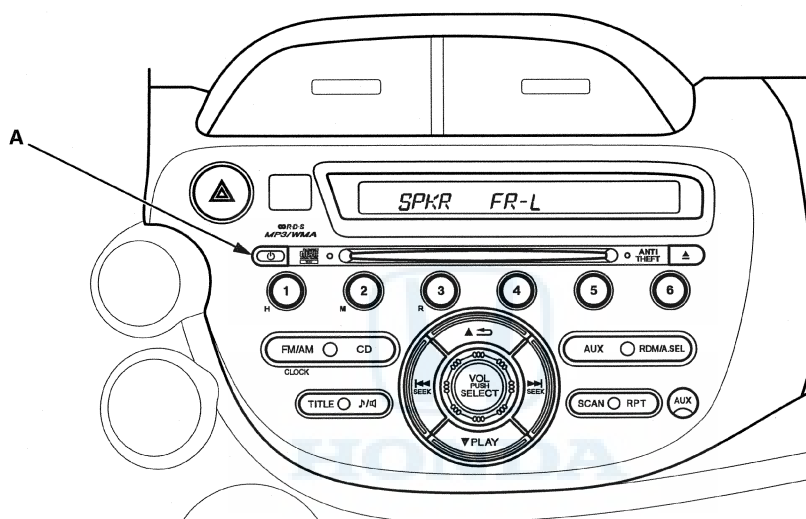
Audio System - '09-11 models

Self-Diagnostic Function (cont'd)

Speaker Check Mode

NOTE:

- There may be other self-diagnostic functions that are for factory use only.
 - If no sound is heard from the speakers, go to no sound is heard from the speaker(s) (see page 23-41).
1. Turn the ignition switch to ON (II).
 2. Make sure the audio system is turned off.
 3. Push and hold the preset No. 1 and No. 3 buttons.
 4. While holding the buttons, push the power button (A) to on.



5. Release the buttons and the speaker check mode begins.
6. Each time you press the SKIP or SKIP button, the speaker outputs a beep and tests the speakers in the order listed.

NOTE: Adjust the volume level to a comfortable level with the VOL PUSH SELECT knob.

Order of Speakers

SKIP is pressed:

①→②→③→④→⑤

SKIP is pressed:

①→⑤→④→③→②

	Speaker	Displayed Segments
①	Driver's door speaker	SPKR FR-L
②	Front passenger's door speaker	SPKR FR-R
③	Right rear door speaker	SPKR RR-R
④	Left rear door speaker	SPKR RR-L
⑤	All speakers	SPKR ALL

7. If any speaker(s) fail to sound, go to symptom troubleshooting.
8. To end the speaker check mode, turn the audio unit off, or turn the ignition switch to LOCK (0).

NOTE: The volume level remains at the same level as when you did the speaker test. If you turned the volume up to do the speaker mode test, return the volume to its normal level.



Error Codes

The audio system can display a few error codes when some of the problems are detected with the disc player or the disc. This is not a complete list of the audio error codes. Refer to symptom troubleshooting, or go to any official Honda service website for more service information.

CD Error Codes

Error Code Displayed	Possible Cause	Solution
CD UNSUPPORTED	Track/File format not supported.	Current track will be skipped. The next supported track or file plays automatically. <ul style="list-style-type: none">• Verify that CD file names end in CDA.• Verify that CD-R or CD-RW with compressed music formats end in MP3 or WMA.• Other file formats like i-Tunes (AAC) or Ogg are not recognized.• WMA files may have (DRM) copy protection and cannot be read.
BAD DISC/PLEASE CHECK/OWNERS MANUAL/PUSH EJECT	<ul style="list-style-type: none">• CD label jammed in the mechanism.• The wrong type disc is inserted.• CD eject mechanism or motor is inoperative.• CD spindle motor won't spin up the CD.	<ul style="list-style-type: none">• Eject CD and insert a known-good CD.• If PUSH EJECT is flashing, press the EJECT button and hold it for 5 seconds. If the disc does not eject, try again. If the disc still won't eject, replace the unit.
HEAT ERROR	Disc player is hot. This error can happen if the vehicle is parked out in the hot sun all day.	Park the vehicle in a cooler place for a while and play the disc again. If the error code is still present, try another disc. If the error code is still present, replace the audio unit.



Audio System - '09-11 models

Symptom Troubleshooting

Poor AM or FM radio reception or interference (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the radio reception in an open area.
- Compare it to a known-good vehicle of the same model, year, and trim level whenever possible.
- If necessary, have the customer demonstrate the symptom.
- Poor reception/interference can be caused by any of these conditions:
 - The radio station is far away.
 - Atmospheric conditions are unfavorable.
 - Tall buildings, mountains, or high-voltage power lines are nearby.
 - Electronic accessories.
 - Non-standard antenna mast.
 - Check for aftermarket accessories plugged into the vehicle accessory power sockets (including cell phones).
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).

2. Do the seek stop test (see page 23-66).

Does the test vehicle receive 90 % of the same stations as the known-good vehicle?

YES—Multipath interference or weak station. Operation is normal at this time.■

NO—Go to step 3.

3. Check if the radio reception/interference is the same as the known-good vehicle in several locations.

Is the reception/interference the same as the known-good vehicle in several different locations?

YES—Multipath interference or weak station. Operation is normal.■

NO—Go to step 4.

4. Check the reception/interference while the engine is running, and compare it to the known-good vehicle.

Is there noise (static or whine) only with the engine running?

YES—Check the antenna and radio grounds. If OK, check the charging system, the fuel injection system (fuel pump), the HVAC blower motor, and the ignition system.■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).

6. Check the antenna mast for cracks or other damage. Make sure that the AM/FM antenna is not loose.

NOTE: Do not use any tools to tighten the antenna mast.

Is there any damage?

YES—Replace the AM/FM antenna (see page 23-73).■

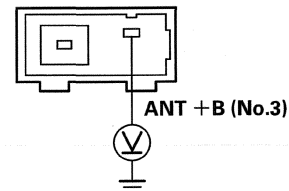
NO—Go to step 7.

7. Disconnect the AM/FM antenna 3P connector.

8. Turn the ignition switch to ON (II).

9. Measure the voltage between AM/FM antenna 3P connector terminal No. 3 and body ground.

AM/FM ANTENNA 3P CONNECTOR



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 15.

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).

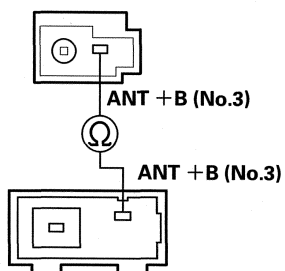
11. Remove the audio-navigation unit (see page 23-154).

12. Disconnect audio-navigation unit connector G (3P).



13. Check for continuity between audio-navigation unit connector G (3P) terminal No. 3 and AM/FM antenna 3P connector terminal No. 3.

AUDIO-NAVIGATION UNIT CONNECTOR G (3P)
Terminal side of female terminals



AM/FM ANTENNA 3P CONNECTOR
Terminal side of female terminals

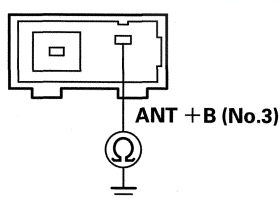
Is there continuity?

YES—Go to step 14.

NO—There is an open in the wire between the audio-navigation unit and the AM/FM antenna. ■

14. Check for continuity between AM/FM antenna 3P connector terminal No. 3 and body ground.

AM/FM ANTENNA 3P CONNECTOR



Terminal side of female terminals

Is there continuity?

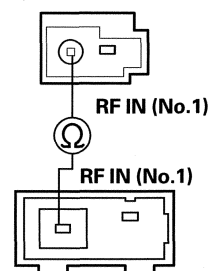
YES—Repair a short in the wire between the audio-navigation unit and the AM/FM antenna. ■

NO—Substitute a known-good audio-navigation unit, and recheck. ■

15. Remove the audio-navigation unit (see page 23-154).

16. Check for continuity between audio-navigation unit connector G (3P) terminal No. 1 and AM/FM antenna 3P connector terminal No. 1.

AUDIO-NAVIGATION UNIT CONNECTOR G (3P)
Terminal side of female terminals



AM/FM ANTENNA 3P CONNECTOR
Terminal side of female terminals

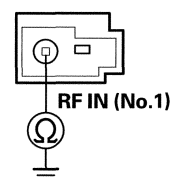
Is there continuity?

YES—Go to step 17.

NO—Replace the antenna lead and/or the sublead. ■

17. Check for continuity between audio-navigation unit connector G (3P) terminal No. 1 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR G (3P)



Terminal side of female terminals

Is there continuity?

YES—Replace the antenna lead and/or the sublead. ■

NO—Go to step 18.

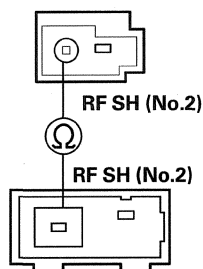
(cont'd)

Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

18. Check for continuity between audio-navigation unit connector G (3P) terminal No. 2 and AM/FM antenna 3P connector terminal No. 2.

AUDIO-NAVIGATION UNIT CONNECTOR G (3P)
Terminal side of female terminals



AM/FM ANTENNA 3P CONNECTOR
Terminal side of female terminals

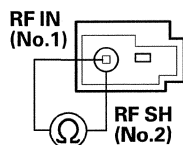
Is there continuity?

YES—Go to step 19.

NO—Replace the antenna lead and/or the sublead.■

19. Check for continuity between audio-navigation unit connector G (3P) terminals No. 1 and No. 2.

AUDIO-NAVIGATION UNIT CONNECTOR G (3P)



Terminal side of female terminals

Is there continuity?

YES—Replace the antenna lead and/or the sublead.■

NO—Replace the AM/FM antenna (see page 23-73), and recheck. If the reception is still poor, replace the audio-navigation unit (see page 23-154).■

Poor AM or FM radio reception or interference (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the radio reception in an open area.
- Compare it to a known-good vehicle of the same model, year, and trim level whenever possible.
- If necessary, have the customer demonstrate the symptom.
- Poor reception/interference can be caused by following:
 - The radio station is far away.
 - Atmospheric conditions are unfavorable.
 - Tall buildings, mountains, or high-voltage power lines are nearby.
 - Electronic accessories.
 - Non-standard antenna mast.
- Check for aftermarket accessories plugged into the vehicle accessory power sockets (including cell phones).
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).

2. Do the seek stop test (see page 23-66).

Does the test vehicle receive 90 % of the same stations as the known-good vehicle?

YES—Multipath interference or weak station. Operation is normal at this time.■

NO—Go to step 3.

3. Check if the radio reception/interference is the same as the known-good vehicle in several locations.

Is the reception/interference the same as the known-good vehicle in several different locations?

YES—Multipath interference or weak station. Operation is normal.■

NO—Go to step 4.



4. Check the reception/interference while the engine is running, and compare it to the known-good vehicle.

Is there noise (static or whine) only with the engine running?

YES—Check the antenna and radio grounds. If OK, check the charging system, the fuel injection system (fuel pump), the HVAC blower motor, and the ignition system. ■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).

6. Check the antenna mast for cracks or other damage. Make sure that the AM/FM antenna is not loose.

NOTE: Do not use any tools to tighten the antenna mast.

Is there any damage?

YES—Replace the AM/FM antenna (see page 23-73). ■

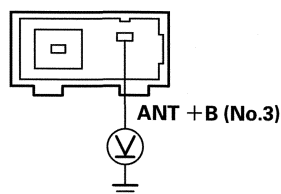
NO—Go to step 7.

7. Disconnect the AM/FM antenna 3P connector.

8. Turn the ignition switch to ON (II).

9. Measure the voltage between AM/FM antenna 3P connector terminal No. 3 and body ground.

AM/FM ANTENNA 3P CONNECTOR



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 15.

NO—Go to step 10.

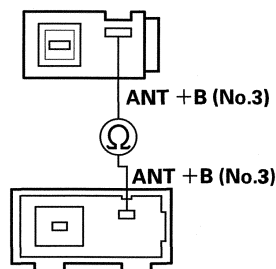
10. Turn the ignition switch to LOCK (0).

11. Remove the audio unit (see page 23-67).

12. Disconnect audio unit connector G (3P).

13. Check for continuity between audio unit connector G (3P) terminal No. 3 and AM/FM antenna 3P connector terminal No. 3.

AUDIO UNIT CONNECTOR G (3P) Terminal side of female terminals



AM/FM ANTENNA 3P CONNECTOR Terminal side of female terminals

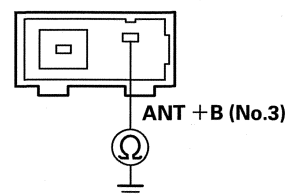
Is there continuity?

YES—Go to step 14.

NO—Repair an open in the wire between the audio unit and the AM/FM antenna. ■

14. Check for continuity between AM/FM antenna 3P connector terminal No. 3 and body ground.

AM/FM ANTENNA 3P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between the audio unit and the AM/FM antenna. ■

NO—Substitute a known-good audio unit (see page 23-67), and recheck. ■

15. Remove the audio unit (see page 23-67).

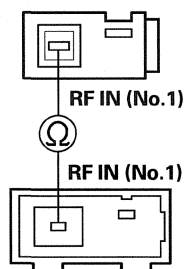
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Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

16. Check for continuity between audio unit connector G (3P) terminal No. 1 and AM/FM antenna 3P connector terminal No. 1.

AUDIO UNIT CONNECTOR G (3P)
Terminal side of female terminals



AM/FM ANTENNA 3P CONNECTOR
Terminal side of female terminals

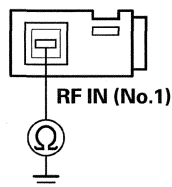
Is there continuity?

YES—Go to step 17.

NO—Replace the antenna lead and/or the sublead. ■

17. Check for continuity between audio unit connector G (3P) terminal No. 1 and body ground.

AUDIO UNIT CONNECTOR G (3P)



Terminal side of female terminals

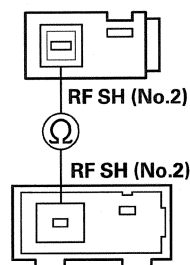
Is there continuity?

YES—Replace the antenna lead and/or the sublead. ■

NO—Go to step 18.

18. Check for continuity between audio unit connector G (3P) terminal No. 2 and AM/FM antenna 3P connector terminal No. 2.

AUDIO UNIT CONNECTOR G (3P)
Terminal side of female terminals



AM/FM ANTENNA 3P CONNECTOR
Terminal side of female terminals

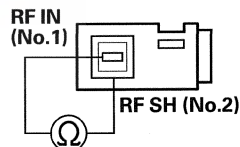
Is there continuity?

YES—Replace the antenna lead and/or the sublead. ■

NO—Go to step 19.

19. Check for continuity between audio unit connector G (3P) terminals No. 1 and No. 2.

AUDIO UNIT CONNECTOR G (3P)



Terminal side of female terminals

Is there continuity?

YES—Replace the antenna lead and/or the sublead. ■

NO—Replace the AM/FM antenna (see page 23-73), and recheck. If the reception is still poor, replace the audio unit (see page 23-67). ■



Audio-navigation unit power switch will not turn on (No information display and no sound) (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Eject all the CDs before removing the audio-navigation unit to prevent damaging the CD player's loading mechanism.

1. With the ignition switch ON (II), push the power switch ON to see if the audio-navigation unit turns on.

Does the audio-navigation unit display operate properly, and does the audio sound normal?

YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 2.

2. Turn the ignition switch to LOCK (0).

3. Check the No. 1 (10 A) fuse and the No. 14 (7.5 A) fuse in the under-dash fuse/relay box and the No. 1 (30 A) fuse (auxiliary under-dash fuse box) on the wire harness near the under-dash fuse/relay box.

Are the fuses OK?

YES—Go to step 4.

NO—Replace the fuse(s), and recheck. ■

4. Remove the audio-navigation unit (see page 23-154). Check that the audio-navigation unit is properly connected.

Is it connected properly?

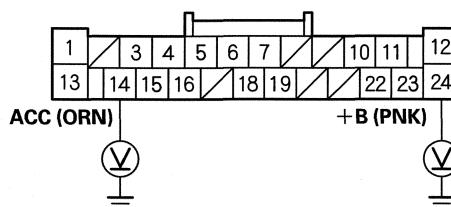
YES—Go to step 5.

NO—Reconnect the connectors, and recheck the function. ■

5. Turn the ignition switch to ON (II).

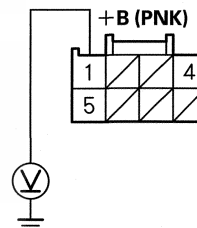
6. Measure the voltage between audio-navigation unit connector A (24P) terminal No. 14 and body ground, and between terminal No. 24 and body ground, and audio-navigation unit connector C (8P) terminal No. 1 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR C (8P)



Wire side of female terminals

Is there battery voltage on both terminals?

YES—Go to step 7.

NO—Repair an open in the wire(s) between the No. 1 (10 A) fuse and the No. 14 (7.5 A) in the under-dash fuse/relay box and the No. 1 (30 A) fuse (auxiliary under-dash fuse box) on the wire harness near the under-dash fuse/relay box and the audio unit. ■

7. Turn the ignition switch to LOCK (0).
8. Reconnect audio-navigation unit connector A (24P) and connector C (8P).

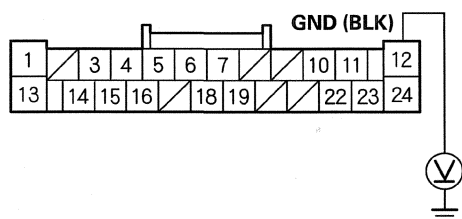
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Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

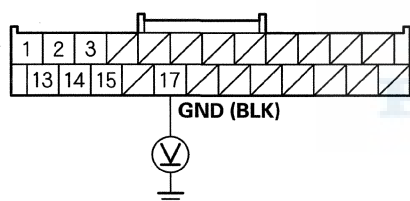
9. Measure the voltage between audio-navigation unit connector A (24P) terminal No. 12 and body ground, between audio-navigation unit connector B (24P) terminal No. 17 and body ground, and between audio-navigation unit connector C (8P) terminal No. 4 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



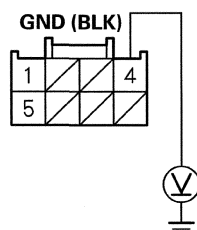
Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR B (24P)



Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR C (8P)



Wire side of female terminals

Is there less than 0.2 V on all terminals?

YES—Replace the audio-navigation unit (see page 23-154). ■

NO—There is an open or high resistance in the wire between audio-navigation unit connector A (24P) terminal No. 12 or audio-navigation unit connector B (24P) terminal No. 17 and body ground (G503 and G502), or audio-navigation connector C (8P) terminal No.4 and body ground (G503). ■



Audio unit power switch will not turn on (No information display and no sound) (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Eject all the CDs before removing the audio unit and CD changer to prevent damaging the CD player's loading mechanism.

1. With the ignition switch ON (II), push the power switch ON to see if the audio unit turns on.

Does the audio unit operate properly, and does the audio sound normal?

YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 2.

2. Turn the ignition switch to LOCK (0).

3. Check the No. 1 (10A) fuse and the No. 14 (7.5 A) fuse in the under-dash fuse/relay box and No. 1 (30 A) fuse (auxiliary under-dash fuse box) on the wire harness near the under-dash fuse/relay box.

Are the fuses OK?

YES—Go to step 4.

NO—Replace the fuse(s), and recheck. ■

4. Remove the audio unit (see page 23-67). Check that the audio unit is properly connected.

Is the audio unit connected properly?

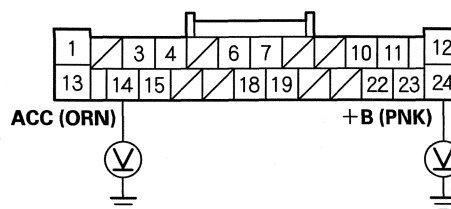
YES—Go to step 5.

NO—Reconnect the connector, and recheck the function. ■

5. Turn the ignition switch to ON (II).

6. Measure the voltage between body ground and audio unit connector A (24P) terminal No. 14 and No. 24.

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

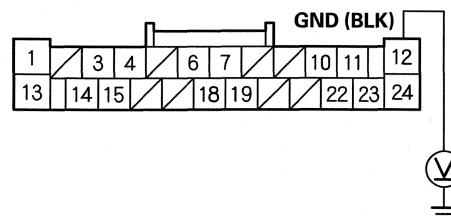
Is there battery voltage on the both terminals?

YES—Go to step 7.

NO—There is an open in the wire(s) between the No. 1 (10 A) fuse and the No. 14 (7.5 A) in the under-dash fuse/relay box and the No. 1 (30 A) fuse (auxiliary under-dash fuse box) on the wire harness near the under-dash fuse/relay box and the audio unit. ■

7. Turn the ignition switch to LOCK (0).
8. Reconnect audio unit connector A (24P).
9. Turn the ignition switch to ON (II).
10. Measure the voltage between audio unit connector A (24P) terminal No. 12 and body ground.

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there less than 0.2 V?

YES—Replace the audio unit (see page 23-67). ■

NO—There is an open or high resistance in the wire between audio unit connector A (24P) terminal No. 12 and body ground (G503). ■

(cont'd)

Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

Audio-navigation unit power switch will not turn off (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
 - Check the connectors for poor connections or loose terminals.
 - Check for aftermarket accessories plugged into the vehicle's accessory power sockets.
1. With the ignition switch ON (II), push the power switch off or turn the ignition switch to LOCK (0) to see if the audio-navigation unit turns off.

Is the audio-navigation unit OFF?

YES—Operation is normal at this time.■

NO—Go to step 2.

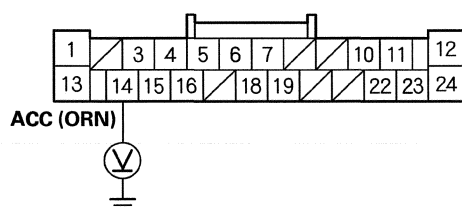
2. Turn the ignition switch to LOCK (0).

3. Remove the audio-navigation unit (see page 23-154).

NOTE: Eject all the CDs before removing the audio-navigation unit to prevent damaging the CD player's loading mechanism.

4. Measure the voltage between audio-navigation unit connector A (24P) terminal No. 14 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there battery voltage?

YES—Check for short to power on ORN wire.■

NO—Replace the audio-navigation unit (see page 23-154).■

Audio unit power switch will not turn off (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
 - Check the connectors for poor connections or loose terminals.
 - Check for aftermarket accessories plugged into the vehicle's accessory power sockets.
 - Eject any audio discs before removing the audio unit to prevent damaging the audio disc player's loading mechanism.
1. With the ignition switch in ON (II), push the power switch or turn the ignition switch to LOCK (0) to see if the audio unit turns off.

Is the audio unit OFF?

YES—Operation is normal at this time.■

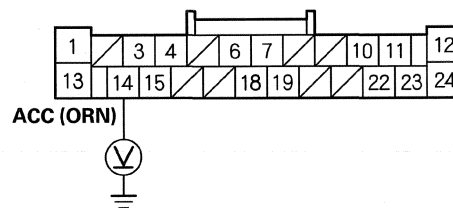
NO—Go to step 2.

2. Turn the ignition switch to LOCK (0).

3. Remove the audio unit (see page 23-67).

4. Measure the voltage between audio unit connector A (24P) terminal No. 14 and body ground.

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there voltage?

YES—Check for short to power on ORN wire.■

NO—Replace the audio unit (see page 23-67).■



No sound is heard from the speaker(s) (display is normal) (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Set the fader and the balance positions to the center.
- Before doing this symptom troubleshooting, refer to Audio-navigation unit power switch will not turn on (see page 23-35).
- If there is sound from the door speaker but not from the tweeter, replace the tweeter. If there is still no sound from the tweeter, repair or replace the harness.
- Some models have tweeter grills, but do not have tweeters or related wiring.

1. Turn the ignition switch to ON (II).

2. Make sure the volume is not set to the MIN level, and check for sound in all modes (AM/FM, CD, USB).

Is there sound in all modes, and is the sound normal?

YES—System is OK at this time. Check for poor connections at the audio unit, the speakers, and the stereo amplifier.■

NO—

- If there is no sound in all modes, go to step 3.
- If there is no sound in AM/FM mode, go to AM or FM radio reception interference (see page 23-30).
- If there is no sound in CD mode, go to Audio disc does not play (see page 23-54).
- If there is no sound in the USB mode, go to USB input sound is low or cannot be heard (see page 23-56).

3. Check for sound in each mode (AM, FM and CD).

Is the sound OK in each mode?

YES—Intermittent failure, the system is OK at this time. Check for loose connections at the audio-navigation unit and the speaker(s).■

NO—Go to step 4.

4. On the steering wheel, check the navigation talk command.

Is the navigation talk command function set?

YES—Cancel the navigation talk command by pressing the navigation BACK button, then recheck the function.■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).

6. Check the speaker(s) with no sound for any damage.

Is there any damage?

YES—Replace the speaker (see page 23-70), and recheck.■

NO—Go to step 7.

7. Remove the speaker(s) with no sound (see page 23-70), and disconnect its connector.

8. Check the speaker 2P connector for a loose or poor connection.

Reconnect the speaker 2P connector, and recheck the symptom; does it still fail?

YES—Go to step 9.

NO—Intermittent failure. Operation is normal.■

9. Test the speaker(s) (see page 23-70).

Is the speaker OK?

YES—Go to step 10.

NO—Replace the speaker(s) (see page 23-70), and recheck.■

10. Reconnect the speaker connector.

11. Remove the audio-navigation unit (see page 23-154), and disconnect audio-navigation unit connector A (24P).

(cont'd)

Audio System - '09-11 models

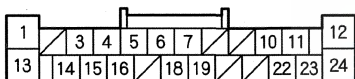
Symptom Troubleshooting (cont'd)

12. Check for continuity between body ground and audio-navigation unit connector A (24P) according to the table.

NOTE: If no sound is heard from all speakers, check all of the wiring for shorts.

Speaker	Terminal	Wire color
Driver's door speaker	A22 (-)	LT GRN
	A23 (+)	LT BLU
Left tweeter	A22 (-)	LT GRN
	A23 (+)	LT BLU
Front passenger's door speaker	A18 (-)	RED
	A19 (+)	BRN
Right tweeter	A18 (-)	RED
	A19 (+)	BRN
Left rear door speaker	A10 (-)	BRN
	A11 (+)	GRY
Right rear door speaker	A6 (-)	ORN
	A7 (+)	BLU

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire(s) between the audio-navigation unit and the speaker. ■

NO—

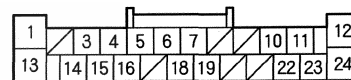
- With tweeter: Go to step 13.
- Without tweeter: Go to step 14.

13. Disconnect the connector(s) from the tweeter(s).

14. Measure the resistance between each pair of speaker terminals at audio-navigation unit connector A (24P) according to the table.

Speaker	Terminal	Wire color
Driver's door speaker	A22 (-)	LT GRN
	A23 (+)	LT BLU
Front passenger's door speaker	A18 (-)	RED
	A19 (+)	BRN
Left rear door speaker	A10 (-)	BRN
	A11 (+)	GRY
Right rear door speaker	A6 (-)	ORN
	A7 (+)	BLU

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there about 4 Ω ?

YES—

- With tweeter: Go to step 15.
- Without tweeter: Substitute a known-good audio-navigation unit (see page 23-154), and recheck. If the symptom/indication goes away, replace the original audio-navigation unit. ■

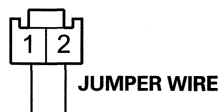
NO—Repair an open or a short in the wire between the audio-navigation unit and the speaker. ■

15. Disconnect the connector(s) from the front speaker(s).



16. Connect the tweeter connector terminal (+) and (−) with a jumper wire.

TWEETER CONNECTOR

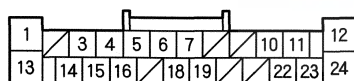


Wire side of female terminals

17. Check for continuity between each pair of speaker terminals at audio-navigation connector A (24P) according to the table.

Speaker	Terminal	Wire color
Left tweeter	A22 (−)	LT GRN
	A23 (+)	LT BLU
Right tweeter	A18 (−)	RED
	A19 (+)	BRN

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good audio-navigation unit (see page 23-154), and recheck. If the symptom/indication goes away, replace the original audio-navigation unit. ■

NO—Repair an open in the wire between the audio-navigation unit and the speaker. ■

No sound is heard from the speaker(s) (display is normal) (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Set the fader and the balance positions to the center.
- If there is sound from the door speaker but not from the tweeter, replace the tweeter. If there is still no sound from the tweeter, repair or replace the harness.
- Some models have tweeter grills, but do not have tweeters or related wiring.

1. Turn the ignition switch to ON.

2. Make sure the volume is not set to the MIN level, and check for sound in all modes (AM/FM, CD, USB).

Is there sound in all modes, and is the sound normal?

YES—System is OK at this time. Check for poor connections at the audio unit, the speakers, and the stereo amplifier. ■

NO—

- If there is no sound in all modes, go to step 3.
- If there is no sound in AM/FM mode, go to AM or FM radio reception interference (see page 23-30).
- If there is no sound in CD mode, go to Audio disc does not play (see page 23-54).
- If there is no sound in the USB mode, go to USB input sound is low or cannot be heard (see page 23-56).

3. Do the speaker check mode with the Self-diagnostic Function (see page 23-28).

Do all speakers produce a tone?

YES—Substitute a known-good audio unit (see page 23-67), and recheck. If the symptom goes away, replace the original audio unit. ■

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).

5. Check the speaker(s) with no sound for any damage.

Is there any damage?

YES—Replace the speaker (see page 23-70), and recheck. ■

NO—Go to step 6.

(cont'd)

Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

6. Remove the speaker(s) with no sound (see page 23-70), and disconnect its connector.

7. Check the speaker 2P connector for a loose or poor connection.

Reconnect the speaker 2P connector, and recheck the symptom; is the condition still present?

YES—Go to step 8.

NO—Intermittent failure. Operation is normal.■

8. Test the speaker(s) (see page 23-70).

Is the speaker OK?

YES—Go to step 9.

NO—Replace the speaker(s) (see page 23-70), and recheck.■

9. Reconnect the speaker connector.

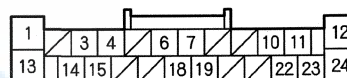
10. Remove the audio unit (see page 23-67), and disconnect audio unit connector A (24P).

11. Check for continuity between body ground and audio unit connector A (24P) according to the table.

NOTE: If no sound is heard from all speakers, check all of the wiring for shorts.

Speaker	Terminal	Wire color
Driver's door speaker	A22 (—)	LT GRN
	A23 (+)	LT BLU
Left tweeter	A22 (—)	LT GRN
	A23 (+)	LT BLU
Front passenger's door speaker	A18 (—)	RED
	A19 (+)	BRN
Right tweeter	A18 (—)	RED
	A19 (+)	BRN
Left rear door speaker	A10 (—)	BRN
	A11 (+)	GRY
Right rear door speaker	A6 (—)	ORN
	A7 (+)	BLU

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire(s) between the audio unit and the speaker.■

NO—

- With tweeter: Go to step 12.
- Without tweeter: Go to step 13.

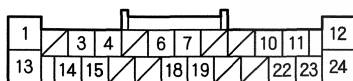
12. Disconnect the connector(s) from the tweeter(s).



13. Measure the resistance between both pairs of speaker wires (+) and (–) at audio unit connector A (24P) according to the table.

Speaker	Terminal	Wire color
Driver's door speaker	A22 (–)	LT GRN
	A23 (+)	LT BLU
Front passenger's door speaker	A18 (–)	RED
	A19 (+)	BRN
Left rear door speaker	A10 (–)	BRN
	A11 (+)	GRY
Right rear door speaker	A6 (–)	ORN
	A7 (+)	BLU

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there about 4 Ω?

YES–

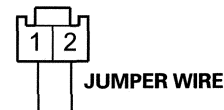
- With tweeter: Go to step 14.
- Without tweeter: Substitute a known-good audio unit (see page 23-67), and recheck. If the symptom/indication goes away, replace the original audio unit. ■

NO–Repair an open or short in the wire between the audio unit and the speaker. ■

14. Disconnect the connector(s) from all the speaker(s).

15. Connect the tweeter connector terminals (+) and (–) with a jumper wire.

TWEETER CONNECTOR

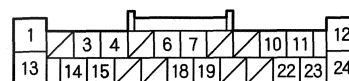


Wire side of female terminals

16. Check for continuity between each pair of speaker terminals at audio unit connector A (24P) according to the table.

Speaker	Terminal	Wire color
Left tweeter	A22 (–)	LT GRN
	A23 (+)	LT BLU
Right tweeter	A18 (–)	RED
	A19 (+)	BRN

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there continuity?

YES–Substitute a known-good audio unit (see page 23-67), and recheck. If the symptom/indication goes away, replace the original audio unit. ■

NO–Repair an open in the wire between the audio unit and the speaker. ■

(cont'd)

Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

Audio system sound is weak or distorted (display is normal)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Set the fader and balance positions to the center.

1. Turn the ignition switch to ON (II).

2. Turn on the audio unit or the audio-navigation unit, and check for sound in each mode (AM, FM, and CD).

Is there sound from the speakers, and is the sound quality normal in each mode?

YES—Intermittent failure, the system is OK at this time. Check for loose connections at the audio-navigation unit, the audio unit, and each speaker. ■

NO—Speakers all work normally, but the sound quality is poor. ■

- If the sound quality is poor only with AM or FM radio, go to Poor AM or FM radio reception or interference.
 - with navigation (see page 23-30)
 - without navigation (see page 23-32)
- If sound is poor in all modes, go to sound quality diagnosis (see page 23-63).

Radio preset memory is lost

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connection or loose terminals.

1. Turn the ignition switch to ON (II).

2. Turn on the audio unit or the audio-navigation unit, and set each of the radio station preset buttons.

Do each of the buttons set properly?

YES—Go to step 3.

NO—

- With navigation: Replace the audio-navigation unit (see page 23-154). ■
- Without navigation: Replace the audio unit (see page 23-67). ■

3. Turn the ignition switch to LOCK (0) for 1 minute, then turn it back to ON (II).

4. Test the preset buttons for proper recall operation.

Do the preset buttons recall the set radio stations?

YES—System is normal at this time. Check the connections at the audio-navigation unit or the audio unit. ■

NO—

- With navigation: Replace the audio-navigation unit (see page 23-154).
- Without navigation: Replace the audio unit (see page 23-67).



Volume does not change

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Set the fader and balance positions to the center.
- On vehicles with navigation, check the audio button operation by doing the hard key status test (see page 23-113) in the audio-navigation unit check screen. See the navigation system diagnostic mode (see page 23-107).

1. Turn the ignition switch to ON (II).
2. Turn on the audio unit or audio-navigation unit, and check for sound in each mode (AM, FM, and CD).

Is the sound normal?

YES—Go to step 3.

NO—Go to sound quality diagnosis (see page 23-63) and No sound is heard from the speaker(s).

- with navigation (see page 23-39).■
- without navigation (see page 23-41).■

3. Operate the volume knob to see if the volume changes.

Does the volume change?

YES—Operation is normal at this time.■

NO—

- With navigation: Replace the audio-navigation unit (see page 23-154).
- Without navigation: Replace the audio unit (see page 23-67).■

Volume does not increase with speed

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Set the fader and balance positions to the center.

1. Check the SVC mode setting in the audio-navigation unit or audio unit sound setup.

Is the SVC set to off?

YES—Change the setting to at least the MID setting, and retest.■

NO—

- With navigation: Go to step 2.
- Without navigation: Go to step 3.

2. Do the System Diagnostic Mode of Navigation System for the vehicle speed pulse indication (VSP) in the Car status (see page 23-121).

Does the Car Status indicate a VSP signal when the vehicle is moving?

YES—Substitute a known-good audio-navigation unit (see page 23-154) and retest. If the symptom/indication goes away, replace the original audio-navigation unit (see page 23-154).■

NO—Go to step 4.

3. Do the self-diagnostic function for the vehicle speed pulse indication (VSP) (see page 23-25).

Does the self-diagnostic function indicate a VSP signal when the vehicle is moving?

YES—Substitute a known-good audio unit (see page 23-67) and retest. If the symptom/indication goes away, replace the original audio unit (see page 23-67).■

NO—Go to step 4.

4. Test-drive the vehicle at highway speeds, and monitor if the volume increases with speed.

Does the volume increase?

YES—Intermittent failure, the system is OK at this time.■

NO—Go to step 5.

5. Remove the audio-navigation unit (see page 23-154) or the audio unit (see page 23-67), and disconnect audio-navigation unit or audio unit connector A (24P).

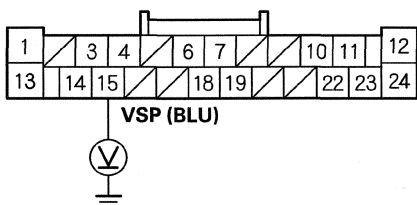
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Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

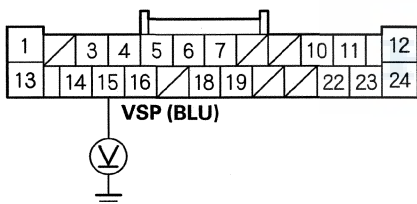
6. Raise the vehicle on a lift.
7. Turn the ignition switch to ON (II).
8. Press the brake pedal, and shift the transmission to N.
9. Slowly spin one of the front wheels by hand, and have an assistant measure the voltage at audio-navigation unit or audio unit connector A (24P) terminal No. 15.

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there a 0–5 V pulse?

YES–

- With navigation: Replace the audio-navigation unit (see page 23-154). ■
- Without navigation: Replace the audio unit (see page 23-67). ■

NO–Repair an open or short in the wire between the audio-navigation unit or audio unit connector A (24P) terminal No. 15 and the ECM/PCM connector A (44P) terminal No. 30. If no open or short is found, substitute a known-good ECM/PCM, and recheck. If the symptom/indicated goes away, replace the original ECM/PCM (see page 11-215). ■

Volume is too high or too low when driving at freeway speeds

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Test-drive the vehicle at highway speed, and monitor the volume level.

Is the volume level too high or too low?

YES–Go to step 2.

NO–Intermittent failure, the system is OK at this time. ■

2. Change the SVC mode setting in sound setup to Low, Mid, and High.

Is the volume level still too high or too low?

YES–

- With navigation: Replace the audio-navigation unit (see page 23-154). ■
- Without navigation: Replace the audio unit (see page 23-67). ■

NO–Improper SVC setting for the customer's sound preference. Advise the customer to try different SVC settings. ■



Radio tuner does not change stations

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- On vehicles with navigation, the audio button operation can be checked by doing the hard key status test in the audio-navigation unit check screen. See the navigation system diagnostic mode (see page 23-107).

1. Turn the ignition switch to ON (II).
2. Turn on the audio unit or audio-navigation unit, and check the audio information on the display panel.

Does the audio information display properly?

YES—Go to step 3.

NO—

- With navigation: Go to Audio-navigation unit power switch will not turn on (see page 23-35). ■
- Without navigation: Go to Audio unit power switch will not turn on (see page 23-37). ■

3. Change the radio station using the tuning knob.

Does the radio station change?

YES—Intermittent failure: the tuning knob is OK at this time. ■

NO—

- With navigation: Replace audio-navigation unit (see page 23-154). ■
- Without navigation: Replace audio unit (see page 23-67). ■

Display does not dim or brighten with dimmer (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- If the vehicle is equipped with navigation, refer to Display day/night mode does not work or does not work properly (see page 23-145).

1. Turn the ignition switch to ON (II).
2. Turn the combination light switch on and off to see if the symptom can be duplicated.

Can the symptom be duplicated?

YES—Go to step 3.

NO—Operation is normal at this time. ■

3. Turn the combination light switch off.
4. Operate the illumination control dial.

Does it operate normally?

YES—Operation is normal at this time. ■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Disconnect and check audio unit connector A (24P) for a loose or a poor connection.

NOTE: Eject all the audio disc before removing the audio unit and audio disc changer to prevent damaging the audio disc player's loading mechanism.

7. Reconnect audio unit connector A (24P), and recheck the symptom.

Does the display dim normally?

YES—Go to step 8.

NO—Operation is normal at this time. ■

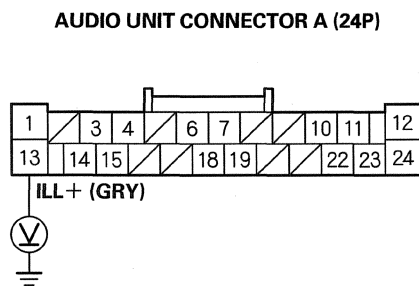
8. Turn the ignition switch to ON (II).

(cont'd)

Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

9. Measure the voltage between audio unit connector A (24P) terminal No. 13 and body ground.

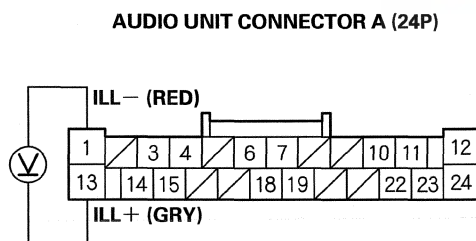


Is there battery voltage?

YES—Go to step 10.

NO—Check the No. 29 (10 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair an open in the wire between the fuse and audio unit connector A (24P).■

10. Measure the voltage between audio unit connector A (24P) terminals No. 13 and No. 1. Operate the dash light brightness controller dial to see if the voltage changes.



Does the voltage change?

YES—Substitute a known-good audio unit (see page 23-67), and recheck. If the symptom/indication goes away, replace the original audio unit (see page 23-67).■

NO—There is an open in the wire between the under-dash fuse/relay box and the gauge control module.■

Audio-navigation unit button illumination does not work (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Turn the combination lighting switch to the parking light position.
3. Check the illumination of the audio-navigation unit buttons.

Are the buttons illuminated?

YES—Intermittent problem: The audio-navigation unit is OK at this time. Check for loose or poor connections at the audio-navigation unit connector A (24P).■

NO—Go to step 4.

4. Check the illumination of several other buttons not related to the navigation system.

Are the buttons illuminated?

YES—Go to step 5.

NO—Troubleshoot the dashboard illumination circuit. Check the No. 29 (10 A) fuse in the under-dash fuse/relay box.■

5. Turn the ignition switch to LOCK (0).
6. Disconnect audio-navigation unit connector A (24P).

NOTE: Eject all the CDs before removing the audio-navigation unit to prevent damaging the CD.

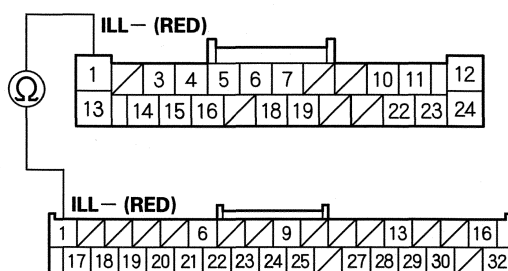
7. Disconnect gauge control module 32P connector.



8. Check for continuity between audio-navigation unit connector A (24P) terminal No. 1 and gauge control module 32P connector terminal No. 1.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)

Wire side of female terminals



GAUGE CONTROL MODULE 32P CONNECTOR

Wire side of female terminals

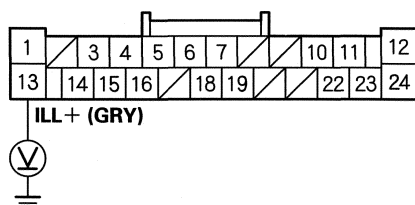
Is there continuity?

YES—Go to step 9.

NO—There is an open in the wire between the gauge control module and the audio-navigation unit. ■

9. Turn the ignition switch to ON (II).
10. With the headlight switch still on, measure the voltage between audio-navigation unit connector A (24P) terminal No. 13 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there battery voltage?

YES—Check the connections at audio-navigation unit connector A (24P). If all connections are OK, replace the audio-navigation unit (see page 23-154). ■

NO—Check the No. 29 (10 A) fuse in the under-dash fuse/relay box. If the fuse OK, repair an open in the wire between the under-dash fuse/relay box and the audio-navigation unit. ■

Audio unit button illumination does not work (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Turn the combination lighting switch to the parking light position.
3. Check the illumination of the audio unit buttons.

Are the buttons illuminated?

YES—Intermittent problem: The audio unit is OK at this time. Check for loose or poor connections at audio unit connector A (24P). ■

NO—Go to step 4.

4. Check the illumination of several other buttons not related to the audio system.

Are the buttons illuminated?

YES—Go to step 5.

NO—Troubleshoot the dashboard illumination circuit. ■

5. Turn the ignition switch to LOCK (0).

6. Disconnect audio unit connector A (24P).

NOTE: Eject all the CDs before removing the audio unit and audio disc changer to prevent damaging the CD player's loading mechanism.

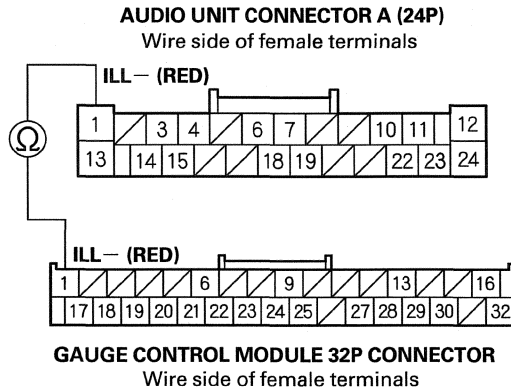
7. Disconnect gauge control module 32P connector.

(cont'd)

Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

8. Check for continuity between audio unit connector A (24P) terminal No. 1 and gauge control module 32P connector terminal No. 1.

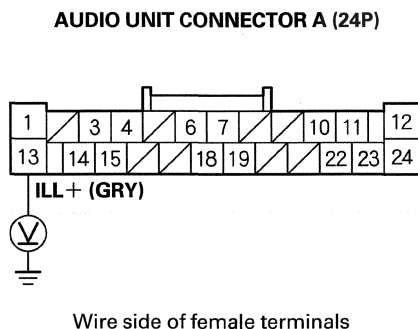


Is there continuity?

YES—Go to step 9.

NO—There is an open in the wire between the gauge control module and the audio unit. ■

9. Turn the ignition switch to ON (II).
10. With the headlight switch still on, check for voltage between audio unit connector A (24P) terminal No. 13 and body ground.



Is there battery voltage?

YES—Check the connections at audio unit connector A (24P). If all the connections are OK, replace the audio unit (see page 23-67). ■

NO—Check the No. 29 (10 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair an open in the wire between the under-dash fuse/relay box and the audio unit. ■

Audio remote switch does not work properly (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Audio button operation can be checked by doing the hard key status test in the audio-navigation unit check screen. See navigation system diagnostic mode (see page 23-107).

1. Test the audio remote switch (see page 23-72).

Is the audio remote switch OK?

YES—Go to step 2.

NO—Replace the audio remote switch (see page 23-72). ■

2. Turn the ignition switch to ON (II).

3. Turn on the audio-navigation unit, and check operation (volume up, volume down, CH (+), CH (–), MODE).

Is the navigation unit operation OK?

YES—Go to step 4.

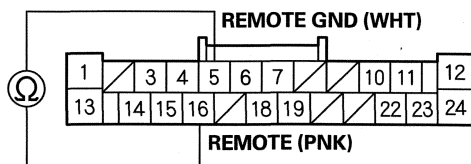
NO—Replace the audio-navigation unit (see page 23-154). ■

4. Disconnect the audio-navigation unit connector A (24P).



5. Measure the resistance between audio-navigation unit connector A (24P) terminals No. 5 and No. 16 as specified in the table.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

AUDIO REMOTE SWITCH TABLE

Button held down	VOL DOWN	VOL UP	CH (-)	CH (+)	MODE	No button pressed
Resistance	about 100 Ω	about 357 Ω	about 775 Ω	about 1.7 k Ω	about 3.7 k Ω	about 10 k Ω

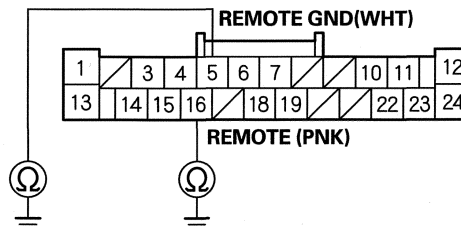
Is the resistance OK?

YES—Go to step 6.

NO—There is an open or high resistance in the circuit between the audio-navigation unit and the audio remote switch. If the wires are OK, replace the cable reel (see page 24-186). ■

6. Check for continuity between body ground and audio-navigation unit connector A (24P) terminals No. 5 and No. 16 individually.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there continuity?

YES—There is a short to body ground in the circuit between the audio-navigation unit and the audio remote switch. If the wires are OK, replace the cable reel (see page 24-186). ■

NO—Replace the audio-navigation unit (see page 23-154). ■

(cont'd)

Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

Audio unit button does not work (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- If the audio unit does not turn on, go to Audio unit power switch will not turn on (see page 23-37).

1. Turn the ignition switch to ON (II).
2. Using the owner's manual, check the operation of faulty button.

Is the symptom still present?

YES—Go to step 3.

NO—The system is OK. There is a possibility that the customer used the button incorrectly. ■

3. Turn the ignition switch to LOCK (0).
4. Substitute a known-good center panel (see page 23-67), and recheck.

Is the symptom still present?

YES—Replace the original center panel (see page 23-67). ■

NO—Replace the audio unit (see page 23-67). ■

Audio unit disc indicator does not work (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connections for poor connections or loose terminals.
- Audio disc with labels should not be used in the audio unit. They may damage the player mechanism.

1. Turn on the audio system.
2. Insert a known-good disc.

Is the DISC indicator (LED) indicated?

YES—The audio unit is OK at this time. Check for loose or poor connections at audio unit and center panel. ■

NO—Substitute a known-good audio unit (see page 23-67), and recheck. If the symptom/indication goes away, replace the original audio unit (see page 23-67). If the symptom is still present, substitute a known-good center panel (see page 23-67), and recheck. If the symptom/indication goes away, replace the original center panel (see page 23-67). ■



Audio disc does not load

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Audio disc labels should not be used in the audio-navigation unit or audio unit. They may damage the player mechanism.
- Make sure the audio disc is compatible with the system (see the Owner's Manual for more information).

1. Turn the ignition switch to ON (II).

2. Turn on the audio-navigation unit or the audio unit, and insert a known-good disc to see if the symptom can be duplicated.

Does the disc load?

YES—Operation is normal. If the disc loads normally, but will not play, go to Audio disc does not play (see page 23-54).■

NO—Go to step 3.

3. Insert another disc.

Does the disc load?

YES—The original disc is faulty.■

NO—

- With navigation: Replace the audio-navigation unit (see page 23-154).■
- Without navigation: Replace the audio unit (see page 23-67).■

Audio disc does not eject

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Audio disc labels should not be used in the audio-navigation unit or the audio unit. They may damage the player mechanism.

1. Turn the ignition switch to ON (II).

2. Turn on the audio unit.

Does the system turn on?

YES—Go to step 3.

NO—

- With navigation: Go to Audio-navigation unit power switch will not turn on (see page 23-35).■
- Without navigation: Go to Audio unit power switch will not turn on (see page 23-37).■

3. Check to see if the disc ejects correctly with no binding by pushing the EJECT button.

Does the disc eject normally?

YES—Operation is normal.■

NO—

- With navigation: Replace the audio-navigation unit (see page 23-154).■
- Without navigation: Replace the audio unit (see page 23-67).■

(cont'd)

Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

Audio disc cannot be inserted and/or ejected (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Audio disc labels should not be used in the audio-navigation unit or audio unit. They may damage the player mechanism.
- Make sure the audio disc is compatible with the system (see the Owner's Manual for more information).

1. Turn the ignition switch to ON (II).
2. Press the OPEN/CLOSE button to open the navigation display.
3. Check the disc indicator.

Is the disc indicator light on?

YES—Go to step 5.

NO—Go to step 4.

4. Try inserting an audio CD.

Does the player accept the CD?

YES—The system is OK at this time. ■

NO—Go to step 5.

5. Press the CD eject button.

Does the player eject the CD?

YES—The system is OK at this time. ■

NO—Replace the audio-navigation unit (see page 23-154). ■

Special Tools Required

Diagnostic CD 07AAZ-SDBA100

Audio disc does not play

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Disc labels should not be used in the navigation unit or audio unit. They may damage the player mechanism.

1. Turn the ignition switch to ON (II).
2. Turn on the audio-navigation unit or the audio unit, and try loading a known-good disc.

Does the disc load?

YES—Go to step 3.

NO—Go to Audio disc does not load (see page 23-53). ■

3. Insert the audio diagnostic CD (T/N: 07AAZ-SDBA100) in the audio-navigation unit or audio unit.

Does the disc play?

YES—The original disc is faulty, or has an unreadable format. ■

NO—

- With navigation: Replace the audio-navigation unit (see page 23-154). ■
- Without navigation: Replace the audio unit (see page 23-67). ■



Special Tools Required

- Diagnostic CD 07AAZ-SDBA100
- Skip Test CD 07AAZ-SDBA200
- Skip Test CD 07AAZ-SDBA300

Audio disc skips

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Over inflated tires can cause excessive vibration.
- Disc labels should not be used in the audio unit. They may damage the player mechanism.

1. Confirm the vehicle's tires are properly inflated with no cupping or flat spots.
2. Check the customer's disc for scratches, fingerprints, and marks.

NOTE: The following test should be done with audio unit bass and treble set to customers listening performance. When comparing to known-good vehicles, the comparison should be done on same model and trim level.

3. Test drive to identify when the customer's disc skips. The audio diagnostic CD (T/N: 07AAZ-SDBA100) can be used if customer's disc is not available. Use tracks 10—12. Use the customer's audio settings.

Does the disc skip?

YES—Go to step 4.

NO—Operation is normal.■

4. Compare the customer's disc that skips to a known-good vehicle under the same conditions.

Does the disc skip in the known-good vehicle under the same conditions?

YES—The audio disc player operation is normal, the problem is with customer's disc.■

NO—Go to step 5.

NOTE: Do the following test with vehicle parked and engine running.

5. Insert the skip test CD (T/N: 07AAZ-SDBA300) (ABEX-TCD-721). Play tracks 2—11, and note the track number(s) where the disc starts skipping. Do the same test on a known-good vehicle under the same conditions.

Does the disc skip on the same track number(s) as the known-good vehicle?

YES—Operation is normal at this time.■

NO—Go to step 6.

6. Insert the skip test CD (T/N: 07AAZ-SDBA200) (ABEX-TCD-725B). Play tracks 7—11 and tracks 13—15, and note the track number(s) where the disc starts skipping. Do the same test on a known-good vehicle under the same conditions.

Does the disc skip on the same track number(s) as the known-good vehicle?

YES—Operation is normal.■

NO—

- With navigation: Replace the audio-navigation unit (see page 23-154).■
- Without navigation: Replace the audio unit (see page 23-67).■

(cont'd)

Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

USB input sound is low or cannot be heard

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Not all players and player functions work with the USB adapter. Please see the Owner's Manual for more information. Always test the customer's USB device in a known-good vehicle of the same year and trim (if possible). Technologies change and are updated frequently which may result in USB devices working in newer vehicles, but not in older vehicles of the same model.

1. Turn the ignition switch to ON (II).
2. Do the speaker check mode with the self-diagnostic mode (see page 23-28).

Do all speakers make a sound?

YES—Go to step 3.

NO—Go to No sound is heard from the speaker(s).

- With navigation (see page 23-39).■
- Without navigation (see page 23-41).■

3. Turn the ignition switch to LOCK (0).
4. Connect the customer's USB device to a known-good vehicle (same year/trim) equipped with an USB adapter, and check the USB device operation.

Is the USB device working properly?

YES—Go to step 5.

NO—The USB device is faulty. Also check the USB adapter and the USB adapter connector condition.■

5. On the customer's vehicle, connect the customer's USB device to the USB adapter.
6. Turn the ignition switch to ON (II), and turn on the audio unit or the audio-navigation unit.
7. Check if the USB device can be operated with the audio unit or the audio-navigation unit (Folders or Files UP/DOWN, etc.).

Can the USB device be operated but no sound is heard?

YES—Go to step 8.

NO—If the sound is normal, USB device is OK at this time. If the USB device cannot be operated, Go to USB audio device does not function (see page 23-57).■

8. Turn the ignition switch to LOCK (0).

9. Disconnect audio unit or audio-navigation unit connector E (14P).

10. Disconnect USB adapter unit connector A (14P).

11. Check for continuity between the terminals of audio unit or audio-navigation unit connector E (14P) according to the table.

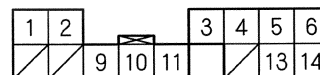
Without navigation

From terminal (wire color)	To terminals (wire color)
E4 (PNK)	E5 (BRN), E6 (WHT), E13 (RED), E14 (LT BLU)
E5 (BRN)	E6 (WHT), E13 (RED), E14 (LT BLU)
E6 (WHT)	E13 (RED), E14 (LT BLU)
E13 (RED)	E14 (LT BLU)

With navigation

From terminal (wire color)	To terminals (wire color)
E4 (GRY)	E5 (BLK), E6 (WHT), E13 (RED), E14 (GRN)
E5 (BLK)	E6 (WHT), E13 (RED), E14 (GRN)
E6 (WHT)	E13 (RED), E14 (GRN)
E13 (RED)	E14 (GRN)

AUDIO UNIT CONNECTOR E (14P) or AUDIO-NAVIGATION UNIT CONNECTOR E (14P)



Wire side of female terminals

Is there continuity between any of the terminals?

YES—There is a short in the wires between the audio unit and the USB adapter unit.

- With navigation: Replace the dashboard wire harness.■
- Without navigation: Replace the affected shielded harness.

NO—Go to step 12.



12. Check for continuity between audio unit or audio-navigation unit connector E (14P) and USB adapter unit connector A (14P) according to the table.

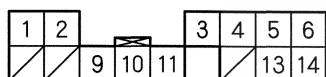
Without navigation

Audio unit	USB adapter unit connector	Wire color
E5	A5	BRN
E6	A6	WHT
E13	A13	RED
E14	A14	LT BLU

With navigation

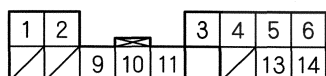
Audio-navigation unit connector	USB adapter unit connector	Wire color
E5	A5	BLK
E6	A6	WHT
E13	A13	RED
E14	A14	GRN

USB ADAPTER UNIT CONNECTOR A (14P)



Wire side of female terminals

**AUDIO UNIT CONNECTOR E (14P) or
AUDIO-NAVIGATION UNIT CONNECTOR E (14P)**



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good USB adapter unit (see page 23-69), then reconnect all of the connectors and recheck. If the symptom/indication goes away, replace the original USB adapter unit (see page 23-69). If the symptom/indication is still present, replace the audio-navigation unit (see page 23-154) or the audio unit (see page 23-67). ■

NO—Open in the wire(s) between the USB adapter unit and the audio-navigation unit or the audio unit.

- With navigation: Replace the dashboard wire harness. ■
- Without navigation: Replace the affected shielded harness. ■

USB device does not function

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Check the USB device requirement:
 - Mass-storage class ready digital audio player with USB 2.0 port
 - More than 256 MB of RAM
 - Supports MP3, WMA, and AAC (encoded with the iTunes) files, DRM files are not supported
- Not all players and player functions work with the USB adapter. Please see the Owner's Manual for more information. Always test the customer's USB device in a known-good vehicle of the same year and trim (if possible). Technologies change and are updated frequently which may result in USB devices working in newer vehicles, but not in older vehicles of the same model.

1. Turn the ignition switch to ON (II), and turn on the audio unit or the audio-navigation unit.
2. Push the AUX button to select USB mode.

NOTE: Do not connect the USB device for this step.

Is USB NO DATA displayed?

YES—Go to step 3.

NO—Go to step 8.

3. Connect the customer's USB device to the USB adapter.

Does the USB device work properly?

YES—The USB device is OK at this time. Check for loose or poor connections at the audio unit or the audio-navigation unit and the USB adapter unit. Also check the USB adapter and the USB port.

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).
5. Connect the customer's USB device to a known-good vehicle (same year/trim) that is equipped with an USB adapter, and check the USB device operation.

Does the USB device work properly?

YES—Go to step 6.

NO—USB device is faulty. Also check the USB adapter and the USB port condition. ■

(cont'd)

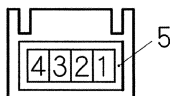
Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

6. On the customer's vehicle, remove the USB adapter unit (see page 23-69).
7. Disconnect USB adapter unit connector B (5P).
8. Check for continuity between the terminals of USB adapter unit connector B (5P) and the USB adapter 5P connector according to the table.

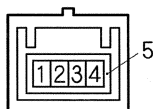
USB adapter unit connector	USB adapter connector
B1	1
B2	2
B3	3
B4	4

USB ADAPTER UNIT CONNECTOR B (5P)



Terminal side of female terminals

USB ADAPTER 5P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Substitute a known-good USB adapter, and recheck. If the symptom/indication goes away, replace the original USB adapter. If the symptom/indication is still present, go to step 9.

NO—There is an open in the wire(s) between the USB adapter unit and the USB adapter.

- With navigation: Replace the dashboard wire harness.■
- Without navigation: Replace the affected shielded harness.■

9. Turn the ignition switch to LOCK (0).

10. Remove the audio unit (see page 23-67) or the audio-navigation unit (see page 23-154). Check that the audio unit or the audio-navigation unit connectors and the USB adapter unit connectors are properly connected.

Are the connectors properly connected?

YES—Go to step 11.

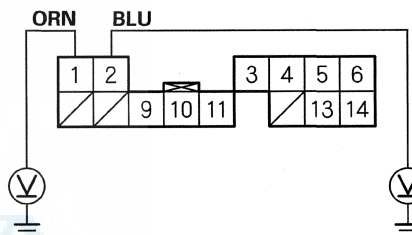
NO—Connect the connectors and recheck.■

11. Disconnect USB adapter unit connector A (14P).

12. Turn the ignition switch to ON (II).

13. Measure the voltage between body ground and USB adapter unit connector A (14P) terminals No. 1 and No. 2 individually.

USB ADAPTER UNIT CONNECTOR A (14P)



Wire side of female terminals

Is there battery voltage?

YES—There is an open or short in the wire(s) between the USB adapter unit and audio-navigation unit or audio unit.

- With navigation: Replace the dashboard wire harness.■
- Without navigation: Replace the affected shielded harness.■

NO—Go to step 14.

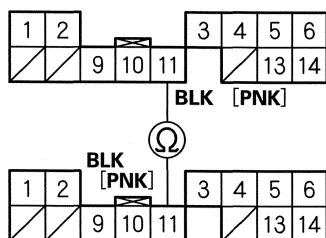
14. Turn the ignition switch to LOCK (0).

15. Disconnect audio unit or audio-navigation unit connector E (14P).



16. Check for continuity between audio unit or audio-navigation unit connector E (14P) terminal No. 11 and USB adapter unit connector A (14P) terminal No. 11.

**AUDIO UNIT CONNECTOR E (14P) or
AUDIO-NAVIGATION UNIT CONNECTOR E (14P)**
Wire side of female terminals



USB ADAPTER UNIT CONNECTOR A (14P)
Wire side of female terminals

[] : with navigation

Is there continuity?

YES—Go to step 17.

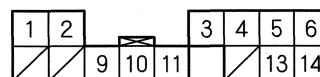
NO—There is an open in the wire between the USB adapter unit and the audio-navigation unit or the audio unit.

- With navigation: Replace the dashboard wire harness.
- Without navigation: Replace the affected shielded harness.

17. Check for continuity between the terminals of audio unit or audio-navigation unit connector E (14P) according to the table.

From terminal (wire color)	To terminals (wire color)
E3 (GRY)	E9 (YEL), E10 (GRN)
E9 (YEL)	E10 (GRN)

**AUDIO UNIT CONNECTOR E (14P) or
AUDIO-NAVIGATION UNIT CONNECTOR E (14P)**



Wire side of female terminals

Is there continuity between any of the terminals?

YES—There is a short in the wires between the USB adapter unit and the audio-navigation unit or the audio unit.

- With navigation: Replace the dashboard wire harness.■
- Without navigation: Replace the affected shielded harness.■

NO—Go to step 18.

(cont'd)

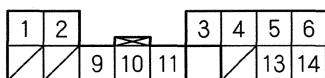
Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

18. Check for continuity between the terminals of audio unit or audio-navigation unit connector E (14P) and USB adapter unit connector A (14P) according to the table.

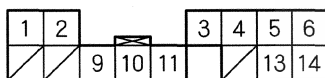
Audio unit or audio-navigation unit connector	USB adapter unit connector	Wire color
E9	A9	YEL
E10	A10	GRN

**AUDIO UNIT CONNECTOR E (14P) or
AUDIO-NAVIGATION UNIT CONNECTOR E (14P)**



Wire side of female terminals

USB ADAPTER UNIT CONNECTOR A (14P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good USB adapter unit (see page 23-69), then reconnect all of the connectors and recheck. If the symptom/indication goes away, replace the original USB adapter unit (see page 23-69). If the symptom/indication is still present, replace the audio-navigation unit (see page 23-154) or the audio unit (see page 23-67).■

NO—Open in the wire(s) between the USB adapter unit and the audio-navigation unit or the audio unit.

- With navigation: Replace the dashboard wire harness.■
- Without navigation: Replace the affected shielded harness.■

Auxiliary input sound is low or cannot be heard (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Use auxiliary stereo cables with 3.5 mm ends only.
- Auxiliary accessories may be played on the audio-navigation unit using the auxiliary input.

1. Turn the ignition switch to ON (II).

2. Turn on the audio-navigation unit, and connect the customer's auxiliary accessory device to the auxiliary input jack.

3. Check the volume operation.

Is the sound normal?

YES—Operation is normal at this time.■

NO—Go to step 4.

4. Make sure the customer's auxiliary accessory device volume is set to high.

Is the volume set to high?

YES—Go to step 5.

NO—Raise the auxiliary accessory device volume to high. Make sure the audio-navigation unit volume is turned down before retesting.■

5. Connect the customer's auxiliary accessory device to a known good vehicle (same year/trim), and check the operation of the device.

Does the customer's auxiliary audio accessory operate properly?

YES—Go to step 6.

NO—Customer's auxiliary audio accessory or auxiliary stereo cable if faulty.■

6. Turn the ignition switch to LOCK (0).

7. Remove the auxiliary jack assembly (see page 23-70), and check that the auxiliary jack assembly is properly connected.

Is the auxiliary jack assembly connected properly?

YES—Go to step 8.

NO—Reconnect the connector, and recheck the function.■

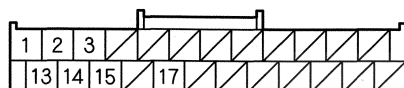
8. Disconnect the auxiliary jack assembly 5P connector.



9. Disconnect audio-navigation unit connector B (24P).
10. Check for continuity between body ground and audio-navigation unit connector B (24P) according to the table.

Audio-navigation unit connector	Wire color
B3	BRN
B13	YEL
B14	GRN
B15	WHT

AUDIO-NAVIGATION UNIT CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

YES—Short to body ground in the wire(s) between the audio-navigation unit and the auxiliary jack assembly. Replace the affected shielded harness. ■

NO—Go to step 11.

11. Check for continuity between the terminals of audio-navigation unit connector B (24P) according to the table.

From terminal	To terminals
B3 (BRN)	B2 (GRY), B13 (YEL), B14 (GRN)
B2 (GRY)	B13 (YEL), B14 (GRN)
B13 (YEL)	B14 (GRN)

AUDIO-NAVIGATION UNIT CONNECTOR B (24P)



Wire side of female terminals

Is there continuity?

YES—Short in the wire(s) between the audio-navigation unit and the auxiliary jack assembly. Replace the affected shielded harness. ■

NO—Go to step 12.

(cont'd)

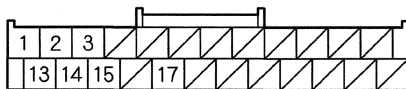
Audio System - '09-11 models

Symptom Troubleshooting (cont'd)

12. Check for continuity between audio-navigation unit connector B (24P) and the auxiliary jack assembly 5P connector according to the table.

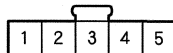
Audio-navigation unit connector	Auxiliary jack assembly connector	Wire color
B1	3	BLU
B3	2	BRN
B13	4	YEL
B14	5	GRN
B15	1	WHT

AUDIO-NAVIGATION UNIT CONNECTOR B (24P)



Wire side of female terminals

AUXILIARY JACK ASSEMBLY 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good auxiliary jack assembly (see page 23-70) and recheck. If the symptom/indication goes away, replace the original auxiliary jack assembly (see page 23-70). If the symptom/indication is still present, replace the audio-navigation unit (see page 23-154).■

NO—Open in the wire(s) between audio-navigation unit and auxiliary jack assembly. Replace the affected shielded harness.■

PC card will not play/card icon on audio screen cannot be selected (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- The card may not be fully inserted into the slot. Eject the card, and inspect for warping or damage to the edge connector. Never use excessive force to insert a card. This can result in damage to the pins in the rear of the slot.
- The customer's card may contain audio files that are not recognized by the system. Only MP3 and WMA music files are played.
- The flash card type may not be accepted by the system. Only compact flash and ATA cards have been tested.
- The card's PCMCIA adaptor may be preventing a known-good card from playing. New PCMCIA adaptors are constantly being released, and have not been tested.
- The card's capacity may exceed 2 GB. Only cards with capacities of up to 2 GB (2000 MB) have been tested.
- There may not be any files on the card. If the card has write protection, make sure it is turned off before putting files on the card.
- Although flash memory chips are reliable, occasionally they develop bad sectors or other formatting errors that prevents them from playing. The customer should reformat the card using the FAT or FAT32 format.
- The card may have been damaged by heat. Suggest that the customer remove their card when exiting the vehicle.
- The customer may have formatted the card using the format NTFS. Only the FAT and FAT32 formats are accepted by the system.
- Hard disc drive (HDD) cards may not work properly in the system and can overheat and quit functioning, particularly in a hot vehicle. They are not recommended.
- The filing structure of the card may exceed the specification of 8 folder levels deep, 99 folders maximum, and 999 total tracks maximum. If any of these limitations is exceeded, the system may not properly display or play the tracks.

NOTE: A delay when first inserting a card is normal. The system is reading the File Tag information for album name, artist, and song titles and there is no hour glass indicating the system is loading. The delay length depends on the number of tracks, and the complexity of the folder structure. See the audio section glossary for explanation of the terms used above.



Sound Quality Diagnosis

Special Tools Required

Diagnostic CD 07AAZ-SDBA100

Use the following tests to check sound quality.

NOTE: Before beginning the following tests, write down the customer's bass, treble, fader and balance settings, then set them to their center positions for the testing.

Left/Right Channel ID

Do this test to confirm proper channel routing.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or audio-navigation unit.
2. Play track No. 1 (left, both, right channel ID) at a normal, or slightly higher than normal, volume level.
3. The voice should be audible only from the channel or channels when indicated.
 - If the channel ID is correct for each side, go to phase test.
 - If the channel ID is not correct, check for:
 - Shorted speaker wire
 - Faulty the audio unit or the audio-navigation unit

Phase Test

Do this test to confirm proper speaker phasing.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or audio-navigation unit.
2. Play track No. 2 (phase) at a normal, or slightly higher than normal, volume level.
3. The voice should sound centered and focused when it is in-phase.
4. The voice should sound diffused, and have less bass when it is out of phase.
 - If the voice changes from in-phase to out of phase as indicated by the prompt, the phasing is correct. Go to electrical noise test.
 - If the voice always sounds out of phase, phasing is not correct. Check for:
 - Crossed speaker wire
 - Faulty the audio unit or the audio-navigation unit

(cont'd)

Audio System - '09-11 models

Sound Quality Diagnosis (cont'd)

Electrical Noise Test

Do this test to check for electrical noise being induced into the audio system.

NOTE: Electrical noise may be caused by outside sources that cannot be handled by the audio system. Make sure you remove any cell phones and/or turn off any aftermarket devices before beginning this test.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or audio-navigation unit.
2. Play track No. 4 (digital zero) at a normal, or slightly higher than normal, volume level.
3. Operate any electrical device that may create electrical noise in the audio system, including starting the engine.
4. Play track No. 5 (near digital zero) at a normal, or slightly higher than normal, volume level.
5. Operate any electrical device that may create electrical noise in the audio system, including starting the engine.
6. Play track No. 6 (SNR) at a normal, or slightly higher than normal, volume level.
7. Operate any electrical device that may create electrical noise in the audio system, including starting the engine.
 - If no abnormal noise is heard, go to the individual speaker test.
 - If the noise is present only during the SNR track, replace the audio unit or audio-navigation unit.
 - If the noise is heard during the digital zero or near digital zero track, check for:
 - Poor ground at the audio unit or audio-navigation unit, engine, or battery cable
 - Pinched or shorted speaker wire
 - Faulty the audio unit or the audio-navigation unit
 - Other faulty components causing excessive electrical noise (ignition coils, alternator, door lock actuators, etc.). Disconnect any suspect components, and then replay the tracks that were originally noisy. If the noise is gone, check the component's circuit and the component.

Individual Speaker Test

Do this test to identify a faulty speaker.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or audio-navigation unit.
2. Play track No. 30 (steady 300 Hz tone) at a normal, or slightly higher than normal, volume level.
3. Listen to each speaker for poor sound compared to the other channels. Use the audio unit's or audio-navigation unit's fader and balance settings to help isolate the channel with the problem.
 - If the sound quality produced by a specific speaker is poor, substitute it with a known-good speaker. If the poor sound quality continues, go to the sound balance test.
 - If the sound quality is OK, go to the sound balance test.



Sound Balance Test

Do this test to identify a faulty channel or the speaker.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or audio-navigation unit.
2. Confirm the bass and treble are set to the center positions.
3. Play track No. 3 (pink noise) at a normal, or slightly higher than normal, volume level.
4. A static type sound should be heard through all speakers.
5. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or audio-navigation unit of a known-good vehicle.
6. Set the bass and treble to the center positions.
7. Play track No. 3 (pink noise) all the same level as was played in step 3.
8. Compare the sounds made by the two vehicles.
 - If the sound does not have as much bass, check the subwoofer and circuit.
 - If the sound does not have enough hiss, check the tweeters and their circuits.

Frequency Sweep

Do this test to find rattles or reverberations that may cause a perception of poor sound quality.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or audio-navigation unit.
2. Play track No. 13 (sweep from 500 Hz to 35 Hz) at a normal, or slightly higher than normal, volume level.
3. Listen to each speaker for poor sound quality or reverberations caused by specific frequencies. Use the voice-over to estimate the frequency that causes the vibration. Use the audio unit's or audio-navigation unit's fader and balance settings to help isolate the channel with the problem.
 - If vibrations or poor sound quality are heard, go to step 4.
 - If no vibrations or poor sound quality are heard, go to sound judging.
4. Choose the appropriate track from No. 14 to 25 (small range frequency sweep) or 26 to 53 (single frequencies) to recreate the frequency that caused the poor sound quality or vibration witnessed in step 3; this aids in diagnosis of the cause.

NOTE: When you get to the track that recreates the problem, select the repeat function on the audio unit or audio-navigation unit, this will help you isolate the cause.

5. Replace or insulate the source of the vibration or, if the speaker is the source of the poor sound quality, replace it.

(cont'd)

Audio System - '09-11 models

Sound Quality Diagnosis (cont'd)

Sound Judging

Do this test to compare overall sound quality, imaging, and dynamics between the customer's vehicle and a known-good vehicle. Only use a vehicle of the same model and trim level for this test.

1. In the customer's vehicle, set the bass, treble, fader, and balance settings to the customer's normal settings that were written down before beginning the test.
2. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or audio-navigation unit.
3. Play tracks No. 7 to 12 (sound quality, midland, dynamics, and imaging demonstration tracks) at a normal, or slightly higher than normal, volume level. Write down the volume setting being used.
4. Listen to areas of the track that stand out as being either very clear or poorer than other areas of the track.
5. In a known-good vehicle, insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or audio-navigation unit.
6. Play the tracks at the same volume level and the same bass, treble, balance, and fader settings as used in step 3 in the customer's vehicle.
7. Listen to the same area of the track that stood out as being either very clear or poorer than other areas of the track.
8. Compare the customer's vehicle's sound quality results the known-good vehicle's results.
 - If the sound quality in the customer's vehicle is comparable to the sound quality in the known-good vehicle, then the customer's vehicle is operating as designed.
 - If the sound quality is not comparable, check these items in order:
 - Loose or improperly installed the speakers or other hardware that may create interference from the vibrations generated by the speakers
 - Damaged speaker(s)
 - Faulty the audio unit or the audio-navigation unit

Seek Stop Test

Do this test to check the performance of the audio unit's or audio-navigation unit's AM and FM reception. Refer to symptom troubleshooting: Audio system sound is weak or distorted (see page 23-44), or No sound is heard from the speakers (with navigation (see page 23-39), without navigation (see page 23-41)) before continuing with this test.

NOTE:

- Window tint, aftermarket theft-recovery devices and other aftermarket devices may affect reception.
 - Changes in cloud cover and other atmospheric conditions will affect the ability of the audio unit or audio-navigation unit to receive radio signals.
1. Park the customer's vehicle in an open area away from buildings or other obstructions.
 2. Park a known-good vehicle (same year, model, and trim level) next to the customer's vehicle, facing the same direction.
 3. Start the engine in the customer's vehicle, and turn on the radio.
 4. Set the FM receiver to 87.7 MHz.
 5. Press the Seek + button, and record the first station that the audio unit or the audio-navigation unit locks onto.
 6. Press the Seek + button repeatedly, and write down each station that the audio unit or the audio-navigation unit locks onto until the station recorded in step 5 is reached again.
 7. Set the AM receiver to 530 kHz.
 8. Press the Seek + button, and record the first station that the audio unit or the audio-navigation unit locks onto.
 9. Press the Seek + button repeatedly, and write down each station that the audio unit or the audio-navigation unit locks onto until the station recorded in step 8 is reached again.
 10. Turn the ignition switch to LOCK (0).
 11. Start the engine in the known-good vehicle, and then do steps 4 thru 10 on the known-good vehicle.



Audio Unit Removal/Installation

12. Compare the number of stations received in steps 6 and 9 in the customer's vehicle with the number of stations received in the known-good vehicle.

- If the number of stations received is the same, or within 10 %, the audio unit's or the audio-navigation unit's tuner performance is OK. The problem may be atmospheric conditions, multi-path interference, or other obstructions to the radio signal.
- If the customer's vehicle receives fewer stations by at least 10 %, go to Poor AM or FM radio reception or interference.
 - with navigation (see page 23-30)
 - without navigation (see page 23-32)

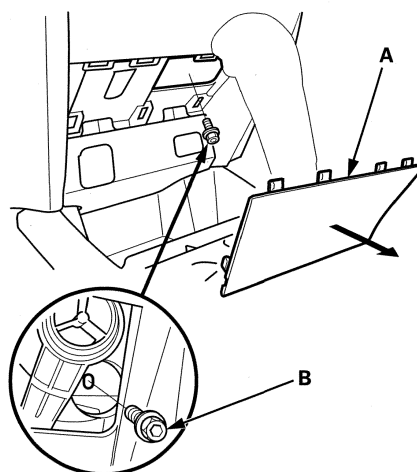
SRS components are located in this area. Review the SRS component location (see page 24-13).

Also review the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the dashboard and related parts.
- Lay a workshop towel under the parts when working on them to protect the face panel from scratches or other damage.
- Do not work in a dusty or dirty place.
- Discharge static electricity from your body before and during the work.
- Do not touch the circuit board(s) with your bare hands.
- Do not work with dirty hands.
- Be careful not to fold the flat plate cable.
- Eject all the discs before removing the audio unit to prevent damaging the audio disc player's load mechanism.
- If you are replacing the audio unit, write down the audio presets (if possible), and enter them into the new audio unit.

1. Make sure you have the 4-digit anti-theft code for the audio system.
2. Remove the center lower cover (A).
3. Move the recirculation control lever to FRESH to help access the mounting bolt (B), then remove it.

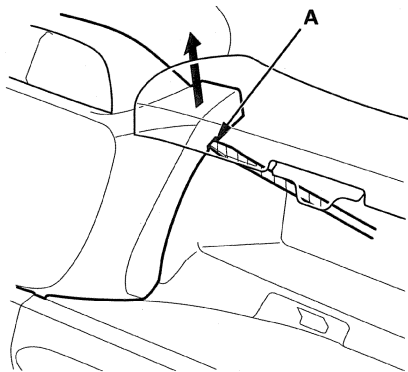


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Audio System - '09-11 models

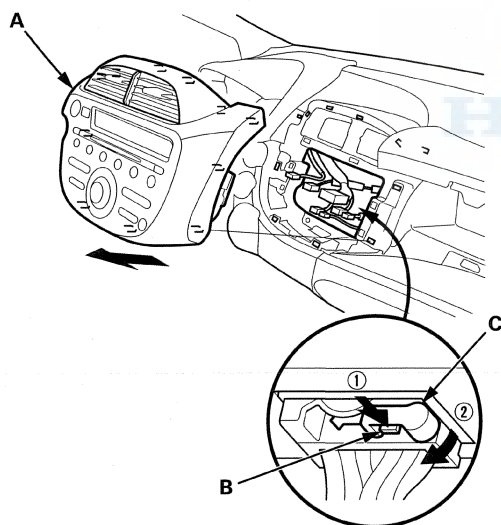
Audio Unit Removal/Installation (cont'd)

4. Open the dashboard upper tray lid. Insert a flat-tip screwdriver in the groove (A), then pull the screwdriver shaft up slightly.



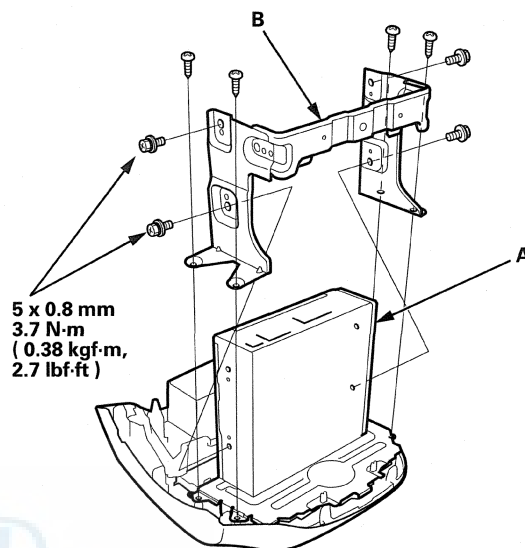
5. Pull the center panel (A) out and disconnect the connectors, then remove the center panel.

NOTE: When you disconnect audio unit connector A (24P), while pushing the tab (B), pull the lever (C) up and disconnect the connector.

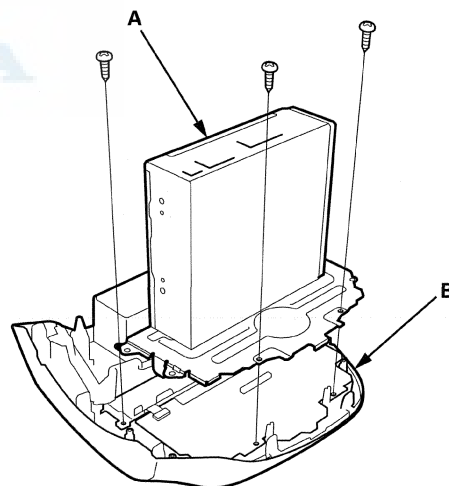


6. Remove the USB adapter unit (see page 23-69).

7. Remove the mounting screws and bolts from the audio unit (A), then remove the bracket (B).



8. Remove the screws and the audio unit (A) from the center panel (B).



9. Install the audio unit in the reverse order of removal, and note these items:

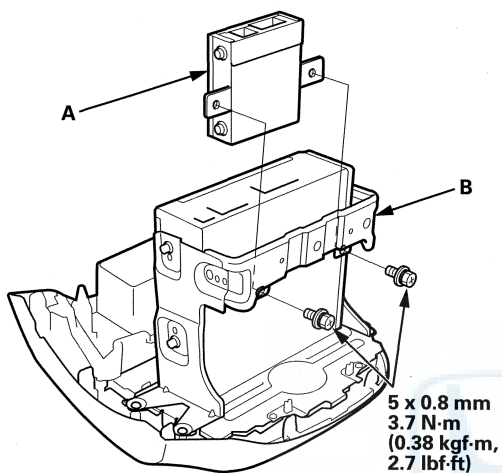
- Make sure all connectors are secure.
- Enter the anti-theft codes for the audio system.
- Set the clock.



USB Adapter Unit Replacement

Without navigation

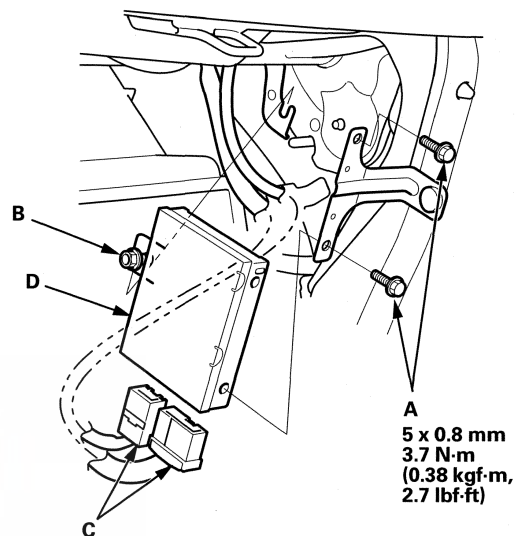
1. Remove the audio unit (see page 23-67).
2. Disconnect the connector from the USB adapter unit.
3. Remove the bolts and the USB adapter unit (A) from the bracket (B).



4. Install the USB adapter unit in the reverse order of removal.

With navigation

1. Remove the lower glove box (see page 20-101).
2. Remove the mounting bolts (A), and loosen the bolt (B).



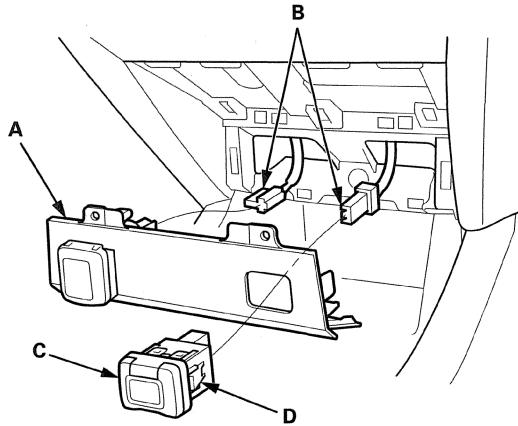
3. Disconnect the connectors (C) from the adapter unit (D).
4. Remove the adapter unit from the bracket.
5. Install the USB adapter unit in the reverse order of removal.

Audio System - '09-11 models

Auxiliary Jack Assembly Replacement

With navigation

1. Remove the center lower trim (A) (see page 20-100).



2. Disconnect the connectors (B) from the auxiliary jack (C) and the accessory socket.
3. Push out the auxiliary jack (C) from the center lower trim, while pressing lock tabs (D).
4. Install the auxiliary jack in the reverse order of removal.

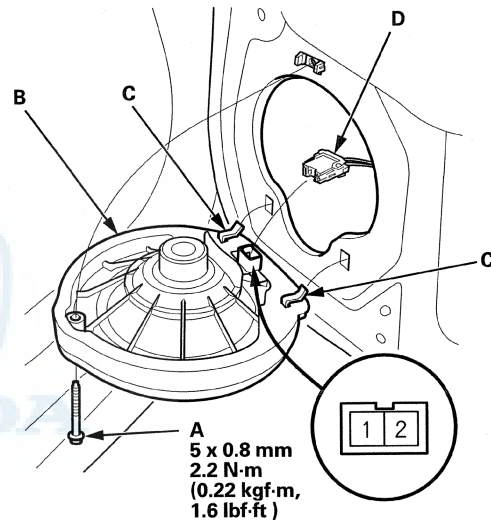
Speaker Test/Replacement

Front/Rear Door Speaker

1. Remove the door panel:
 - Front (see page 20-6)
 - Rear (see page 20-18)
2. Remove the bolt (A). Then lift the speaker (B) straight up to release the lower clips (C).

NOTICE

If you pull the speaker out too far from the door, you will damage the lower clips.



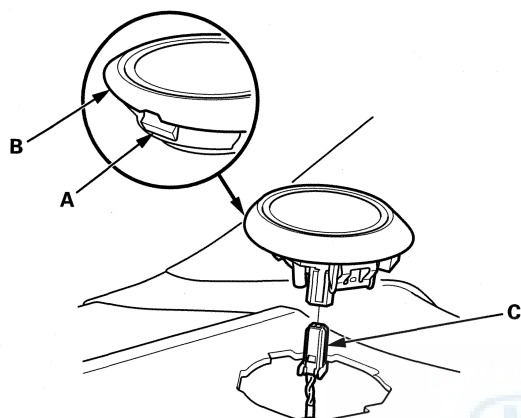
3. Disconnect the 2P connector (D), and remove the speaker.
4. Measure the resistance between terminals No. 1 and No. 2. There should be about 4 Ω .
5. If the resistance is not as specified, replace the door speaker.



Tweeter

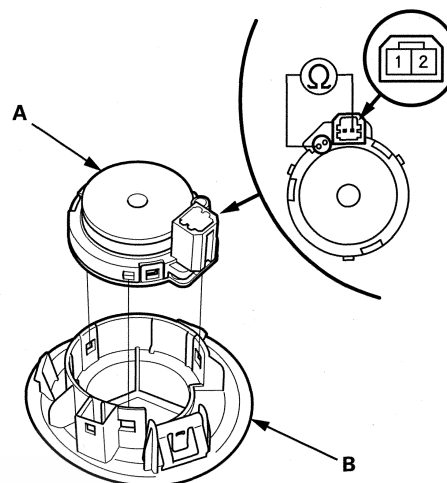
1. Insert a flat-tip screwdriver in the groove (A), and carefully pry the tweeter grille (B).

NOTE: Be careful not to damage the tweeter grille and the dashboard.



2. Disconnect the 2P connector (C) from the tweeter.
3. Check the capacitor condition. If any malfunction is found, replace the tweeter.

4. Remove the tweeter speaker (A) from the speaker grille (B).



5. Measure the resistance between the soldered joint and terminal No. 2. There should be about 4 Ω .
6. If the resistance is not as specified, replace the tweeter speaker.
7. Install the tweeter speaker in the reverse order of removal.

NOTE: Align the tweeter speaker connector with the cut-out on the speaker grille.

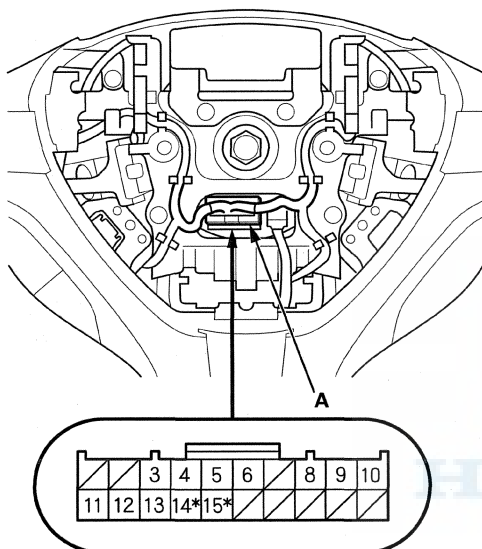
Audio System - '09-11 models

Audio Remote Switch Test

SRS components are located in this area. Review the SRS component location (see page 24-13), and the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

With navigation

- 1. Remove the driver's airbag assembly (see page 24-171).
- 2. Disconnect the cable reel 20P connector (A).



Wire side of female terminals

*: With automatic transmission

- 3. Measure the resistance between terminals No. 3 and No. 6 in each switch position according to the table.

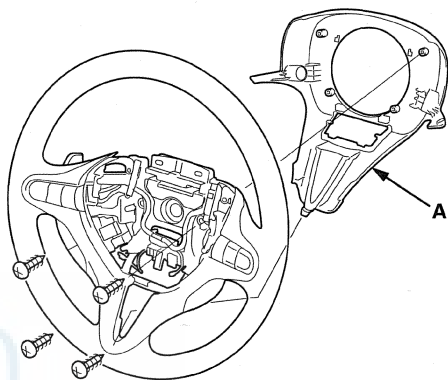
Position	Resistance
No button pressed	About 10 k Ω
MODE	About 3.7 k Ω
CH (+)	About 1.7 k Ω
CH (-)	About 775 Ω
▲ (VOL. UP)	About 357 Ω
▼ (VOL. DOWN)	About 100 Ω

- 4. If the resistance is not as specified, replace the audio remote switch.

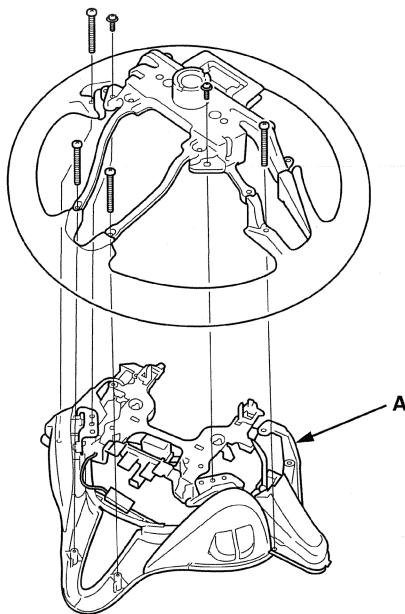
Audio Remote Switch Replacement

SRS components are located in this area. Review the SRS component location (see page 24-13), and the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

- 1. Remove the steering wheel (see page 17-6).
- 2. Remove the screws, and steering wheel rear cover (A).



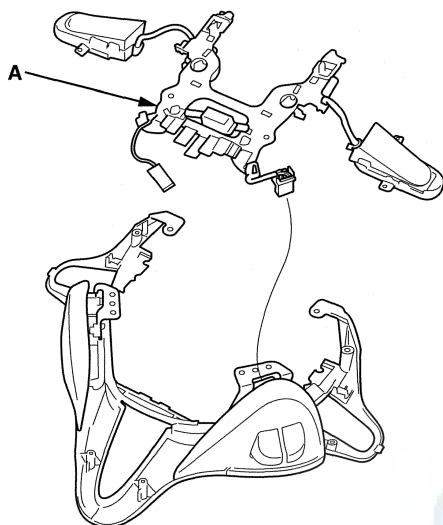
- 3. Remove the paddle shifter + (upshift switch) (see page 14-233) and paddle shifter - (downshift switch) (see page 14-233).
- 4. Remove the screws and the steering wheel trim (A).



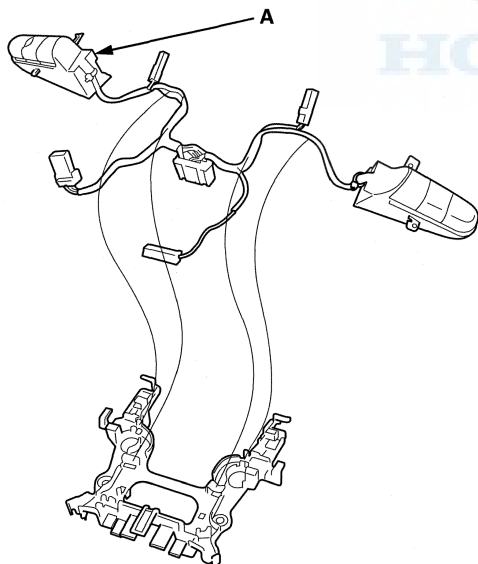


AM/FM Antenna Replacement

5. Disconnect the connectors, and remove the harness guide (A).

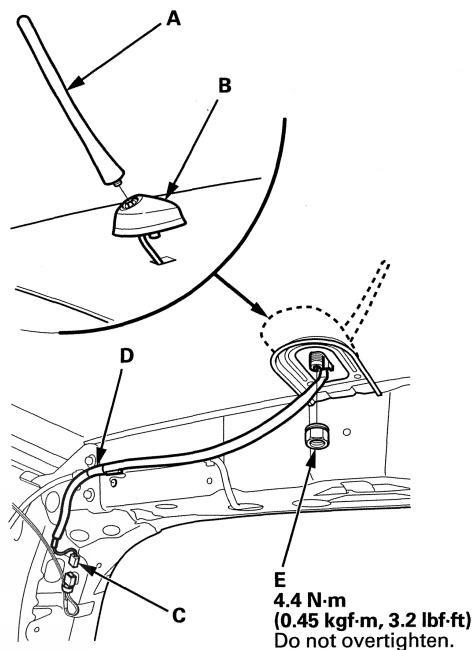


6. Remove the audio remote switch (A).



7. Install the audio remote switch in the reverse order of removal.

1. Remove the AM/FM antenna element (A).



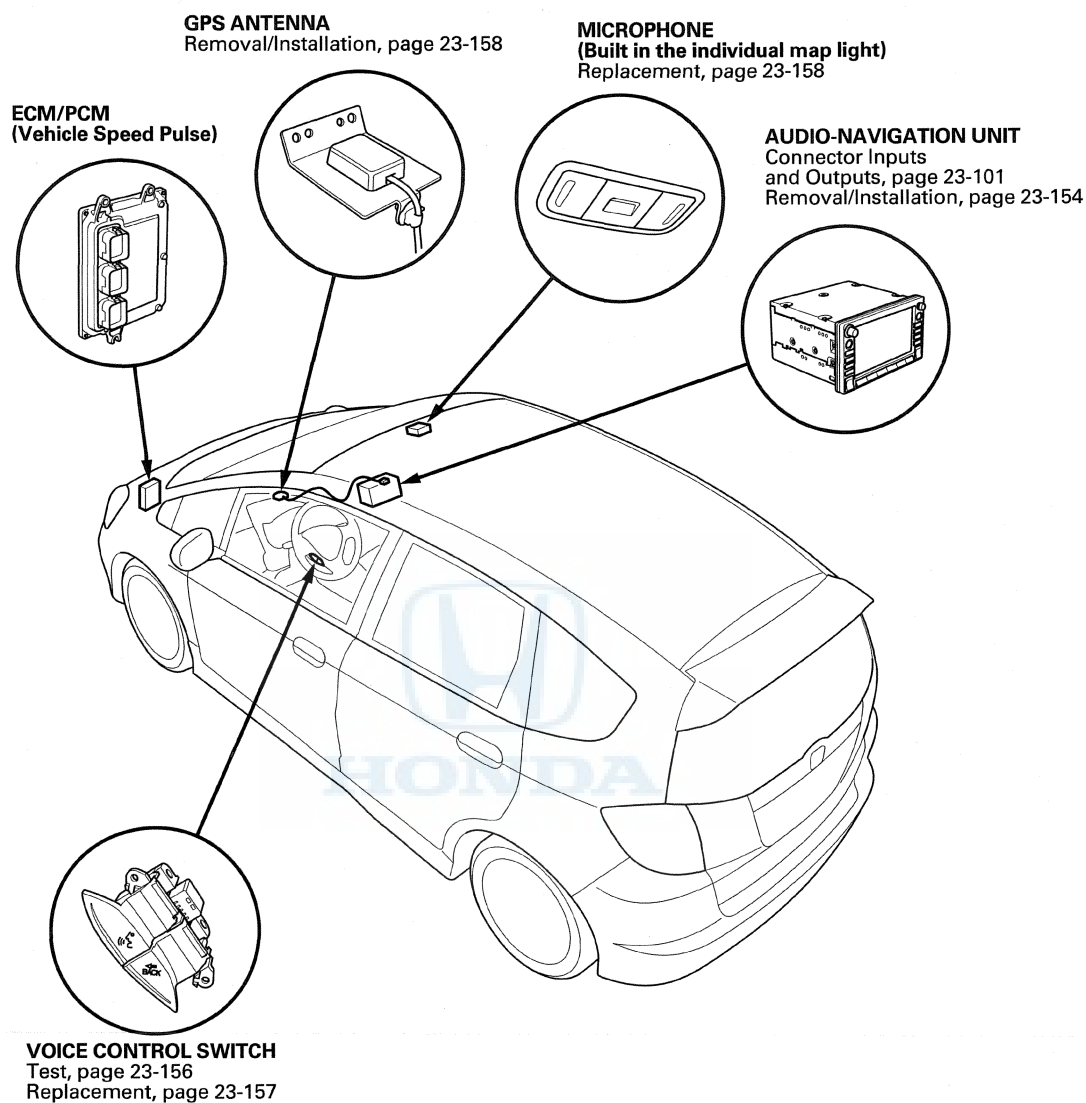
2. Remove the AM/FM antenna base (B).

- 1. Remove the quarter pillar trim (see page 20-69), and disconnect the connector (C).
- 2. Remove the headliner (see page 20-86), and detach the clip (D).
- 3. Remove the nut (E) from the AM/FM antenna base, and remove it.

3. Install the antenna in the reverse order of removal.

Navigation System - '09-11 models

Component Location Index





General Troubleshooting Information

General Operation

Refer to the navigation system manual for the navigation system operating procedures.

Anti-Theft Feature

The navigation unit have a coded theft protection circuit. Make sure you have the anti-theft security code before:

- Disconnecting the battery.
- Disconnecting the audio-navigation unit connector A (24P) and C (8P).
- Removing the No. 1 (10 A) fuse from the under-dash fuse/relay box.

If the code card is lost or unavailable, you can get the code from the iN using the navigation system serial number. The system serial number can easily be obtained without removing the audio-navigation unit. To get the serial number and the code, do the following:

- Press and hold the MAP/GUIDE, MENU, and CANCEL buttons at the same time.
- At the select diagnosis items screen, select Detail Information & Setting, select Unit Check (see page 23-113), then ECU Info. The system runs a brief diagnosis, then the audio-navigation unit serial number is displayed at the bottom of the screen.
- Use the navigation Anti-theft code inquiry option on the iN to look up the 4-digit navigation anti-theft code.

The iN may display more than one code for a given serial number. This is because serial numbers are not unique. You may have to try more than one 4-digit code. If no code is shown, or if the code(s) given do not work in the audio-navigation unit, contact the Automobile Warranty department.

Alternatively, you can find the serial number on the underside label which is located on the audio-navigation unit in the dash.

Symptom Diagnosis

Certain circumstances and system limitations will result in occasional vehicle positioning errors. Some customer's may think this indicates a problem with the navigation system when, in fact, the system is normal. Keep the following items in mind when interviewing customer's about symptoms of the navigation system.

Self-Inertial Navigation Limitations

The limitations of the self-inertial portion of the navigation system (the yaw rate sensor and the vehicle speed signal) can cause discrepancies between the vehicle's actual position and the indicated vehicle's position (GPS vehicle position).

The following circumstances may cause vehicle positioning errors:

- Moving the vehicle with the engine stopped and the vehicle stopped, such as by ferry or tow truck, or if the vehicle is spun on a turn table.
- Tire slippage, changes in tire rolling diameters, and some driving situations may cause discrepancies in travel distances. Examples of this include:
 - Continuous tire slippage on a slippery surface
 - Driving with snow chains mounted
 - Abnormal tire pressure
 - Incorrect tire size
 - Frequent lane changes across a wide highway
 - Continuous driving on a straight or gently curving highway
 - Very bumpy roads
- Tolerances in the system and map inaccuracies sometimes limit how precisely the vehicle's position is indicated. Examples of this include:
 - Driving on roads not shown on the map (map matching is not possible)
 - Driving on a road that winds in one direction, such as a loop bridge, an interchange, or a spiral parking garage
 - Driving on a road with a series of sharp hair-pin turns
 - Driving near a gradual highway exit or transition
 - Driving on one of two close parallel roads
 - Making many 90 degree turns

(cont'd)

Navigation System - '09-11 models

General Troubleshooting Information (cont'd)

Global Positioning System (GPS) Limitations

The GPS cannot detect the vehicle's position or elevation during the following instances:

- For the first 5 to 10 minutes after reconnecting the battery (this process can take as long as 45 minutes).
- When the satellite signals are blocked by tall buildings, mountains, tunnels, large trees, inside parking structures or large trucks.
- When the GPS antenna is blocked by metallic window tinting or by an object placed above it in the vehicle. The GPS antenna requires a clear unobstructed view of the sky.
- When there is no satellite signal output (signal output is sometimes stopped for satellite servicing).
- When the satellite signals are blocked by the operation of some electronic aftermarket accessories including, but not limited to non-OEM in-dash entertainment units (radio, CD players/changers, radar detectors and theft recovery systems) and cell phones placed near the navigation system.

The accuracy of the GPS is reduced during these instances:

- Metallic window tinting above the GPS antenna.
- When only three or less satellite signals are received (Four satellite signals are required for accurate positioning).
- When driving near high tension power lines.
- When the satellite control centers are experiencing problems.

Muting Logic

Whenever the navigation system is giving guidance, the front speakers are muted. When the voice control system is being used, all of the speakers are muted.

LCD Unit Limitations

- In cold temperatures, the display may stay dark for the first 2 or 3 minutes until it warms up.
- When the display is too hot because of direct summer sunlight, it will remain dark until the temperature drops (you may see an error message displayed stating this fact).
- When the humidity is high and the interior temperature is low, the display may appear cloudy. The display will clear up after some use.
- Fingerprints on the screen may be noticeable. Clean the screen with a soft, damp cloth. You may use a mild cleaner intended for eye glasses or computer screens. To avoid scratching the panel, do not rub too hard or use abrasive cleaners or shop towels.

Symptom Duplication

- When the symptom can be duplicated, verify that it is not a characteristic of the system. Review the navigation system manual, and compare it to a known-good vehicle (with the same software and database), under the same conditions. If the symptom is not the same as the known-good vehicle, follow the self-diagnostic procedures and the appropriate troubleshooting procedures.
- When the symptom does not reappear or only reappears intermittently, ask the customer about the conditions when the symptom occurred.
 - Always ask the customer to demonstrate the problem.
 - Try to establish possible user error or a misunderstanding of the system.
 - Try to establish if outside interference may have been the cause.
 - Try to duplicate the symptom under the same conditions the customer experienced.
 - Vibration, temperature extremes, and moisture (dew, humidity) are factors that are difficult to duplicate.
 - Inspect the vehicle for after-market electronic devices (vehicle locators, amps, radar detectors, etc.) that may be hidden.

NOTICE

When troubleshooting navigation system problems, ensure that the known-good vehicle is the same software version year and model as the vehicle being serviced. Mixing incompatible navigation DVDs or other system components can delay the troubleshooting process by creating symptom or issues causing effects unrelated to the original problem.



Service Precautions

- If you need to replace the audio-navigation unit, you can back-up the navigation data, and transfer it to a new audio-navigation unit. See Save users memory (see page 23-116).
- When the battery is disconnected, the internal GPS clock resets to 0:00. The clock resets to the correct time after the system finishes GPS initialization.
- Before disconnecting the battery, make sure you have the anti-theft codes for the navigation system. Also obtain any PGM-FI or transmission DTCs and freeze frame data (which are lost when the ECM/PCM loses power).
- After reconnecting the battery, you have to wait to get the initial signal from the satellite. It will take from 10 to 45 minutes.
- Adjust the setup clock settings (time zone and daylight savings) in the navigation system.
- Before returning the vehicle to the customer, enter the anti-theft code for the navigation system.

System Initialization

If the navigation system loses power (like the battery was disconnected), the navigation system requires initialization. Once completed, your system is ready to use.

This initialization requires the following:

- Entering the 4-digit anti-theft security code to unlock the system
- GPS initialization (may not be needed depending of the length of time the system was without power)
- Map matching to align the GPS to a location on the map

Entering the Security Code

If the navigation system anti-theft code is missing, get the serial number from the audio-navigation unit and use the iN to look it up. You do not need to remove the audio-navigation unit. See Anti-Theft Feature.

When replacing the audio-navigation unit or audio unit, make sure you give the customer the new anti-theft security code(s).

GPS Initialization

NOTE: You must park the vehicle outside with a clear view of the sky.

Depending on the length of time the battery was disconnected, your system may require GPS initialization. If it does, the following screen appears:

The navigation system lost power and is acquiring its location from the GPS satellites. This usually takes less than 10 minutes.

- * Start the engine.
- * Park the vehicle in an open area away from trees, power lines, and tall buildings.
- * Remove loose articles, cell phones, or electrical accessories located near the GPS antenna.
- * If this screen is displayed repeatedly when starting the vehicle, see your dealer.

If this procedure is not necessary, the system proceeds directly to the Disclaimer screen. During initialization, the system searches for all available GPS satellites, and obtains their orbital information. During this procedure the vehicle should be out in the open with a clear view of the sky.

(cont'd)

Navigation System - '09-11 models

General Troubleshooting Information (cont'd)

If the navigation system finds the satellites properly, this box clears, and changes to the Disclaimer screen. If within 10 minutes the system fails to locate a sufficient number of satellites to locate your position, the following screen appears.

Something is interfering with the system's ability to acquire its location. Check the following:

- * The vehicle must be in an open area with a clear view of the sky.
- * Remove sources of GPS interference like metallic window tint above antenna, or electrical items near antenna (see owner's manual for details).
- * Check GPS antenna cable connection.
- * Restart the engine and repeat the GPS acquire procedure. If the problem persists, see your dealer.

If this screen appears, turn off the engine, then restart the vehicle and move it to a different location. If the Disclaimer screen appears, the GPS initialization is complete.

NOTE:

- The average acquiring time is less than 10 minutes, but it can take as long as 45 minutes.
- If the system is still unable to acquire a signal, follow the instructions on the screen. If this screen appears again, go to troubleshooting for the GPS icon is white or not shown (see page 23-141).
- Skip to a CSF screen by pushing the MENU + ZOOM OUT buttons at the same time to move to a System Links screen.

Map Matching

This part of the initialization matches the GPS coordinates with a road on the map screen. To do this part of the procedure, make sure that the navigation system displays a map, and drive the vehicle on a mapped road shown on the map screen. Do not enter a destination at this time. When the name of the current road you are driving on appears at the bottom of the screen, the entire procedure is complete. Your system is now ready to use.

Obtaining A Navigation DVD

If the navigation DVD is lost or damaged, or you need a yearly updated DVD, you have two ways to purchase one. You can either call 888-291-4675, or order on-line at www.hondanavi.com.

Both methods require a credit card. The DVD for this model has a turquoise label, and cannot be ordered through the parts system. The following DVDs will not work in this navigation system:

- Earlier model navigation DVDs (black, orange, white and older versions with a turquoise label)
- Map software programs manufactured by other companies
- DVD movies, or DVDs containing audio recordings

Update DVDs are available for purchase usually in the fall of each year. They may contain the following:

- Enhanced maps and points of interest (POI) coverage
- Fixes for minor software bugs
- Additional features

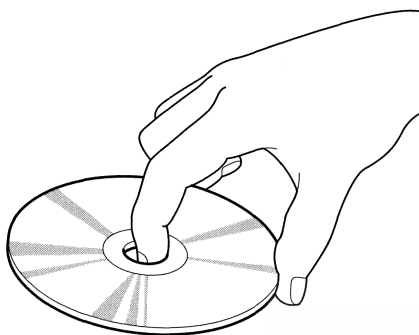
NOTE:

- Map matching must be done any time the DVD is removed or replaced.
- Always order navigation DVDs on an as-needed basis. During a typical model year, each color DVD may undergo a half a dozen software only version upgrades to fix minor issues on some or all models the DVD supports. This is normal. Usually only the letter at the end of the version number changes, while the database (maps and POIs) remain unchanged.
- Never promise your customer future free updates. There are no free programs for updating the navigation DVD. Update DVDs are generally available for purchase each fall. The online DVD order site provides information when an update for a particular color DVD is available.
- Damaged discs are not covered by warranty unless they have been damaged by the navigation system.

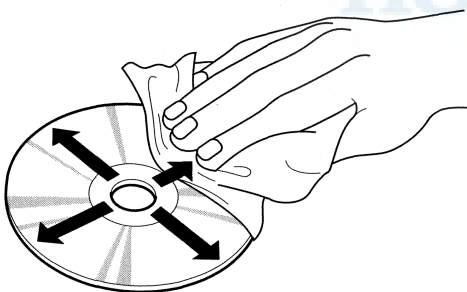


DVD Handling and Cleaning

To avoid damaging or leaving fingerprints on the DVD, always handle it by the edges and place it in a jewel case whenever it is outside the audio-navigation unit. Deep scratches or fingerprints on the back of the DVD can cause intermittent rebooting or other system errors.



Smudges and fingerprints can be carefully removed using a mild cleaner and tissues designed to clean eyeglasses. To clean a DVD, use a clean soft cloth. Very gently wipe across the DVD from the center to the outside edge, never in a circular motion.



Do not place stabilizer rings or labels on the DVD.

Earliest DVD Version Application for Each Model

Each navigation system DVD contains a map/POI (point of interest) database and the navigation system software for each model that it supports. Inserting an older DVD can cause problems since it lacks the software to provide the specific features needed for that model. Unfortunately, the navigation software does not detect or warn you that the version is outdated, and it may even appear to operate.

NOTE: Replacing a DVD just because the version number is higher is not always warranted. A higher software version does not necessarily mean it contains newer software for your model. The DVD contains software for all models that use the same color DVD, and a revised number may or may not have software fixes or upgrades for the model in question.

Typical warning symptoms that an outdated or incorrect DVD is being used include:

- The Honda model navigation screen displays a Acura logo while booting up.
- A newly introduced model feature or current accessory may not display properly, and Extension displays instead.

NOTE: Extension may be displayed when using Music Link.

- The current street (the street being driven on) does not appear properly at the bottom of the map screen display when the vehicle is driven on a main road.

NOTE: If necessary, compare the operation to the navigation system of the same model and year vehicle that has a current DVD.

(cont'd)

Navigation System - '09-11 models

General Troubleshooting Information (cont'd)

How to Identify Navigation DVD Versions, and How to Inspect A DVD for Damage

To determine the navigation version, start the engine, and open the display door. Push the eject button to eject the DVD. Hold the DVD by the edges, and check for these items:

- Check any official Honda service website for more service information about the navigation DVDs.
- The DVD label color.
- Read the DVD version on the label, and note it on the repair order. The version number is near the bottom of the label text (for example, ver: 6.55). You will need this version number:
 - To verify that the DVD version is appropriate for the vehicle. Check any official Honda service website for more service information.
 - Any time you call Tech Line regarding a navigation system issue.
 - To answer customer inquires concerning update or coverage issue.

NOTE: customers may obtain DVDs from sources outside the normal ordering process. If you determine this is the case, recommend that your customer purchase the appropriate DVD from the Honda Disc Fulfillment Center (see ORDERING A DVD).

- Check the underside of the DVD for signs of mishandling. Deep scratches, or random scratches, light swirl marks, or fingerprints can cause random lock-ups, reboots, erratic voice response, erratic positioning errors, and DVD read or format errors.

NOTE: A damaged DVD is not covered under warranty unless the disc is damaged by the audio-navigation unit. Damage by the audio-navigation unit typically appears as circular scratches caused by something rubbing against the DVD as it spins. The damage may appear as arcs or complete circles on the DVD reading surface.
- Verify that the underside of the DVD is silver, and not a copy with a blue color. Copies will not work properly and can cause other symptoms that mimic hardware problems.

- Incorrectly colored DVDs being put into navigation vehicles. This causes the system to either display error messages, or causes system malfunctions that mimic a hardware problem. This results in the customer leaving with a malfunctioning navigation system.
- The DVD version provided to the customer is out-of-date or incompatible with a particular model. This inconveniences your customer by delaying the repair, or by causing additional (and unnecessary) returns to your dealership.
- The customer experiences bugs or other issues that have already been resolved in later versions currently available at the fulfillment desk.

If the DVD is defective, or has any of the issues mentioned above, return the vehicle to your customer and recommend that they order the proper DVD from the Honda Disc Fulfillment Center.

NOTE: Navigation DVDs do not come with replacement audio-navigation units. If you are replacing a audio-navigation unit because it is defective (following appropriate service manual troubleshooting), and the DVD does not eject, order a DVD from the Honda Disc Fulfillment Center.



How to Answer Customer Questions About Navigation Coverage

Some customers may ask questions regarding a city, address, or POI (point of interest) covered by the navigation system. It is better to verify a coverage question on an actual vehicle than to disappoint your customer by promising coverage that may be incomplete or missing in their area. The following suggestions can be used to answer coverage inquiries from your customer.

Is my address covered by the navigation system?

Using a current production vehicle (of the same model), and enter the customer's address (street first) to see if their area is covered. Always enter the street first, because sometimes their city may be included in a neighboring township, or under some larger metropolitan city name. If the address is shown in a later year vehicle, but not your customer's vehicle, you might recommend that your customer purchase an update.

Is my city covered by the navigation system?

For general questions about whether a city is covered, view the map coverage link on the DVD order site. On the site, select a year, and select a model, then click on the Coverage link. You then select a state or province, and the cities are listed. Of course, this does not guarantee that the customer's road or address is in the system. Verifying on an actual production vehicle is always the best guarantee that your information is accurate.

The gas station on my corner is now a restaurant. Why is it still incorrect in the navigation system?

For POI-related customer questions, explain that businesses are constantly moving, and there can be a considerable lag in updating the millions of POIs in the system. The database is updated annually, and the best way to verify whether the POI is accurate is verify the inquiry on a current production vehicle.

Answers to these and other questions regarding coverage can be found in these locations:

- In the Frequently Asked Questions section of the navigation system manual.
- At the online DVD order site, by clicking on the FAQs link.

How do I find the local address of a business that is part of a national chain (for example, Starbucks)?

There are three ways to find the local address to businesses:

- If you know the phone number of the business, select Phone Number and enter the 10 digit phone number (area code plus seven digit number).
- Select Category, then Cafe/Coffee shop. Enter the keyword Star. The resulting list includes all restaurants that have the letters Star anywhere in the name.
- Select Name and enter Starbucks. For more common business names, like McDonalds, you may have to search through a list that includes other businesses like McDonalds Welding, McDonalds Automotive, etc.

Why are some features different or missing compared to my previous Honda vehicle?

Hardware and software continually go through updates and improvements. Features may change or disappear over time based on the navigation system development.

Precaution on Customer "Sneak Previews"

Your customer might request a look (or sneak preview) at features in the latest navigation software. You should never preview a navigation DVD in a customer's vehicle. Inserting a newer DVD installs the latest software from the DVD into the memory of the customer's navigation system. When the original DVD is reinstalled, the newer software remains in memory and is often incompatible with the customer's original DVD Map and POI database, or software.

If your customer wishes to see the latest navigation coverage or software features, demonstrate it on an in-stock vehicle that already has the latest DVD version.

If, a newer version is loaded either by the dealer or the customer, the only remedy is to enter the navigation diagnostic mode's Version screen and do a forced download. Check any official Honda service website for more information about what patches may need reinstalling.

(cont'd)

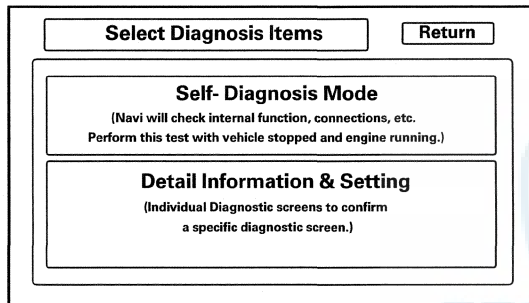
Navigation System - '09-11 models

General Troubleshooting Information (cont'd)

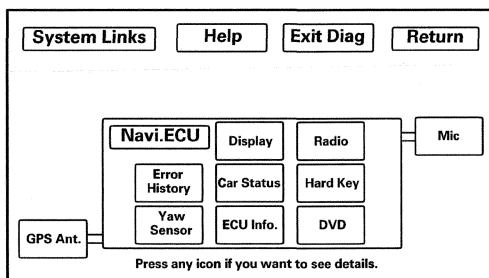
How to Check Error History

The Error History feature is to record intermittent navigation issues that occur while using the system. Sometimes the customer complaint cannot be duplicated. The error history may record the information needed to diagnose the problem. To check the error history:

1. Start the engine.
2. When the map screen is displayed, press and hold the MAP/GUIDE + MENU + CANCEL buttons for 3 seconds.
3. When the Select Diagnosis Items menu is displayed, select Detail Information & Setting.

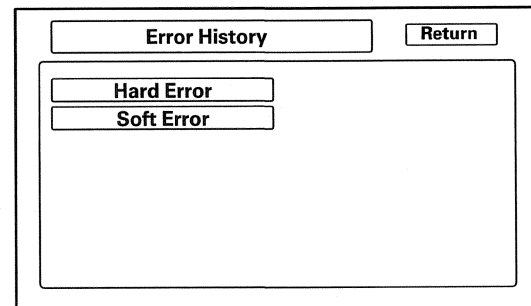


4. When the audio-navigation unit has hard codes, the Error History icon appears yellow when the Self Diagnosis mode (System links) screen is displayed. When no hard errors are stored, the icon appears gray. To view the errors with their DTC codes, select the error history icon.



5. Select Hard Error.

NOTE: Soft errors are for factory use only.



Hardware Error History

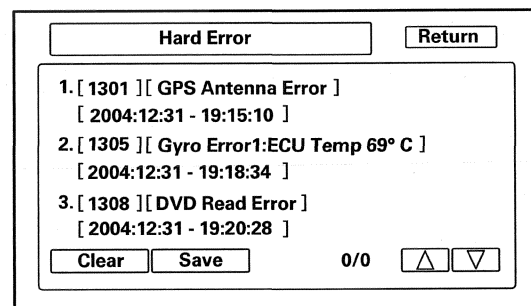
6. The Hard Error screen displays the following information for each error:

- The DTC for the error
- A brief description of the DTC code
- The date and time when the error occurred.

NOTE:

- To see additional errors, use the interface dial to select UP or DOWN.
- Select Clear to delete the error history. The Save feature is for factory use only.

7. Use the DTC Troubleshooting to troubleshoot the error.



8. Clear the DTCs.

9. Select Return to exit the error history.

Software Error (Soft error) History

Software errors are not available. They are for factory use only.



How to Clear Error History

1. Do the steps in How to check Error History.
2. Select Clear in the error menu.

NOTE:

- By selecting Clear, all software and hardware errors stored in history are erased at the same time.
- Save is for factory use only.

Hard error history is displayed

Hard Error		Return
1. [1301]	[GPS Antenna Error]	
	[2004:12:31 - 19:15:10]	
2. [1305]	[Gyro Error1:ECU Temp 69° C]	
	[2004:12:31 - 19:18:34]	
3. [1308]	[DVD Read Error]	
	[2004:12:31 - 19:20:28]	
Clear	Save	0/0 [▲] [▼]

Soft error history is displayed (Soft errors are for factory use only)

Soft Error		Return
Date	2007:01:31 - 17:24:30	
Process	xxxxxxx.xxx	
TreadID	xxxxxxxxxx	
Exception Address	xxxxxxxxxx	
Exception Code	xxxxxxxxxx	
Instruction Pointer	xxxxxxxxxx	
Clear	Save	0/0 [▲] [▼]

3. After selecting Clear, then selecting Yes, both Hard Error history and Soft Error history are cleared at the same time.

Hard error history clear

Hard Error		Return
Clear Error History?		
Yes	No	
Clear	Save	0/0 [▲] [▼]

Soft error history clear (Soft errors are for factory use only)

Soft Error		Return
Clear Error History?		
Yes	No	
Clear	Save	0/0 [▲] [▼]

4. Press Return to exit.

Navigation System - '09-11 models

DTC Troubleshooting Index

DTC	Description	Circuit	Failure Detection	Page	Also Check for
1001	FROM System Info Error	Flash ROM management	Audio-navigation unit internal data error.	DTC Troubleshooting (see page 23-126)	Low or weak battery
1101	Media Bus Send Error	Media condition monitoring	Audio-navigation unit internal media error.	DTC Troubleshooting (see page 23-126)	Low or weak battery
1201	DVD High Temp	DVD drive	Audio-navigation unit temperature above the upper limit. Failure in navigation control unit fan circuit.	DTC Troubleshooting (see page 23-127)	<ul style="list-style-type: none"> ● Low or weak battery ● Air conditioning duct connection
1202	DVD Low Temp	DVD drive	Audio-navigation unit temperature below the lower limit.	DTC Troubleshooting (see page 23-127)	<ul style="list-style-type: none"> ● Low or weak battery ● Air conditioning duct connection
1301	GPS Antenna Error	GPS Antenna	GPS antenna circuit malfunction.	DTC Troubleshooting (see page 23-128)	Low or weak battery
1302	GPS Receiver Error 1	GPS Receiver	GPS antenna circuit malfunction. Audio-navigation unit internal GPS receiver malfunction.	DTC Troubleshooting (see page 23-128)	Low or weak battery
1303	GPS Receiver Error 2	GPS Receiver	Audio-navigation unit internal GPS receiver malfunction.	DTC Troubleshooting (see page 23-129)	Low or weak battery
1305	Gyro Error 2: ECU Temp XX °C	Gyro	Audio-navigation unit internal gyro malfunction.	DTC Troubleshooting (see page 23-129)	Low or weak battery
1306	Vehicle Speed Pulse	Vehicle Speed Pulse	VPS circuit malfunction.	DTC Troubleshooting (see page 23-130)	F-CAN DTCs
1307	DVD Read Error	DVD disc	Scratched/dirty DVD or navigation control unit internal DVD ROM drive.	DTC Troubleshooting (see page 23-130)	Low or weak battery
1402	Audio Error 2	CD	Mechanical malfunction in the CD-DVD player (audio unit)	DTC Troubleshooting (see page 23-131)	Low or weak battery
2601	Display Diag: Connect	Display	GA-NET bus circuit malfunction open/short. ECU bus circuit malfunction open/short.	DTC Troubleshooting (see page 23-131)	
2605	H/U Diag: Connect	H/U	GA-NET bus circuit malfunction open/short.	DTC Troubleshooting (see page 23-132)	
2609	VRAM Diag	ECU VRAM	Audio-navigation unit internal VRAM malfunction.	DTC Troubleshooting (see page 23-132)	
2610	DRAM Diag	ECU DRAM	Audio-navigation unit internal DRAM malfunction.	DTC Troubleshooting (see page 23-133)	
2701	GPS Diag: Antenna	GPS	GPS antenna malfunction.	DTC Troubleshooting (see page 23-133)	
2702	GPS Diag: Receiver in Navi ECU	GPS	GPS antenna malfunction.	DTC Troubleshooting (see page 23-134)	
2706	Gyro Diag: ECU Temp XX °C	Gyro	Audio-navigation unit internal malfunction.	DTC Troubleshooting (see page 23-134)	
2707	Mic Diag	Mic	Mic circuit malfunction open/short.	DTC Troubleshooting (see page 23-135)	



Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Navigation system stays on the GPS initialization screen	System Initialization (see page 23-77)	<ul style="list-style-type: none"> • Audio-navigation unit • Low battery voltage • Internal defect in GPS antenna • GPS antenna/cable is disconnected or damaged • Aftermarket metallic window tint • The wrong color DVD or version is installed • The DVD is damaged or dirty • Harness/fuses/switches
Vehicle position icon constantly leaves road, moves erratically, or is displayed very far from actual vehicle position	Symptom Troubleshooting (see page 23-138)	<ul style="list-style-type: none"> • Audio-navigation unit • Internal defect in GPS antenna • GPS antenna/cable • Aftermarket metallic window tint • PCM (speed and fuel pulses) • Harness/fuses/switches
System always comes up in in-line diagnostic mode	Factory diagnostic screen in Line Diag (see page 23-110)	A reman unit was just installed
Navigation system does not accept security code	Symptom Troubleshooting (see page 23-147)	<ul style="list-style-type: none"> • The DVD is malfunctioning, damaged, or dirty • Anti-theft code not matching • Audio-navigation unit
Navigation frequently asks for anti-theft code and/or needs GPS initialization	Symptom Troubleshooting (see page 23-149)	<ul style="list-style-type: none"> • Loss of voltage or poor ground (G651) • Audio-navigation unit • Software not up to date • Low battery voltage • Harness/fuses/switches
GPS icon is white or not shown	Symptom Troubleshooting (see page 23-141)	<ul style="list-style-type: none"> • Audio-navigation unit • Internal defect in GPS antenna • Aftermarket accessories connected to the system • The DVD is damaged or dirty • GPS antenna/cable • Aftermarket metallic window tint • Harness/fuses/switches
Vehicle icon wanders across the map when driving (does not follow a displayed road) or map or vehicle ICON spins	Symptom Troubleshooting (see page 23-146)	<ul style="list-style-type: none"> • Audio-navigation unit • GPS antenna/cable • Aftermarket metallic window tint • ECM/PCM (speed signal) • Internal defect in GPS antenna
No picture is displayed	Symptom Troubleshooting (see page 23-136)	<ul style="list-style-type: none"> • The wrong color DVD or version is installed • Low battery voltage • The DVD is damaged or dirty • Audio-navigation unit • Harness/fuses/switches
Picture has lines or rolls	Symptom Troubleshooting (see page 23-139)	<ul style="list-style-type: none"> • Aftermarket accessories connected to the system • Audio-navigation unit • Harness/fuses/switches

(cont'd)

Navigation System - '09-11 models

Symptom Troubleshooting Index (cont'd)

Symptom	Diagnostic procedure	Also check for
Picture is missing a color or tone or is an odd color	Symptom Troubleshooting (see page 23-139)	<ul style="list-style-type: none"> • The wrong color DVD or version is installed • The DVD is damaged or dirty • Audio-navigation unit • Aftermarket accessories connected to the system • Harness/fuses/switches
Display day/night mode does not work or does not work properly	Symptom Troubleshooting (see page 23-145)	<ul style="list-style-type: none"> • Audio-navigation unit • The gauge brightness level is set to High in day or night mode • Gauge control module (CAN) • The navigation display brightness is not set to Auto mode • Harness/fuses/switches
System locks up or freezes constantly	Symptom Troubleshooting (see page 23-145)	<ul style="list-style-type: none"> • Audio-navigation unit • The wrong color DVD or version is installed • The DVD is damaged or dirty • Harness/fuses/switches
Voice guidance cannot be heard, is broken up, or there is static	Symptom Troubleshooting (see page 23-142)	<ul style="list-style-type: none"> • Volume or voice feedback setting (see Owner's manual) • Audio-navigation unit • Audio unit • Harness/fuses/switches
Voice control does not work/respond	Symptom Troubleshooting (see page 23-143)	<ul style="list-style-type: none"> • Audio-navigation unit • Microphone • Harness/switches • HandsFreeLink control unit
Navigation cannot control audio system	Symptom Troubleshooting (see page 23-148)	<ul style="list-style-type: none"> • Audio-navigation unit • Harness • The wrong color DVD or version is installed • The DVD is damaged or dirty
Navigation display buttons do not work or respond properly	Symptom Troubleshooting (see page 23-140)	<ul style="list-style-type: none"> • Audio-navigation unit • Harness/fuses/switches
Navigation display will not close	Symptom Troubleshooting (see page 23-141)	<ul style="list-style-type: none"> • Audio-navigation unit • Harness
Navigation display does not open or opens part way	Symptom Troubleshooting (see page 23-142)	<ul style="list-style-type: none"> • Audio-Navigation unit • Harness
Today's Destinations button is dim and not selectable in the Enter destination by screen (grayed-out)	The customer has not entered a group of locations for Today's Destinations. This is normal. The button is only selectable if the customer is using this function.	See Owner's Manual
Previous Destinations button is dim and not selectable in the Enter destination by screen (grayed-out)	The vehicle may be new, or the customer deleted the destination. Without a stored previous destination, the system can't route to a previous destination. Enter a destination, and allow the system to route to it. After the trip, the Previous Destinations button will be selectable.	



Symptom	Diagnostic procedure	Also check for
Address cannot be found or system gives poor routing	<ul style="list-style-type: none"> • Verify proper operation and system limitations using the owner's manual. • See Answering customer questions about Navigation coverage in general troubleshooting. 	<ul style="list-style-type: none"> • Database limitations (address not in database) • Wrong color DVD installed • Older database
The map will not display the Southern portion of the U.S. or the Northern parts of Canada	North American coverage is different for U.S./Canada markets. See the version diagnostic screen (see page 23-122) for details on coverage differences	The wrong colored DVD or market DVD is installed
Navigation display stays on with ignition switch in LOCK (0)	Symptom Troubleshooting (see page 23-148)	<ul style="list-style-type: none"> • Harness/fuses/switches • Aftermarket accessories connected to the system
DVD read error messages	Symptom Troubleshooting (see page 23-144)	<ul style="list-style-type: none"> • Audio-navigation unit • The wrong colored DVD or version installed • The DVD is damaged or dirty
Various error messages (except DVD read error)	See error message table (see page 23-125)	
Navigation system will not go beyond the disclaimer screen and displays the OK button	See Hard Key check of diagnostic screen Check (see page 23-113)	<ul style="list-style-type: none"> • The wrong colored DVD or version installed • The DVD is damaged or dirty • Audio-navigation unit
The navigation anti-theft code card is lost or missing	See anti-theft feature (see page 23-75)	
The vehicle icon lags behind when the vehicle turns	See self-inertial navigation limitations (see page 23-75)	<ul style="list-style-type: none"> • Aftermarket accessories connected to the system • GPS antenna/cable • Aftermarket metallic window tint
Navigation screen is darker than normal or takes time to brighten when it is cold	See LCD unit limitations (see page 23-76)	Compare to a known-good vehicle
The navigation clock is off by 1 to 3 hours after replacing the audio-navigation unit	See service precautions (see page 23-77)	<ul style="list-style-type: none"> • Do map matching (see page 23-78) • GPS antenna/cable • Aftermarket metallic window tint • Check and adjust the clock settings
A new navigation DVD is needed	See obtaining a navigation DVD (see page 23-78)	
Time is not correct	<ul style="list-style-type: none"> • Reset Time Adjustment in set-up • See service precautions (see page 23-77) • See navigation system owner's manual 	<ul style="list-style-type: none"> • The wrong colored DVD or version is installed • Reset Time Adjustment in set-up • A defective GPS receiver in the audio-navigation unit
The DVD is scratched or dirty	<ul style="list-style-type: none"> • See DVD Handling and Cleaning (see page 23-79) • See how to identify navigation DVD versions, and how inspect a DVD for damage (see page 23-80) 	Audio-Navigation unit
The wrong DVD was installed and now the system does not function properly	<ul style="list-style-type: none"> • See Precaution customer Sneak Previews (see page 23-81) • See how to identify navigation DVD versions, and how inspect a DVD for damage (see page 23-80) 	<ul style="list-style-type: none"> • Install the correct version DVD • Check any official Honda service website for service bulletins or other service information for the navigation system

(cont'd)

Navigation System - '09-11 models

Symptom Troubleshooting Index (cont'd)

Symptom	Diagnostic procedure	Also check for
A POI cannot be found	See how to answer customer questions about navigation coverage (see page 23-81)	<ul style="list-style-type: none">• The DVD is scratched or dirty• The database may be out of date. Confirm the POI exists in a current production vehicle
A specific city cannot be found	See how to answer customer questions about navigation coverage (see page 23-81)	<ul style="list-style-type: none">• The DVD is scratched or dirty• The database may be out of date. Confirm the address exists in a current production vehicle
The Acura Globe Screen (not the Honda Globe Screen) appears every time the vehicle is started	<ul style="list-style-type: none">• Symptom troubleshooting (see page 23-151)• See how to identify navigation DVD versions, and how inspect a DVD for damage (see page 23-80)	Also see the symptom the wrong DVD was installed and now the system does not function properly
Audio-navigation unit will not eject or accept the navigation DVD	Symptom troubleshooting (see page 23-152)	





System Description

Overview

The navigation system is a highly-sophisticated, hybrid locating system that uses satellites and a map database to show you where you are and to help guide you to a desired destination.

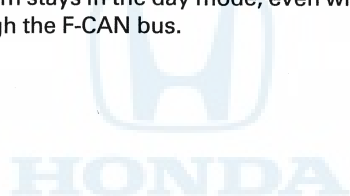
The navigation system receives signals from the global positioning system (GPS), a network of 24 satellites in orbit around the earth. By receiving signals from several of these satellites, the navigation system can determine the latitude, longitude, and elevation of the vehicle. In addition, signals from the system's yaw rate sensor and the ECM/PCM (vehicle speed pulse) enable the system to keep track of the vehicle's direction and speed of travel.

This hybrid system has advantages over a system that is either entirely self-contained or one that relies totally on the GPS. For example, the self-contained portion of the system can keep track of vehicle position even when satellite signals cannot be received like when you are driving through a tunnel. When the navigation system is on, the GPS can keep track of the vehicle position even when the vehicle is transported by ferry.

The navigation system applies all location, direction, and speed information to maps and calculates a route to the destination entered. As you drive to that destination, the system provides both visual and audio guidance.

This navigation system also has voice recognition that allows voice control of most of the navigation functions. The Navigation TALK and Navigation BACK buttons on the steering wheel activate the voice control. The voice control also allows control of the audio and climate functions.

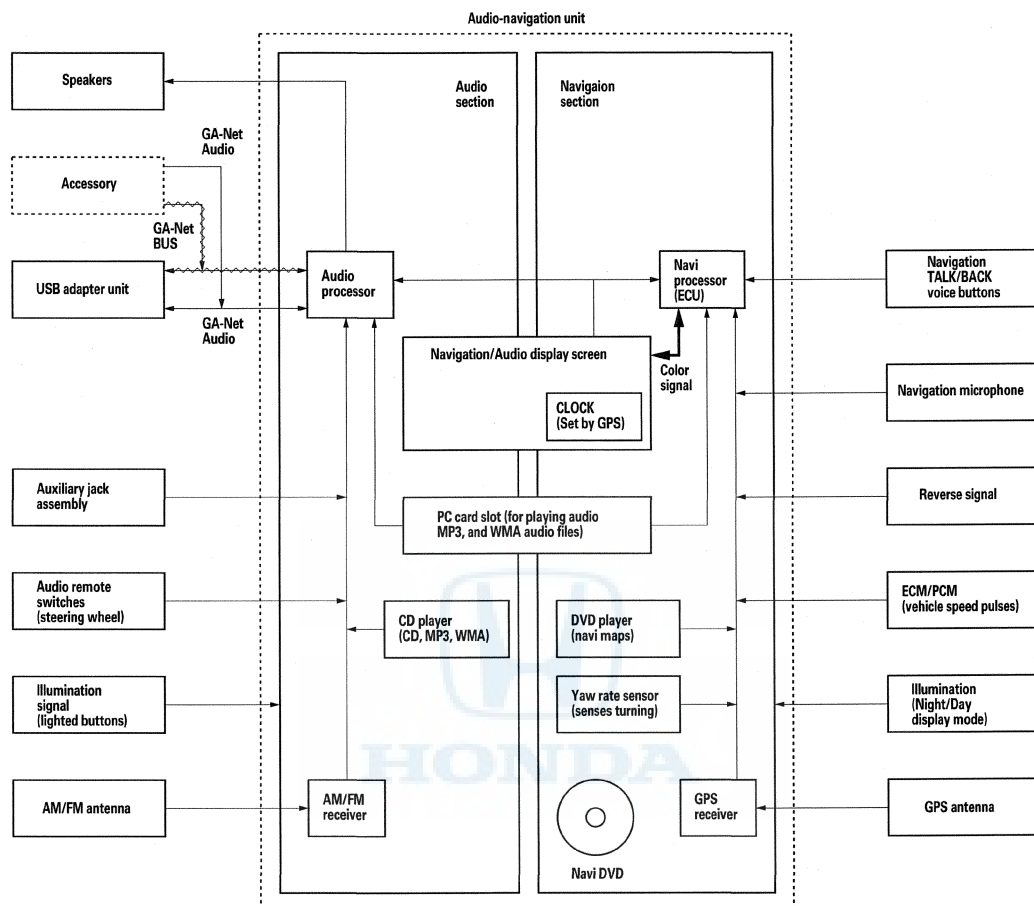
The illumination signal (dashboard brightness setting) is used by the audio-navigation unit to automatically switch the display between Night and Day brightness modes. When the gauge control module brightness control is set to max brightness, the audio-navigation system stays in the day mode, even with the headlights on. The max brightness signal is passed to the navigation unit through the F-CAN bus.



(cont'd)

Navigation System - '09-11 models

System Description (cont'd)



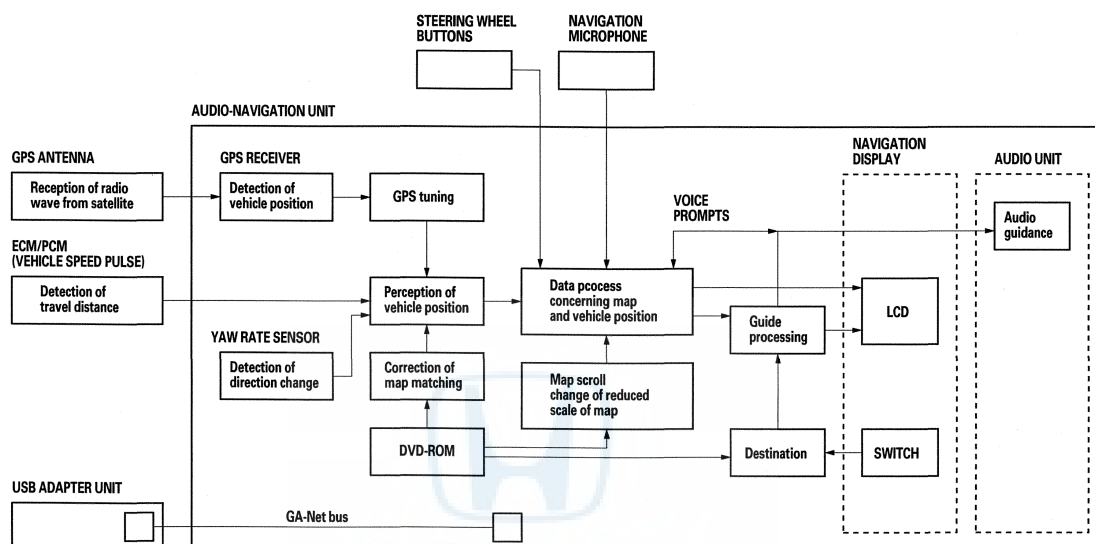


Navigation Function

The navigation system is composed of the audio-navigation unit, the ECM/PCM (vehicle speed signal), the GPS antenna, the microphone, and the voice control switch.

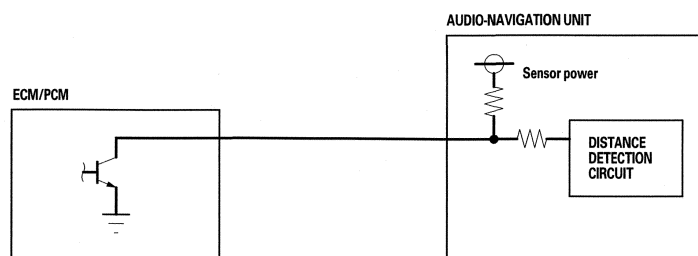
The USB adapter communicates with the audio-navigation unit on the GA-Net bus.

Function Diagram



Vehicle Speed Pulse

The vehicle speed pulse is sent by the ECM/PCM. The ECM/PCM receives a signal from the countershaft speed sensor, then it processes the signal and transmits it to the speedometer and other systems.



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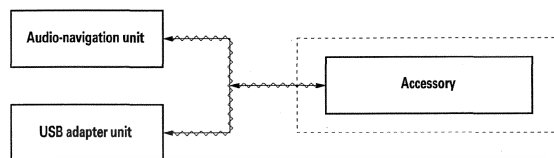
Navigation System - '09-11 models

System Description (cont'd)

GA-Net Bus Configuration

The GA-Net bus passes accessory and USB commands to the navigation unit.

Because the entire bus is daisy-chained between components (see diagram), any open or short in the GA-Net bus harness will cause any or all of these functions to become inoperative. The addition of any factory audio accessory must maintain the continuity of the GA-Net bus. If the accessory comes with a Y cable, make sure it is installed.





Yaw Rate-Lateral Acceleration Sensor

The yaw rate-lateral acceleration sensor (located in the audio-navigation unit) detects the direction change (angular speed) of the vehicle. The sensor is an oscillation gyro built into the audio-navigation unit.

Sensor Element Structure

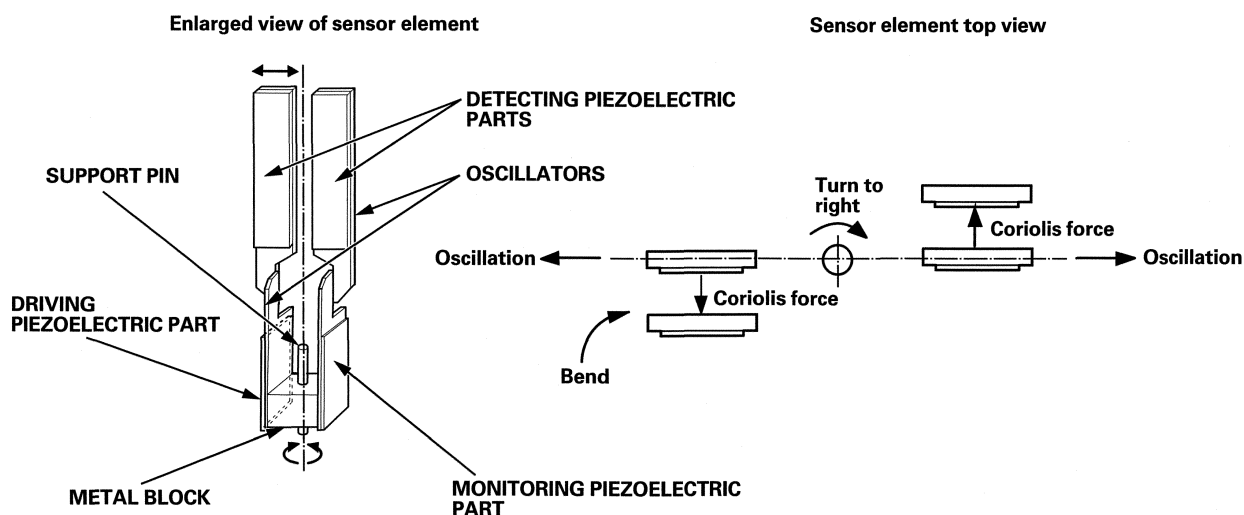
The sensor element is shaped like a tuning fork, and it consists of the piezoelectric parts, the metal block, and the support pin. There are four piezoelectric parts: one to drive the oscillators, one to monitor and maintain the oscillation at a regular frequency, and two to detect angular velocity. The two oscillators, which have a 90-degree twist in the center, are connected at the bottom by the metal block and supported by the support pin. A detection piezoelectric part is attached to the top of each oscillator. The driving piezoelectric part is attached to the bottom of one oscillator, and the monitoring piezoelectric part is attached to the bottom of the other oscillator.

Oscillation Gyro Principles

The piezoelectric parts have electric/mechanical transfer characteristics. They bend vertically when voltage is applied to both sides of the parts, and voltage is generated between both sides of the piezoelectric parts when they are bent by an external force. The oscillation gyro functions by utilizing this characteristic of the piezoelectric parts and Coriolis force. (Coriolis force deflects moving objects as a result of the earth's rotation.) In the oscillation gyro, this force moves the sensor element when angular velocity is applied.

Operation

1. The driving piezoelectric part oscillates the oscillator by repeatedly bending and returning when an AC voltage of 6 kHz is applied to the part. The monitoring-side oscillator resonates because it is connected to the driving-side oscillator by the metal block.
2. The monitoring piezoelectric part bends in proportion to the oscillation and outputs voltage (the monitor signal). The audio-navigation unit control circuit controls the drive signal to stabilize the monitor signal.
3. When the vehicle is stopped, the detecting piezoelectric parts oscillate right and left with the oscillators, but no signal is output because the parts are not bent (no angular force).
4. When the vehicle turns to the right, the sensor element moves in a circular motion with the right oscillator bending forward and the left oscillator bending rearward. The amount of forward/rearward bend varies according to the angular velocity of the vehicle.
5. The detecting piezoelectric parts output voltage (the yaw rate signal) according to the amount of bend. The amount of vehicle direction change is determined by measuring this voltage.



(cont'd)

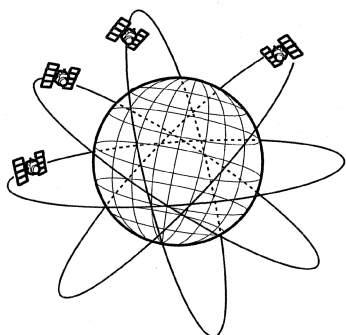
Navigation System - '09-11 models

System Description (cont'd)

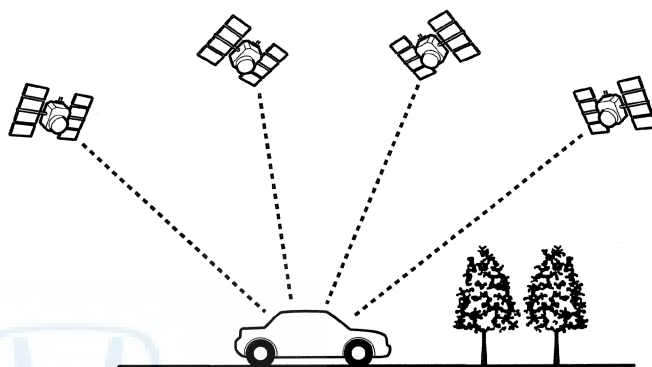
Global Positioning System (GPS)

The global positioning system (GPS) enables the navigation system to determine the current position of the vehicle by using the signals transmitted from the satellites in orbit around the earth. The satellites transmit the satellite identification signal, orbit information, transmission time signal, and other information. When the GPS receiver receives a signal from four or more satellites simultaneously, it calculates the current position of the vehicle based on the distance to each satellite and the satellite's position in its respective orbit.

Position detection Image with GPS satellite



NOTE: Four satellites on each of 6 orbits.



Precision of GPS

The precision of the GPS varies according to the number of satellites from which signals are received and the view of the sky. The accuracy is indicated by the color of the GPS icon shown on the display.

GPS ICON COLOR	NUMBER OF SATELLITES	CONDITION	DESCRIPTION
No GPS icon	None	Faulty reception	The GPS can't be utilized due to a faulty GPS receiver, open in the wire, or other fault or interference.
	2 or less	Impossible to detect vehicle position	GPS function is normal. The satellite signals received by the GPS are too few to detect the vehicle position.
White GPS icon	3	Vehicle position detectable in 2 dimensions	The longitude and latitude of the vehicle position can be detected. (Less precise than detection in three dimensions)
Green GPS icon	4 or more	Vehicle position detectable in 3 dimensions (elevation displayed)	The longitude, latitude and the altitude of the vehicle position can be detected. (More precise than detection in two dimensions)

GPS Antenna

The GPS antenna amplifies and transmits the signals received from the satellites to the GPS receiver.

GPS Receiver and Clock

The GPS receiver is built into the audio-navigation unit. It calculates the vehicle position by receiving the signal from the GPS antenna. The current time, vehicle position and signal reception condition is transmitted from the GPS receiver to the navigation control unit to adjust vehicle position.



Audio-Navigation Unit

The audio-navigation unit calculates the vehicle position and guides you to the destination. The unit performs map matching correction, GPS correction, and distance tuning. It also controls the menu functions and the DVD-ROM drive, and interprets voice commands. With control of all these items, the audio-navigation unit makes the navigation picture signal, then it transmits the signal to the display panel and audio driving instructions to the audio section of the audio-navigation unit.

Calculation of Vehicle Position

The audio-navigation unit calculates the vehicle position (the driving direction and the current position) by receiving the directional change signals from the yaw rate sensor and the travel distance signals from vehicle speed pulse (VSP) signal of the ECM/PCM.

Map Matching Tuning

The map matching tuning is accomplished by indicating the vehicle position on the roads on the map. The map data transmitted from the DVD-ROM is checked against the vehicle position data, and the vehicle position is indicated on the nearest road. Map matching tuning does not occur when the vehicle travels on a road not shown on the map, or when the vehicle position is far away from a road on the map.

GPS Tuning

The GPS tuning is accomplished by indicating the vehicle position as the GPS's vehicle position. The audio-navigation unit compares its calculated vehicle position data with the GPS vehicle position data. If there is large difference between the two, the indicated vehicle position is adjusted to the GPS vehicle position.

Distance Tuning

The distance tuning reduces the difference between the travel distance signal from the VSP and the distance data on the map. The audio-navigation unit compares its calculated vehicle position data with the GPS vehicle position data. The audio-navigation unit then decreases the tuning value when the vehicle position is always ahead of the GPS vehicle position, and it increases the tuning value when the vehicle position is always behind the GPS vehicle position.

DVD-ROM

The map data (including all scale rates) is stored in the DVD-ROM. The map data includes:

- Road distances, road widths, speed limits, traffic regulations, passing time at junction, distances to junctions, and the driving instructions for audio guidance.
- Latitude and longitude GPS.

Route Guidance

The audio-navigation unit can calculate different routes to a selected destination. You have five options:

- Direct Route—Calculate a route that is the most direct.
- Easy Route—Calculate a route that minimizes the number of turns needed.
- Minimize Freeways—Calculate a route that avoids freeway travel. If that is not possible, keep the amount of freeway travel to a minimum. This is not selectable (button grayed out) for trips greater than 100 miles.
- Minimize Toll Roads—Calculate a route that avoids, or minimizes travel on toll roads. This is not selectable (button grayed out) for trips greater than 100 miles.
- Maximize Freeways—Calculate a route that uses freeways as much as possible.

Audio Guidance

The audio-navigation unit transmits audio driving instructions before entering an intersection or passing a junction. The audio instructions come through the audio unit to the front speakers.

NOTE: The front speakers are muted whenever the navigation system is giving guidance commands, and all of the speakers when the voice control system is being used.

Off Road Tracking (bread-crumbs)

Off road tracking dots that can be followed on the map retrace your route back to a mapped (digitized) road.

Clock and Time Zone

The clock set up allows you to set daylight savings time, auto time zone and time adjustment.

(cont'd)

Navigation System - '09-11 models

System Description (cont'd)

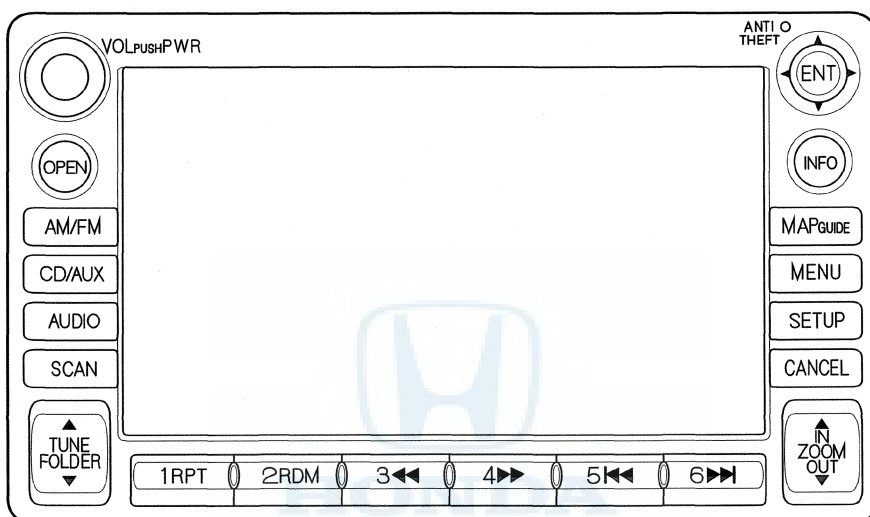
Audio Unit (Built in the audio-navigation unit)

The audio unit receives the audio driving instructions from the audio-navigation unit, and transmits the instructions through the front speakers even when the audio system is in use.

NOTE: If the navigation volume and/or voice feed back is turned OFF, this feature is disabled.

Navigation Display

The navigation display uses a liquid crystal display (LCD). The LCD is a 6.5-inch-diagonal, thin film transistor (TFT), stripe type with 65,536 colors. The color film and fluorescent light are laid out on the back of the liquid crystal film. The touch sensor on the front of the LCD consists of a touch sensitive resistive membrane with many possible touch locations.



Microphone (Mic)

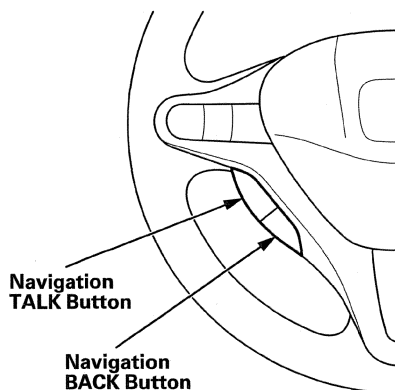
The microphone (on the ceiling, near the front map light) receives voice commands and transmits them to the audio-navigation unit for interpretation.

Navigation TALK Button

Activates the voice control system in the audio-navigation unit to accept voice commands.

Navigation BACK Button

Returns the display to the previous screen (similar function as the CANCEL button).





Glossary

The following is a glossary of terms pertaining to the voice recognition navigation system. All items may not apply to this vehicle. See the navigation system manual for more information.

Item	Definition
ANC (Active Noise Cancellation)	See audio section.
B-CAN	Body CAN Bus (see CAN)
Bread-crumbs (White dots)	Off road tracking dots that can be followed on the map to retrace your route back to a mapped (digitized) road. This function can be turned on/off in Setup screen 1.
CAN	Controller Area Network. This communication network allows processors in the vehicle to send/receive information. The fuel pulses used by the MID trip computer are received from the ECM/PCM using the F-CAN (Fast Controller Area Network) bus.
CPU	Central Processing Unit. The main device within the audio-navigation unit that coordinates the rest of the electronic functions.
CSS	Countershaft (Output) Speed Sensor. This sensor reads the output shaft speed at the transmission and provides a speed pulse to the ECM/PCM.
Database	This consists of the Map data, and the POI (Points Of Interest) data stored on the DVD.
DBW	Drive By Wire. Allows electrical control of the throttle without the need of a mechanical linkage.
DCA	Detailed Coverage Area. Main metropolitan areas in the Lower 48 states, and Canada are mapped to this level. See the navigation system manual for a list of these areas.
DTC	Diagnostic Trouble Codes. Use the PGM Tester, or HDS tablet to obtain, and troubleshoot the cause of these codes.
Dead Reckoning	The use of the speed signal, and yaw rate sensor to position the vehicle on the map even when tall buildings, or driving in a tunnel obscures the GPS signal.
Digitized Road	A road that appears on the navigation screen. The road name will appear at the bottom of the navigation screen. If the user drives off road the navigation system displays "Not on a digitized road", and after 1/2 mile, the bread-crumbs appear.
Disclaimer Screen	Screen containing cautionary information. It is meant to be read carefully, and acknowledged by the customer when using the navigation system.
DVD or DVD-ROM	Digital Versatile Disc. The navigation program and database resides on this disc. See the navigation system manual for information on how to order a replacement or an update DVD.
Dynamic Route Guidance	Uses real-time traffic to change your driving route to help avoid extended traffic delays and incidents. Requires a data package subscription.
ECM	Engine Control Module. Typically referred to as the ECM.
FAQ	Frequently Asked Questions. See the navigation system manual for a list of the customer FAQs, and troubleshooting information.
F-CAN	Fast CAN Bus (see CAN)
GA-Net	The GA-Net allows the audio unit to communicate with all the audio and navigation components in a vehicle. If there is an open in the GA-Net, components or the entire audio and navigation system may appear inoperative.
GPS	Global Positioning System. A network of 24 satellites in orbit around the earth. The navigation system can simultaneously receive signals from up to 12 satellites to accurately position the vehicle on the map.
HDD	Hard disc drive. Some navigation systems use an HDD navigation system that does not use a navigation DVD, but uses a hard drive to contain the navigation software. Can be updated with a CD, DVD, or USB. See the Navigation System Manual for more information.
HDS	Honda Diagnostic System. A hand held tablet PC used for in diagnosing vehicle problems. This device can be used to obtain DTC codes for diagnosis of the navigation system and CAN related problems.
H/U	Head Unit. The navigation system display assembly in the dash.

(cont'd)

Navigation System - '09-11 models

System Description (cont'd)

Item	Definition
Initialization	This refers to the period needed to re-acquire the GPS satellite orbital information whenever the navigation system power has been disconnected. This can take from 10 to 45 minutes.
Interface Dial	This control device consists of a rotating knob and the buttons surrounding it. This device allows control of the navigation, audio, and climate functions displayed on the screen.
Jog Dial	See interface dial.
LCD	Liquid Crystal Display (the navigation screen)
Map Matching	The received GPS information allows the navigation system to position the vehicle on the map. Map matching has occurred if the map screen displays the current street name in the bottom-shaded area.
Mic	Abbreviation for the microphone used for receiving voice commands. The ANC unit may also use it to check its tuning (if equipped). It is located near the map light in the ceiling.
MID	Multi-Information Display
MW	Maneuver Window. While on-route to a destination, this window displays information about the next maneuver.
Navi	Abbreviation for the Navigation System.
Off-Road Tracking	See Bread-crumbs
Off Route	This occurs when the user leaves mapped roads. Off road tracking dots (bread-crumbs) are displayed if the option is enabled in the setup menu. The user can use them to return to a mapped road. The bottom of the navigation screen displays "Not on a digitized road"
Outlying Areas	These are rural areas that typically have only their main roads mapped. All other roads are shown in light brown for reference only, since they have not been verified.
PC Card Slot	The PC Card (PCMCIA, type II) slot is for factory use only on some models. Make sure that the sliding door is closed at all items, if opened, an error message is displayed on the screen (if equipped). On other models, the PC card slot allows the audio unit to play MP3 or WMA formatted files.
PCM	Powertrain Control Module. This unit supplies the navigation system speed signal, and charge signal via the F-CAN network. Also referred to as ECM.
PCMCIA	A computer industry defined term referring to the PC Card slot standard.
PIN	Personal Identification Number, a random 4 digit number created by the customer to protect personal information.
POI	Point Of Interest. These are the businesses, schools, etc. found under the places option on the main menu.
Polygon	Colored areas on the map screen denoting parks, schools, etc. Refer to the navigation system manual "Driving to Your Destination" for a list of the assigned colors.
QWERTY	Keyboard layout resembling the typewriter keys. The keyboard layout can be changed to an alphabetical layout in the Setup mode.
SD Module	The navigation program and database resides on this module. See the navigation system manual for information on how to order a replacement or an update for the SD module.
Security Code	Code needed to activate the navigation system. You can get the security code from the iN by entering the audio-navigation unit serial number. You can find the serial number on the diagnostic screens (Unit Check, Navi ECU) or on the underside of the audio-navigation unit.
Touch Screen Buttons or Touch Sensor	The display panel has two layers of clear film on the screen panel. If you touch the screen panel, the film layers engage and the navigation display detects the touch point.
Tuning	A continual update of internal navigation system scaling factors. See the individual sensor tuning discussions under either System Description, or System Diagnostic Mode (see page 23-107) in this manual.



Item	Definition
Unverified Streets	These streets have not been verified for turn restrictions, one-way, etc. They appear light brown on the map. You can enter address destinations in these areas, but depending on your Unverified Routing choice in setup, voice guidance may end at the last verified street closest to your destination.
USB jack	See USB port.
USB port	Allows the customer to play data such as input audio recording from portable audio devices (such as i-pod) or data from USB flash memory.
Verified Streets	These streets consist of the detailed metropolitan coverage areas, and all other inter-town connection roads. These roads are shown in black on the map.
VP	Vehicle Position. When in map mode, this circular icon shows the vehicle position on the map. Touch this icon to show the latitude, longitude, and elevation of your current position.
VR	Voice Recognition. This allows voice control of many of the navigation functions. The hardware consists of the microphone, voice control switch (navigation TALK/BACK buttons), and the front speakers. See the overview for more information.
VSP	Vehicle Speed Pulse. This pulse signal coming from the ECM/PCM (via the CSS) is used to update the vehicle position on the map. These pulses do not indicate direction (forward or backward). When in reverse, the navigation receives a signal and directs the VP to move backwards on the map.
Yaw Sensor	This device is located in the audio-navigation unit and senses the side-to-side twisting force generated when the vehicle turns. See a detailed description of how this sensor works in this manual.



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Navigation System - '09-11 models

System Description (cont'd)

Diagnostic System Diagram

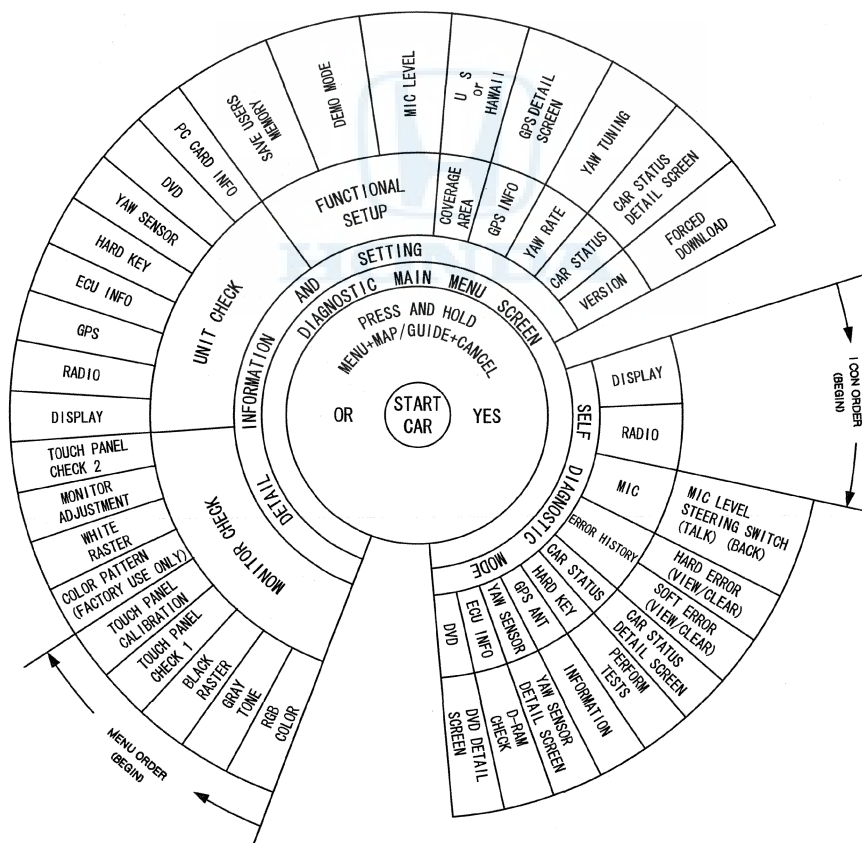
This diagram below shows all of the navigation diagnostic features available for system troubleshooting. The diagram starts at the center, and works outward in layers.

Access to the diagnostic features begins by starting the vehicle. This is necessary so the system can check the other systems connected by various busses. After starting the vehicle you can enter the diagnostic mode either by pressing and holding MENU + MAP/GUIDE + CANCEL.

The main menu screen allows two checking modes - one automatic, and one manual:

- The automatic diagnostic check starts when you select SELF DIAGNOSTIC MODE. The system runs for several seconds, and reports any issues with Red icons. Use the joystick or touchscreen and select the icon you wish to obtain the problem details.
- The manual diagnostic check is selected from the main menu by selecting DETAIL INFORMATION AND SETTING. The traditional diagnostic menu is displayed. This allows you to obtain additional details as instructed in the troubleshooting procedures.

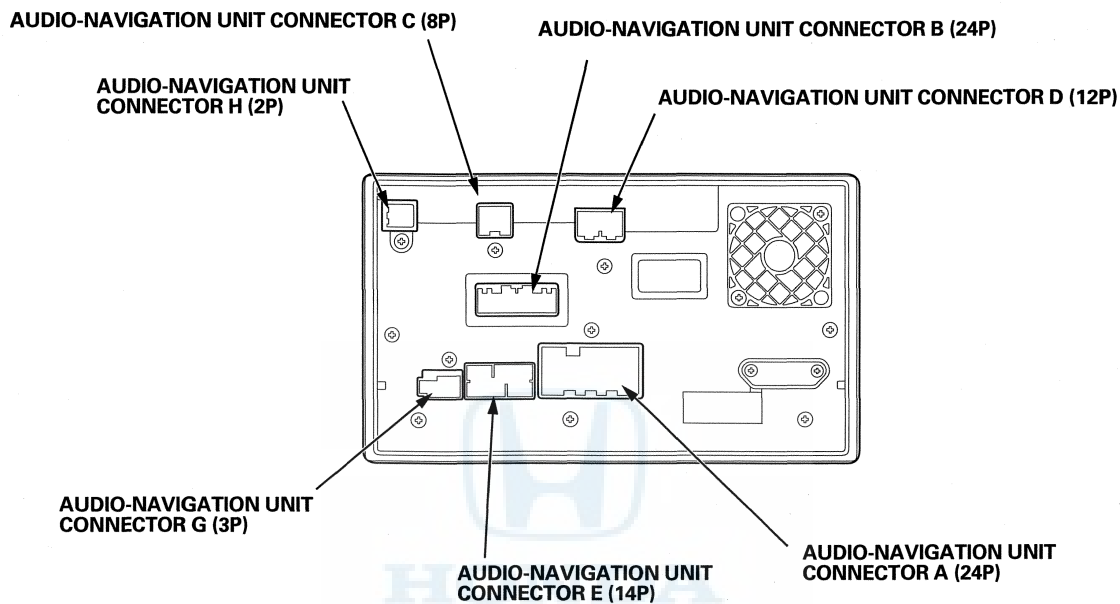
NOTE: Do not clear or change settings unless specified by either the Service Manual troubleshooting procedures or by the factory. Otherwise, you may accidentally delete customer information, or remove the latest flash software version installed by the factory.





Navigation System Connector Location

NOTE: Refer to the audio section for the connector B, E, and G input and outputs (see page 23-11).

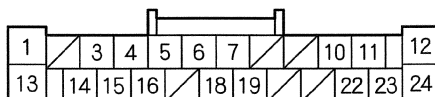


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Navigation System - '09-11 models

System Description (cont'd)

Audio-navigation Unit Inputs and Outputs for Connector A (24P)



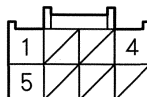
Wire side of female terminals

Audio-navigation Unit Connector A (24P)

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	RED	ILL (—)	Ground for illumination light	With full dash lights brightness, 0 V	If open: When brightness = Auto, night mode for the display is inoperative when lights on. If short to ground: No change to display.
12	BLK	RADIO GND (Ground)	Ground for display unit	0 V	If open: When brightness = Auto, night mode for the display is inoperative when lights on. If short to ground: No change to display.
13	GRY	ILL (+) (Illumination positive)	Parking light on signal from dash and console lights, under-dash fuse/relay box	Light on = battery voltage, Lights off = 0 V	If open: When brightness = Auto, night mode for the display is inoperative when lights on. If short to ground: Blows fuse No. 29 (10 A) in under-dash fuse/relay box.
15	BLU	VSP (Vehicle speed pulse)	Vehicle speed pulse signal from ECM/PCM	Pulses: 0—5 V: Average 2.5 V, when moving	If open: No vehicle speed pulses. Diagnostic screen Car Status, VSP Navi = 0. If short to ground: No vehicle speed pulses. Diagnostic screen Car Status, VSP Navi = 0.
24	PNK	+B (+B power source)	Continuous power source	Battery voltage	If open: Screen completely off (no backlight visible). If short to ground: Blows fuse No. 1 (10 A) in the under-dash fuse/relay box.



Audio-navigation Unit Inputs and Outputs for Connector C (8P)



Wire side of female terminals

Audio-navigation Unit Connector C (8P)

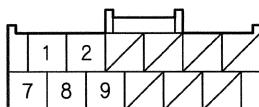
Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	PNK	+B BACK UP	Continuous power source	Battery voltage	If open: Display picture goes out (display back light still on). NOTE: System will reboot to enter code screen. If short to ground: Blows fuse No. 1 (10 A) in the under-dash fuse/relay box.
4	BLK	GND	Ground for audio-navigation unit	0 V	If open: No effect on system. If short to ground: No effect on system.
5	GRN	BACK LT—	Reverse signal of select lever from multiplex integrated control unit (A/T)	In reverse, battery voltage: Otherwise 0 V	If open: Navigation never sees the reverse signal when in reverse. Diagnostic screen Car Status, Back = 0. If short to ground: Blows fuse No. 1 (10 A) in the under-dash fuse/relay box.

(cont'd)

Navigation System - '09-11 models

System Description (cont'd)

Audio-navigation Unit Inputs and Outputs for Connector D (12P)



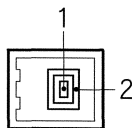
Wire side of female terminals

Audio-navigation Unit Connector D (12P)

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	GRN	STRG SW	Steering wheel switch output	4–5 V (navigation TALK button pressed) 2.5–3 V (navigation BACK button pressed)	If open: Steering wheel navigation TALK, and navigation BACK switch/buttons do not work. If short to ground: Steering wheel navigation TALK, and navigation BACK switch/buttons do not work.
2	RED	SW/MIC ADPT	Control signal for microphone	0 V	If open: No effect on voice recognition If short to ground: No effect on voice recognition.
7	PUR	MIC GND	Ground for microphone signal	0 V	If open: No microphone signal shown in diagnostic: "Navi System Link" and Functional Setup "Mic Level". If short to ground: No effect on voice recognition.
8	LT GRN	MIC SIG	Microphone output signal positive	4–5 V (with navigation TALK button pressed)	If open: No microphone signal shown in diagnostic screens: "Navi System Link" and Functional Setup "Mic Level". If short to ground: No microphone signal shown in diagnostic screens: "Navi System Link" and Functional Setup "Mic Level".
9	GRY	MIC SH GND	Shield for terminal No. 5, 11, 12	0 V	If open: No effect on voice recognition. If short to ground: No effect on voice recognition.



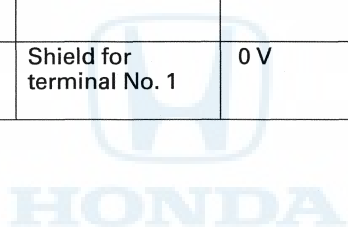
Audio-navigation Unit Inputs and Outputs for Connector H (2P)



Terminal side of female terminals

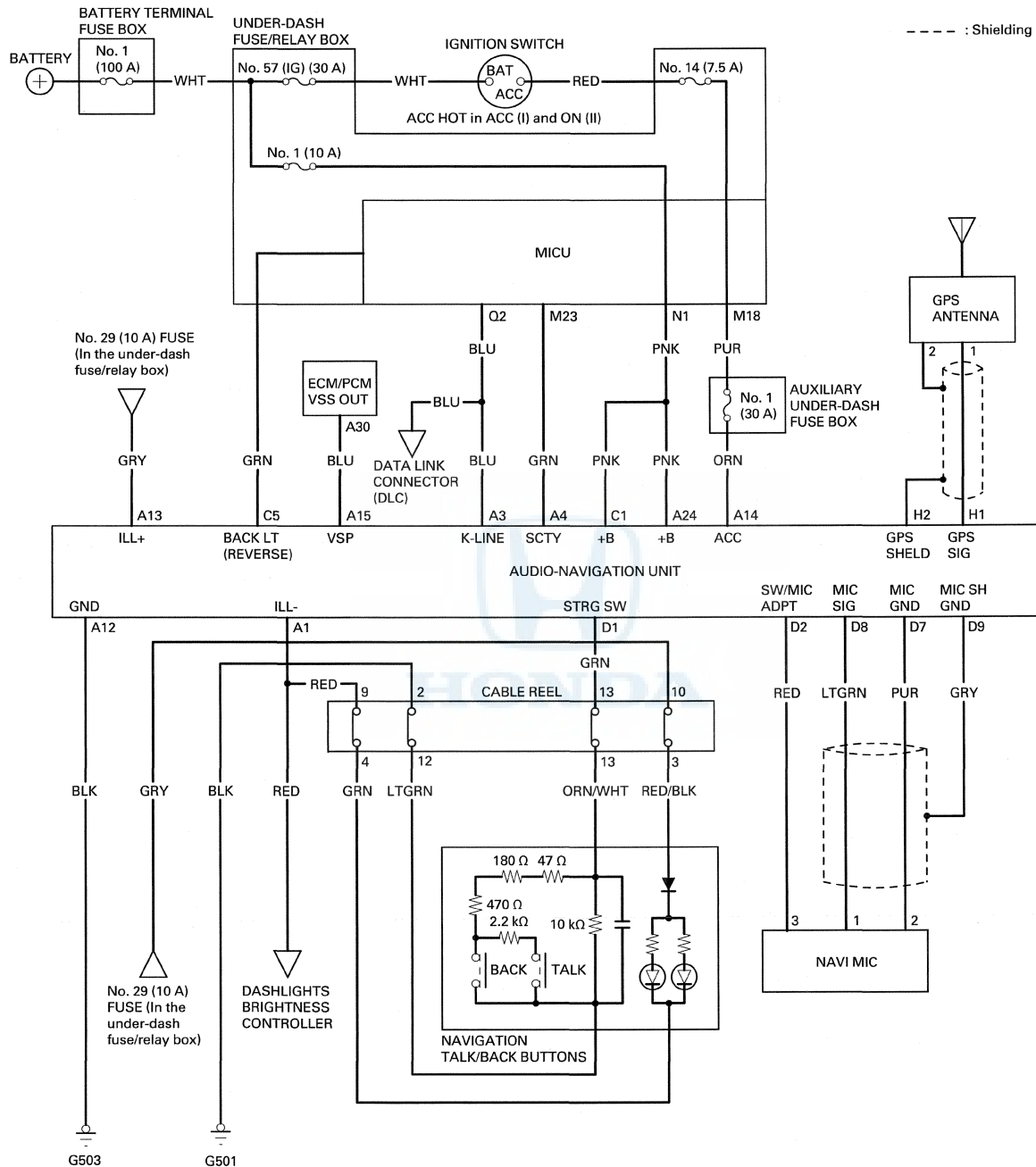
Audio-navigation Unit Connector H (2P)

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	—	GPS	GPS signal (5 V in, GPS signal out)	5 V	If open: GPS icon on screen is white, system links screen ANT shows NG. If short to ground: GPS icon on screen is white, system links screen ANT shows NG.
2	—	GPS SH	Shield for terminal No. 1	0 V	If open: GPS icon on screen is white, system links screen ANT shows NG. If short to ground: No effect on system.



Navigation System - '09-11 models

Circuit Diagram





System Diagnostic Mode

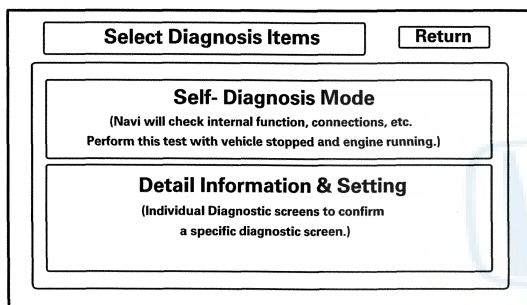
Start-up Procedure and Diagnostic Menu

Start the vehicle, and at the map screen use the navigation unit hard buttons as described:

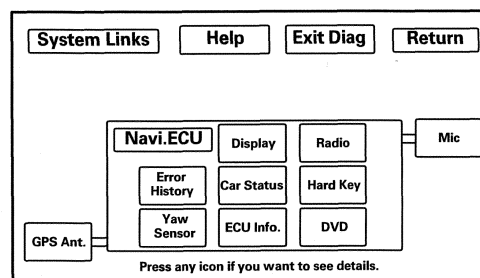
NOTE: If the map screen does not show, refer to GPS initialization (see page 23-77).

Press and hold the MAP/GUIDE, MENU, and CANCEL buttons for about 3 seconds. The display screen goes directly to the Select Diagnosis Items menu shown below.

- Self-Diagnosis Mode (runs the automatic diagnosis of the navigation system)
- Detail Information & Setting (allows you to manually diagnose the navigation system)



From the Select Diagnosis Items menu, select the Self-Diagnosis Mode. The screen changes to the System Links screen, and automatically begins running the self diagnostic. See the System Links section for more information.



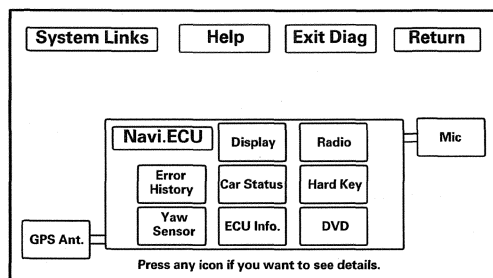
(cont'd)

Navigation System - '09-11 models

System Diagnostic Mode (cont'd)

System Links

1. Enter this screen by selecting Self-Diagnosis Mode from the Select Diagnosis Items menu. The message at the bottom of the screen flashes indicating the diagnostic is running.



2. Select the icon you want to diagnose, then select or view the details of that diagnostic function.

The System Links function runs automatically. The diagnostic tests the following:

- Most of the wires connecting the navigation components are shown in the block diagram.
- The results from the various components shown in the block diagram.
- The microphone is tested by listening to the bong sound produced by the audio-navigation unit from the speakers when the diagnostic is started. This requires that the audio system be operating normally.

When the diagnostic finishes, the icons turn different colors based on their test status. The color definitions are shown following, and can also be seen by selecting Help on the System Links screen.

The indication on the screen may not change until you exit and reenter the Self-Diagnosis mode. In some cases, you may have to restart the engine for the indication to change. After you repair the affected component or harness, repeat this diagnostic.

Each icon color is explained in the table.

Icon Colors	Description
Green	The system ran a diagnosis, and the results are OK.
Red	Errors that require replacement of hardware or harness. Examples are connection error or memory diagnosis errors. Troubleshoot for DTCs.
Yellow	Errors that do not require hardware replacement, such as an incorrect DVD.
White	The diagnosis is running. The screen functions are locked out while the diagnosis runs.
Gray	The system cannot automatically check this function. You have to select the diagnosis item and manually do additional testing, like checking the navigation buttons in the Hard Key test. When you complete the Hard Key test and return to the System Links menu, the gray icon turns green.

NOTE: By selecting the HELP icon, you can see a description for each color.



Icon Color Information

Icon	Icon Color				
	GREEN	RED	YELLOW	WHITE	GRAY
Display	Result of "Connection" under the "Display" diagnosis menu is OK.	Result of "Connection" under the "Display" diagnosis menu is NG.	_____	Executing (Not completed)	_____
Radio	Result of "Connection" under the "Radio" diagnosis menu is OK.	Result of "Connection" under the "Radio" diagnosis menu is NG.	_____	Executing (Not completed)	_____
GPS Ant.	All results of "Antenna" and "Receiver in NAVI ECU" are OK.	Any result of "Antenna" and "Receiver in NAVI ECU" is NG.	_____	Executing (Not completed)	_____
Mic	The microphone detects the sound "Pi-Pi-Pon" at the system link menu.	The microphone could not detect the sound "Pi-Pi-Pon" at the system link menu.	_____	Executing (Not completed)	_____
ECU Info.	Both V-RAM or D-RAM is OK, and all "Program Flash", "Serial No.", "Model" are available, and the DVD lid is closed.	Either the V-RAM or D-RAM is NG, or any of the "Program Flash", "Serial No.", "Model" is unavailable.	DVD lid is opened	Executing (Not completed)	_____
Hard Key	All buttons are pressed and are detected under "Hard key" menu.	All buttons are not pressed or pressed but not detected under "Hard key" menu, or exit from "Hard key" menu without the button not detected.	_____	_____	Until changing to "Hard key" menu.
Error History	_____	_____	"Hard Error" or "Soft Error" is detected under "Error History" menu.	Executing (Not completed)	"Hard Error" or "Soft Error" is not detected under "Error History" menu.
DVD	DVD mechanism is normal and the proper DVD is installed.	_____	Improper DVD is installed, or DVD is not installed, or cannot identify software version from the DVD or internal mechanism failure.	Executing (Not completed)	_____
Yaw Sensor	Result of the "Yaw Sensor" diagnosis menu is OK.	Result of the "Yaw Sensor" diagnosis menu is NG.	Result of the "Zero Point Output" under the "Yaw Sensor" diagnosis menu is NO CHECK.	Executing (Not completed)	_____
Car Status	_____	_____	_____	_____	Check these systems manually.

(cont'd)

Navigation System - '09-11 models

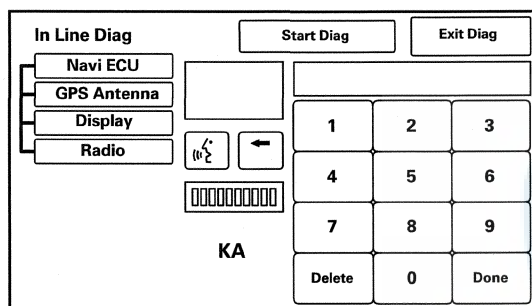
System Diagnostic Mode (cont'd)

Factory diagnostic screen In Line Diag

NOTE: If the vehicle left the factory in the factory diagnostic mode or if the audio-navigation unit is replaced, you will see this screen every time you turn on the ignition.

When a navigation control unit is powered up for the first time at the factory or after replacement with a new or remanufactured audio-navigation unit, the factory diagnosis screen (In Line Diag) appears. Normally the factory does the steps necessary to verify proper operation and terminate the factory diagnostic.

Until the proper confirmation sequence is done, the screen appears every time the vehicle is started.



Follow the steps below to prevent the screen from showing up in the future:

- Press and hold the MENU, MAP/GUIDE, and CANCEL buttons for about 3 seconds. The Select Diagnosis items screen appears.
- Press and hold the MAP/GUIDE button for about 5—10 seconds. A screen with a Complete button appears.
- Press complete, then Return, and then shut the key off for 5 seconds. Do not disconnect the battery during this period as the unit is saving the setting to the SRAM memory. The In Line Diag should not appear again.
- Restart the vehicle, and confirm normal operation by completing the TQI of the Navigation System Service Bulletin.

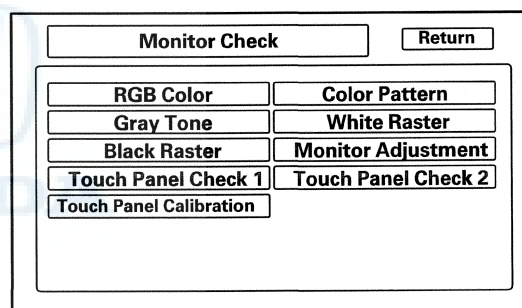
Monitor Check

Overview of navigation display

The illumination input from the gauge brightness control provides back lighting for the buttons surrounding the screen.

These screens allow you to troubleshoot the navigation display. Select the item you want to troubleshoot, and follow the diagnostic instructions.

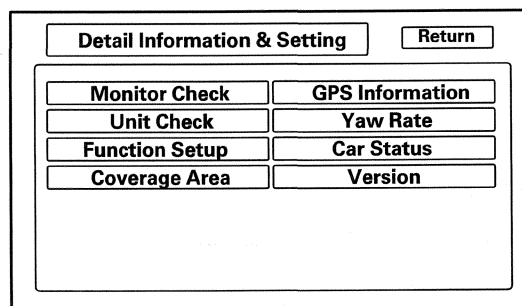
- RGB Color
- Gray Tone
- White Raster
- Black Raster
- Color Pattern
- Monitor Adjustment
- Touch Panel Check 1
- Touch Panel Check 2
- Touch Panel Calibration



Detailed Information & Settings

This section allows you to run specific diagnostic and allows additional setting choices for some screens that are not shown when selecting an icon from the System Links screen.

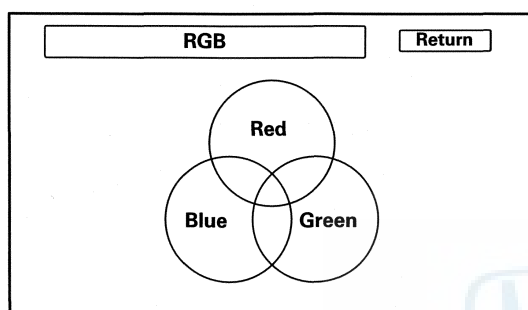
When you select the item Detail Information & Setting menu, the main diagnosis menu appears.





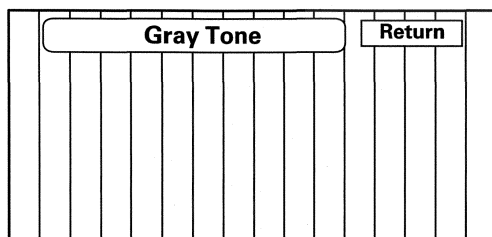
RGB Color

This screen verifies that the navigation display is receiving the video (R, G, B and Composite sync) signals properly. The three primary colors should all appear without distortion. The combination of all three should produce a central white section. If any of the colors are missing, troubleshoot for the color signal (see page 23-139). If the picture has lines in it or scrolls horizontally, or vertically, troubleshoot for a Composite sync problem (see page 23-139).



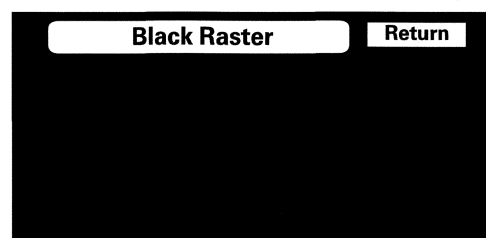
Gray Tone

This screen diagnoses problems with contrast. You should be able to see the changes from bar to bar across the scale. It is normal for the two bars on either side to appear the same. If you can't see changes from bar to bar, replace the audio-navigation unit.



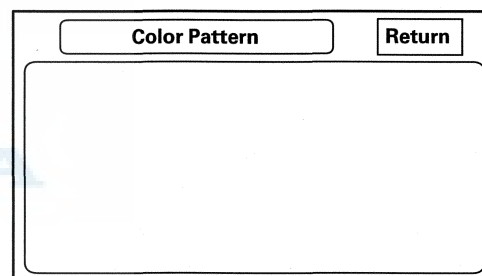
Black Raster

This diagnostic screen checks for pixels that may be stuck on. The entire display must be black. If pixels are stuck on, replace the audio-navigation unit.



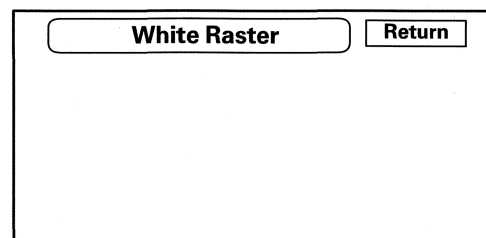
Color Pattern

The chart shows the colors being used for the map and menu screens. This is for factory use only. To check the color signal, use the RGB Color diagnostic found under the Monitor Check.



White Raster

This diagnostic screen checks for pixels that may be dead (off). The entire display must be white. If there are dead pixels, replace the audio-navigation unit.



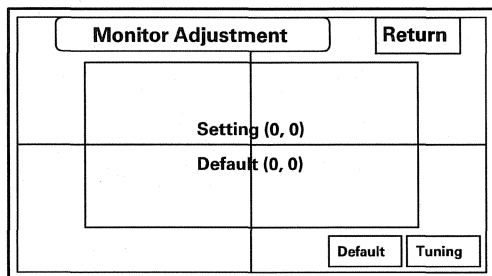
(cont'd)

Navigation System - '09-11 models

System Diagnostic Mode (cont'd)

Monitor Adjustment

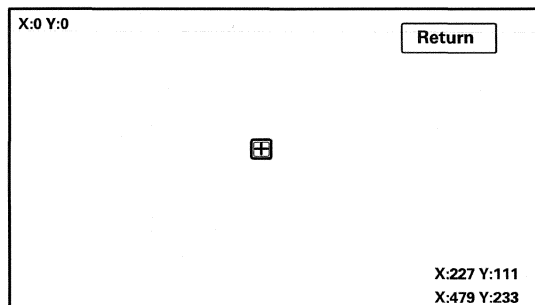
This allows you to center the navigation display. Use the joystick to move the picture up/down or left/right. It is unlikely that you will ever need to adjust the monitor position. The Default button will reset the display position to factory specifications.



Touch Panel Check 1

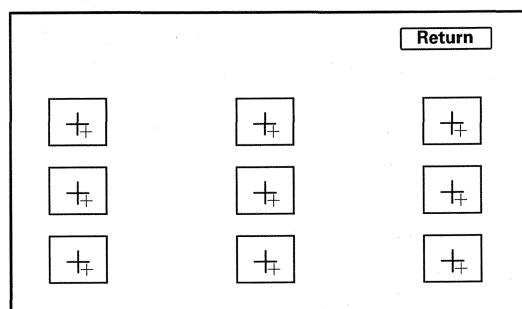
The panel touch sensing system consists of a touch sensitive resistive membrane covering the display. Contrary to other systems using infrared beams, the screen has to be physically touched to make it work. The display has the capability of 479 locations (left to right), and 233 touch locations (top to bottom). The upper left hand corner is position (0, 0) and the lower right hand corner is (479, 233) as displayed. Touching anywhere on the screen displays the coordinate of the location, and a + icon appears where you touched the screen. If any areas of the screen either don't respond, or respond at some other location when touched, then replace the audio-navigation unit.

NOTE: Unlike earlier screens that used infrared sensors, direct sunlight does not affect this test.



Touch Panel Check 2

If you touch any icon on the screen, the icon should change color. If any icons on the screen do not respond, replace the audio-navigation unit (see page 23-154).

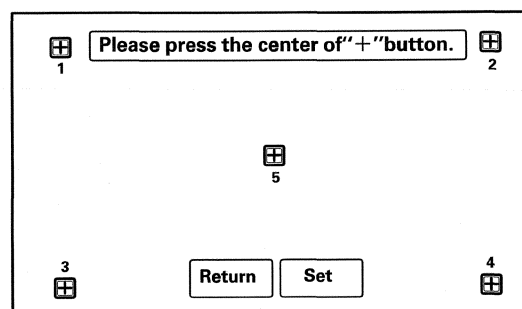


Touch Panel Calibration

The display screen uses a touch sensitive membrane. This means that every location of the entire surface of the display is touch sensitive. This diagnostic allows alignment of these touch locations with the location of the button images on the screen.

Normally this should never need adjustment, and is used only to adjust the touch locations for parallax (the touch locations appear different when viewed at an angle). However, if an adjustment is necessary, follow this procedure:

- The screen consists of the + button icons. Touch the center of the five + buttons in order 1—5.
- To store any change you make, touch the Set button.
- Use the Return key to exit the diagnostic.





Unit Check (Quick Check)

Some of the tests and screens that are displayed under the Unit Check are different from the more detailed checks listed in other areas of this service manual.

To start the test, select the item you want to check.

- Display
- Radio
- GPS
- ECU Info.
- PC Card Info.
- Hard Key
- Yaw Sensor
- DVD

Select Check Units		Return
Display	Hard Key	
Radio	Yaw Sensor	
GPS	DVD	
ECU Info.	PC Card Info	

Display

This performs additional checks on the communication bus between the navi CPU and the display. In addition, this test checks the internal electronic functions.

If the connection is NG, replace the audio-navigation unit.

- Connection verifies internal communications.
- The version represents the software version for the display.

Display		Return
Connection	OK	
Version	2.000.000	

Radio

This diagnostic screen checks the internals of the radio (AM and FM) and the CD player. If NG is indicated, replace the audio-navigation unit.

Radio		Return
Connection	OK	
Electric Field Intensity	0.0 dBuV	
CD Mech. Version	7190	

GPS

If GPS indicates NG (ANT), then check the entire GPS antenna wire from the audio-navigation unit to the antenna only. If the wire is crushed or damaged, try a known-good antenna. If the diagnostic then reads OK, replace the original GPS antenna. If the diagnostic still reads NG (ANT), replace the audio-navigation unit.

Select information to see the GPS satellite details.

GPS		Return
Antenna	OK	
Receiver in Navi ECU	OK	
		Information

(cont'd)

Navigation System - '09-11 models

System Diagnostic Mode (cont'd)

ECU Info.

This screen looks for problems in the audio-navigation unit. When you initiate this diagnosis, the audio-navigation unit may freeze or delay up to a minute while the diagnosis runs.

NOTE: Do not try to end this diagnostic by pressing OK or Mem clear before it finishes, otherwise the system may reboot.

- If V-RAM or D-RAM is NG, replace the audio-navigation unit.
- DVD lid displays the state of DVD Lid of audio-navigation unit.
- Program Flash: Displays the version of the navi software in memory.
- Program on DVD: If displayed, this value represents the version of the navi software on the navi DVD.
- DVD version represents the database version on the DVD. You can find this information in either the Setup Screen Version, or in the Diagnostic Screen Version.
- Serial No. should be the same as the serial number found on the underside of the audio-navigation unit. You need this number to obtain the security code from the Interactive Network (iN) system.
- The Mem Clr is for factory use and should not be used unless instructed by the factory.

Selecting this will clear the customer's settings, personal information, GPS orbital data, and anything else stored in memory.

ECU Info.		Return	
V - RAM	OK	D - RAM	OK
DVD Lid	Close	[2008.06.16 15:3].28	
Program Flash	1.80.20KA		
Program on DVD	1.80.200		
DVD Version	6.80T2	Mem Clear	
Serial No.	xxxxxxxxxx		
Model	TK6A	D - RAM Check	

PC Card info.

There is no PC Card in the PC slot, and the screen should display, "PC Card is not inserted."

NOTE: Do not insert any card or object into the slot.

PC Card Information	Return
PC Card is not inserted.	

The PC card slot is used for these purposes:

- For playing MP3 and WMA formatted files (see owner's manual for related information).
- For transferring customer's personal data to a new navigation unit.
- For factory use: If the factory provides a PC card and instructs you to insert it, the screen displays the Manufacturer, and Product Name as shown in the following screen. Follow the instructions provided by the factory to complete the test.

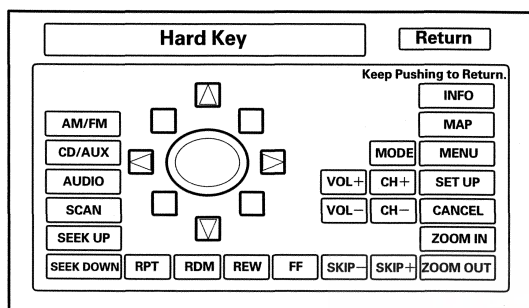
PC Card Information	Return
Manufacturer xxxxxx	
Product Name xxxxxx	
Files	



Hard Key

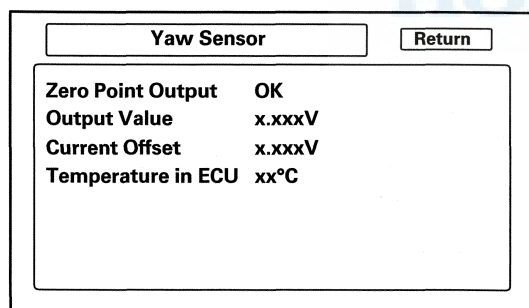
This diagnostic screen checks the status of the hard buttons surrounding the navigation display. When you press each hard button, the corresponding item on the screen should turn blue. Touch the return key, or press and hold the joystick to exit.

NOTE: VOL/PWR knob operation (turn, push) and OPEN/CLOSE button operation are not displayed.



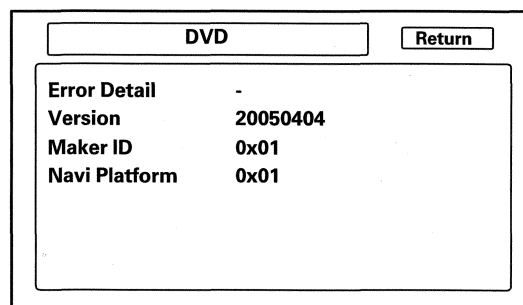
Yaw Sensor

This screen gives a quick test of the yaw sensor functionality based on the two voltages Sensor and Offset. For more information see the Yaw Rate Diagnostic.



DVD

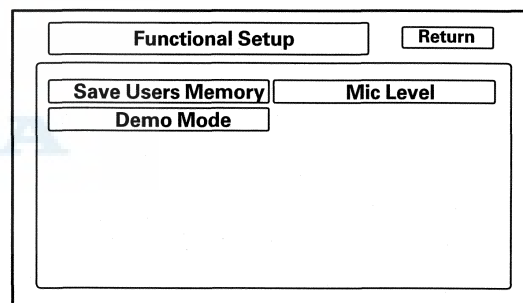
This diagnostic tests the navigation DVD reader.



Functional Setup

Select the item you want to check.

- Save Users Memory
- Demo Mode
- Mic Level



(cont'd)

Navigation System - '09-11 models

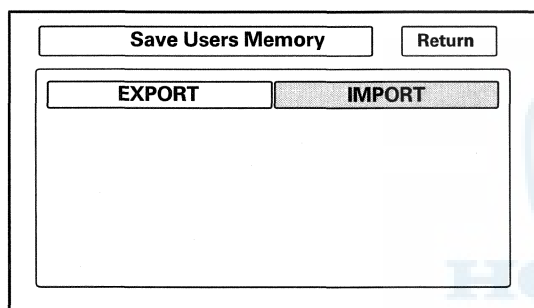
System Diagnostic Mode (cont'd)

Save Users Memory

When replacing the audio-navigation unit, this function allows the dealer to transfer the customer's personal data to the new audio-navigation unit.

This is similar to saving and entering the customer's audio presets when replacing an audio unit. The transferred information includes their Setup settings and personal addresses. The dealer inserts a PC card (like the PC card in the HDS), and then selects the Save Users Memory function. The two functions in this diagnostic screen are Export and import. Export saves the customer's data to the PC card, and Import moves the PC card files to the new navigation core.

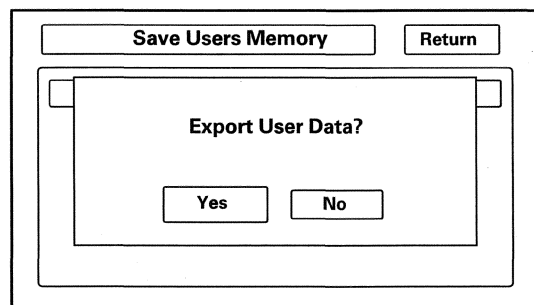
See the FAQs below for information regarding PC cards, and how to use this function.



Before starting this function, see the PC card FAQs for information about PC cards, and how to use this function.

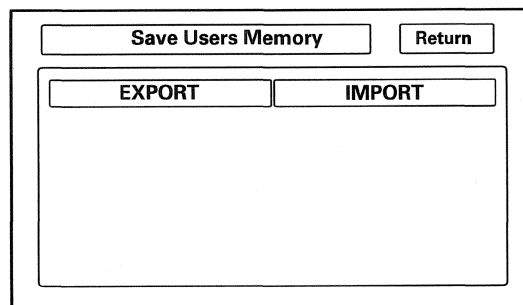
Export

Select this button to move the customer's data from the original audio-navigation unit to the PC card. Select YES on the Export User Data Confirmation screen. The process takes only a couple of seconds. The system stores two files on the card.



Import

After installing the customer's original DVD in the new audio-navigation unit, allow the system to boot up. Insert the PC card in the new audio-navigation unit and enter the navigation diagnostic mode.



Select YES on the Import Confirmation screen.

Import moves the two files stored by the Export process from the PC card to the new audio-navigation unit. When the transfer is finished (a few seconds) the system will automatically reboot. After the system reboots, remove the PC card from the PC slot.

If the Import button is grayed out, follow the troubleshooting in the FAQs below. The customer's files can only be transferred to a new navigation control unit if the Model and the Program Flash shown on the Version screen are the same.



Demo Mode

This screen is for factory use only, and should always be set to OFF. Occasionally the DEMO setting is turned ON when vehicles are being used at Auto Shows or similar events. Turning this feature on, allows the navigation system to automatically follow a route to a destination when the vehicle is stationary. The Speed changes the speed of the demo mode.

Demo Mode Return

Demo OFF ON OFF

Speed Rate 150 ms ▼ ▲

Mic Level

This diagnostic allows you to independently test the microphone and the navigation TALK and BACK buttons. They are used to activate the voice control system. The microphone is located near the map light in the roof console. The microphone can now isolate the driver's voice even when there is noise or other conversations in the vehicle. To properly check the microphones, make sure you are sitting in the driver's seat.

- Press the navigation TALK button on the steering wheel, wait until you hear a beep, and in a normal voice say "testing." The TALK indicator on the screen should turn green, and the text Now Recording... should appear in yellow. If the talk indicator shown on the screen does not turn green, check the wiring from the steering wheel navigation TALK button to the audio-navigation unit. If there is no Mic Level movement when you speak, then you should check the wires running from the microphone in the roof console to the audio-navigation unit. If the wires are OK, the microphone must be faulty; replace the microphone located in individual map light (see page 23-158).
- Press the navigation BACK button on the steering wheel. This should cause the BACK indicator on the screen to turn green. If it does not turn green, check the wiring from the steering wheel navigation BACK button to the audio-navigation unit.

Mic Level Return

Mic Level

Steering Switch

BACK

NOTE: The mic level should reach the 6th bar.

(cont'd)

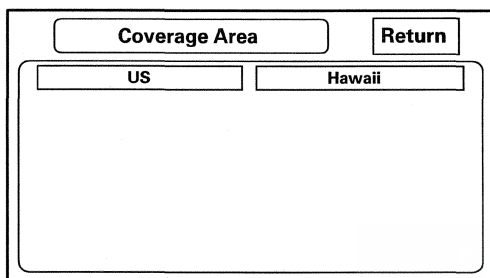
Navigation System - '09-11 models

System Diagnostic Mode (cont'd)

Coverage Area

This screen allows the dealer to select the area that applies to their location. The choice is US (continental) or Hawaii. The default is US. Select the choice (the system may reboot), exit the diagnostic mode, and restart the vehicle.

NOTE: This function is designed to operate only when the vehicle is physically located in the coverage area you select.

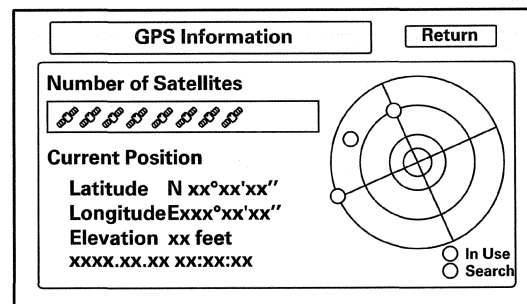


GPS Information

This screen shows the current status of GPS reception. The circular diagram shows the current location of the GPS satellites (yellow numbers) as they would appear in the sky. The outer circle represents the horizon (0 degrees elevation). The middle and inner circles represent 30 and 60 degrees respectively. The very center of the diagram (90 degrees elevation) is directly overhead. Nearby obstructions, like tall buildings will block satellites in that direction. That is why it is necessary to be in an open area to effectively troubleshoot GPS reception issues. The satellite numbers shown on the diagram correspond to the PRN number in the GPS Details screen. There are always at least 24 active GPS satellites in orbit. Because satellites fail, and have to be removed from service, spares are always parked in orbit, ready to be activated. This is why the PRN (satellite ID number) can be greater than 24.

NOTE: When you use this screen for troubleshooting, park the vehicle outside, away from buildings, tall trees, and high-tension wires for at least 10 minutes with the engine running.

- The Number of Satellites box shows the number of acquired satellites (maximum of 12). It should contain three or more icons. If not, troubleshoot for GPS icon is white or not shown (see page 23-141).
- The Current Position shows latitude, longitude, and elevation (in feet). If there are less than four satellites, the elevation can be grossly inaccurate.
- The Date/Time field shows the current date, and also a time that includes daylight savings and other offsets entered by the customer in Setup screen 2 Adjust Time Zone/Clock.



NOTE: Pressing the MAP/GUIDE button displays the satellite number on each circle.



GPS Detail

By pressing and holding the MENU button for 2 seconds, a GPS Detail screen appears. This screen displays real time incoming satellite positional data when the vehicle is outside in the open. The information shown on this screen is for factory use.

NOTE: The data shown is an example only.

GPS Detail							Return
TS:xx AS:xx	HDop:xx.x VDop:xx.x	Speed:x.xKm/h Direction: x°		Date:xxxx.xx.xx Time:xx:xx:xx			
3D	PRN	ST	AZI	EL	C/N	ACC	▲
○	xx	xx	xxx	xx	xxx	xx	1/2 ▼
○	xx	xx	xxx	xx	xxx	xx	
○	xx	xx	xxx	xx	xxx	xx	
○	xx	xx	xxx	xx	xxx	xx	
○	xx	xx	xxx	xx	xxx	xx	
○	xx	xx	xxx	xx	xxx	xx	

- The box TS/AS and H Dop/V Dop is for factory use.
- The Speed and Direction information is updated in real time when driving.
- The Date/Time Information is the same as in Setup screen 2 Adjust Time Zone/Clock.
- If the 3D icon is shown above the yellow dots, this implies that at least four satellites are available for map positioning, and the GPS indicator on the map screen will be green. See the Global Positioning System detailed explanation in the System Description.
- If the row of data in the table below begins with a yellow dot, the AZI and EL fields can be used to locate each satellite on the circular GPS diagram (see prior screen).

The table of values shown following define the terms at the top of the columns in the GPS Detail screen.

Column	Description	Problem indication
3D	Active satellites (Yellow Dot)	If 3D or 2D is missing when the vehicle is parked outside, follow the GPS icon is white or not shown troubleshooting (see page 23-141).
PRN	The satellite ID number	
ST	The status: 0 = cannot view or searching, 2 = acquiring	If all 0, then, follow the GPS icon is white or not shown troubleshooting (see page 23-141).
AZI	Azimuth, the angle (0—360) clockwise from north	
EL	Elevation from the horizon (90 deg is overhead)	
C/N	N/A	Normal signal is 49-52, no signal: 27-33
ACC	N/A	
△ 1/2 or 2/2 ▽	Shows view of all satellites in two screen views 1/2 or 2/2	

(cont'd)

Navigation System - '09-11 models

System Diagnostic Mode (cont'd)

Yaw Rate

This diagnostic checks the yaw rate sensor in the navigation unit. This device detects when the vehicle turns, and repositions the vehicle position icon on the map screen. For more detailed information, see the yaw rate sensor theory of operation under System Description (see page 23-93).

- Sensor indicates the voltage output from the yaw rate sensor. It should indicate about 2.500 V when the vehicle is stopped.
- Offset is the reference voltage or standard within the yaw rate sensor. It also should indicate about 2.500 V when the vehicle is stopped.
- A sensor output voltage LOWER than the Offset voltage indicates that the vehicle is turning to the right.
A sensor output voltage HIGHER than the Offset voltage indicates that the vehicle is turning to the left.
- The yaw rate offset, and sensor should both indicate about 2.500 V when the vehicle is stopped. If either reads zero, or 5.000 V, replace the audio-navigation unit.
- The yaw rate offset and sensor should be within ± 0.01 V of each other when the vehicle is stopped. The sensor value should change relative to the offset as the vehicle turns while driving. If not, replace the audio-navigation unit.

Example: Vehicle stopped

Normal		Abnormal	
Offset	2.526 V	Offset	2.526 V
Sensor	2.516—2.536 V	Sensor	2.623 V

Example: Vehicle turning

Normal		Abnormal	
Offset	2.526 V	Offset	2.526 V
Sensor	2.678 V (left turn) 2.478 V (right turn)	Sensor	2.623 V (no change on turns)

- Sensitivity study represents the status of the internal tuning function. At initialization, this value starts at 6 and increases to 10 as the internal correction values become more accurate.
- The settings CCW Cal Factor, CW Cal Factor, and Set are for factory use only. THIS SHOULD NEVER BE ADJUSTED.
- For detailed analysis of the yaw rate select tuning.

Yaw Rate

Return

Sensor

x.xxxV

Offset

x.xxxV

CCW Factor

x.x%

CW Factor

x.x%

Tuning



Yaw Rate Tuning

This diagnostic allows you to graphically display problems with the yaw rate sensor.

- The ANG-Disp value accumulates any differences between the offset and sensor voltages (see Yaw Rate diagnostic). When the sensor functions properly, the random changes in these two voltages generally cancels out, so the value is 0. However if one voltage is consistently higher than the other, then the ANG-Disp value accumulates the constant change.
- The Reset button temporarily clears the angular accumulation (ANG-Disp), and clears the display dots.
- Do not touch the CCW, CW, or Set buttons. These are used for factory setup only.

Two tests are explained following. For large problems with the sensor values, the stationary test usually confirms whether the sensor is defective. For yaw rate issues related to driving, do the road test described below.

1. Stationary test: If the VP icon spins in place and the ANG-Disp value slowly increases or decreases in value, the yaw rate sensor is defective. Replace the navigation control unit.
2. Road test: Drive the vehicle on a very straight road. Enter the diagnostic mode, select Yaw rate, and touch the Tuning button. While driving down a straight road, the white dots should trace a straight line across the screen. However, if you are driving on a straight road, and you notice the dots constantly dropping down or heading up as you drive, the navigation control unit's yaw sensor is defective. You can touch Reset to clear ANG-Disp, and dotted lines.

If either test above fails, please enter "Yaw rate sensor defective" for the problem description, on the Navigation core return form.

NOTE: The CCW, CW, and Set buttons are disabled, and cannot be activated.

Tuning	0.0%	▲	▼	Return
ANG- Disp 0°				
Reset	CCW	CW	Set	

Car Status

Use this screen to confirm that the audio-navigation unit is properly receiving input signals. Signals equal to (0) are OFF, and signals equal to (1) are ON. If the value on the display does not match the actual vehicle status, then check the wire carrying the signal.

- VSP-Vehicle Speed Pulse from ECM/PCM (Audio-navigation unit connector A terminal No. 15)
 - OFF (0) when vehicle is not moving
 - ON (1) when vehicle is moving

The VSP comes from the ECM/PCM as a dedicated signal. Internally, the audio-navigation unit compares the actual VP on the map against street data to adjust the pulse to speed scaling factor. As this scaling factor becomes more accurate, the Level gradually increases from 0 to 10 (see the Tire Calibrate diagnostic screen).

- BACK-Reverse indication from taillight relay (Audio-navigation unit connector C terminal No. 5)
 - OFF (0) when the shift lever is in any position other than reverse
 - ON (1) when the shift lever is in reverse

The Back signal is used by the audio-navigation unit to allow the map screen to show the VP moving backwards when in reverse. This signal is needed because the Speed Pulse has no direction indication.

Car Status				Return
VSP	[0]	ILL	[0]	
BACK	[0]	ILL CANCEL	[0]	
IGNITION	[0]			

(cont'd)

Navigation System - '09-11 models

System Diagnostic Mode (cont'd)

- **IGNITION-Ignition Switch Position Indication** (Audio-navigation unit connector A terminal No. 14)
 - OFF (0) when the ignition switch position is LOCK (0)
 - ON (1) when the ignition switch position is ON (II)
- **ILL-Illumination Indication** (Audio-navigation unit connector A terminal No. 13)
 - OFF (0) when parking lights, or headlights are off
 - ON (1) when parking lights, or headlights are on

The navigation uses the signal to determine whether to put the navigation screen into the Day or Night brightness mode. (Setup screen 1)

ILL CANCEL

This item detects whether the illumination cancel function is in use.

- OFF (0) if illumination cancel is not selected
- ON (1) if illumination cancel is activated

The illumination cancel function is activated by increasing the dash brightness to MAX.

Version

This screen displays the current version information for the navigation system software. In addition, this screen allows the loading of updated software if requested by the factory, or instructed by a Service Bulletin. Software may be loaded from a CD or a PC card.

- **Program Flash:** Displays the version of the navigation software in memory.
- **Program Disc:** If displayed, this value represents the version of the navi software on the navi DVD.

NOTE: The last two letters of the Program Flash or DVD fields indicate which DVD is installed in the unit. The letters KA imply that a United States DVD is installed. If the letters are KC, then a Canada DVD is installed. (See coverage discussion below.)

- **IPL, APL, DBOOT, and System uCom,** are all for factory use.
- **Model:** For this model, the field should begin with TK6.
- **Download:** Do not touch, unless instructed by the factory.

Check any official Honda service website for more service information about navigation DVDs.

Version		Return
Program Flash	x.xx.xxKA	DownLoad
Program Disc	-	
IPL	x.xxx.xxx	
APL	x.xxx.xxx	
DBOOT	x.x.xxx	
System uCom	x.xxx.	
Model	TK6A	



PC Card FAQs

Question	Answer
Where do we buy the flash memory or adaptors, and what do we ask for?	You need a PCMCIA type II adaptor and a flash memory chip, based on PCMCIA 2.1/JEIDA 4.2 standard. You can purchase them at a computer or office supply store. The card is the same size and shape as the PC card in the HDS. PCMCIA adaptors that are multiple slot type and accept several different flash memory types multiple flash types are not recommended.
What memory flash chips will work with what adaptors?	The flash memory devices that have been tested include Compact Flash (CF), ATA style (like the card in the HDS), and SD memory card. Other card types and flash memory chips may work, but have not been tested.
What capacity card do I need for this function?	A memory chip with capacity of 64 MB to 2 GB will work. The two files moved to the card during export are less than a megabyte in size. You can purchase an adapter and flash memory card at a computer or office supply store.
Should the dealer have a dedicated PC card for the Export and Import navigation function?	Yes, treat the PC card as a dedicated special tool that you can use any time you need to transfer the navi personal files to a new audio-navigation unit on '08 or later vehicles.
What device can I use to maintain the PC card, and delete files?	Any computer store sells USB style PC card readers that accept the card, and allow you to do file maintenance on your card. Most laptops also accept the card.
Can we move the customer's data to different models (like moving FIT navi data to a RL)?	No, the files are model specific and will only load into a navi ECU with the same part number.
Can we move the customer's data to the same vehicle with a different software version (Like moving from version 4.41 to version 4.51)?	The customer's files can only be transferred to a new navigation control unit if the Model and the Program Flash shown on the Version screen are the same. Files cannot be transferred from a Accord to a Fit (different model code), or '08 Accord to '09 Accord (different versions)
Why is the Export button grayed out?	<ul style="list-style-type: none"> • A PC card with its media memory chip is not inserted properly. • Check the card's edge connector, and the pins inside the audio-navigation unit (with a flashlight) for damage.
Why is the import button grayed out?	<ul style="list-style-type: none"> • A PC card with its media memory chip is not inserted. • The model code of the files stored during export do not match the model code of the new navi ECU. • The version of the files from the original navi ECU are not the same as the version in the new ECU.
Will other files on the card like images or music files prevent the Export/Import function from working?	No, the system simply adds two small files that are recognized by the new navigation control unit when doing the import function. However, if the card is full, the Export function won't work correctly.
Do I have to delete the files on the card after each transfer of the personal data?	After the transfer of personal data to the new navigation control unit, the files remain on the card. Since this is confidential information, Honda recommends deleting these files after the transfer. Please note that each time you export navigation files of the same model and version, the files are overwritten. If you do not delete the file after use, over time the PC card accumulates two files for each version of the Honda navigation equipped models.
If the memory card needs formatting, what format should I use?	It is unlikely that the card will ever need formatting, however, if it does, use the FAT (file allocation table) file system.
I can't enter the navi diagnostic mode to do the Export/Import function. How can I transfer the personal data?	Some internal navigation ECU failures may make it impossible to use the Export/Import function.

(cont'd)

Navigation System - '09-11 models

System Diagnostic Mode (cont'd)

Question	Answer
Why won't the Export or Import functions work? What do I check as part of troubleshooting?	<ul style="list-style-type: none">• The card may not be fully inserted into the slot. Eject the card, and inspect for warping or damage to the edge connector. Never use excessive force to insert a card. This can damage the pins in the rear of the slot.• The card may not contain files that are recognized by the new navigation control. Navi data can only be transferred between navigation control unit with the same Model code, and with the same navi Program flash version.• The flash memory chip type may not be accepted by the system. Only Compact Flash, ATA, and SD memory cards have been tested.• The card's PCMCIA adaptor may prevent a known-good card from being recognized. Avoid multi slot type PCMCIA adaptors that accept several different flash memory types• The card may be full and as a result the files are stored, but without any data. Export and import appear to function, but move nothing. Delete unused files from the card.• There may not be any files on the card. If the card has a write protection switch, make sure it is turned off before using the Export function.• Although flash memory chips are reliable, occasionally they develop bad sectors or other formatting errors that prevents them from accepting files. The card should be reformatted using the FAT format.• The card may have been formatted using the format NTFS. Only the FAT format is accepted by the system.• Hard Disc Drive (HDD) cards may not work properly in the system and can overheat or quit functioning, particularly in a hot vehicle. They are not recommended.• Before doing the import function, ensure that the original navigation DVD is loaded into the new core and working properly.
Are there any error messages to tell me what is wrong?	There are no error messages associated with the Import/Export feature. Follow the troubleshooting steps above.



Error Message Table

Screen Error Message	Solution
Navigation system is unable to acquire a proper GPS signal.	Make sure there is nothing on the dashboard blocking the GPS antenna. If not, move the vehicle to an open space away from tall buildings, trees, etc. Aftermarket metallic window tinting and other aftermarket devices can affect the GPS reception.
Navigation unit door is open or No DVD disc installed. Please check system.	Make sure the navigation DVD is the correct color and is not scratched or damaged. Make sure it is installed with the label side up and the audio-navigation unit door behind the display is snapped fully closed.
No DVD disc, please check system.	Check that the navigation DVD is installed with the label side up.
Display temp is too high. System will shut down until display cools down.	This message appears briefly when the display temperature is too high, and then the display turns off until the temperature cools down. The system turns back on when the display cools down.
Outside temperature is low, system will take a while to start up.	The temperature is below -30°C and the audio-navigation unit has difficulties reading the DVD. The system will start up when the temperature warms up.
DVD disc reading error (unformatted), please consult your dealer.	Check the DVD for the correct color and software version. Also check for deep scratches or other damage. Make sure you are using an official Honda navigation DVD (turquoise in color). The system cannot read other mapping databases or video DVDs. Check any official Honda service website for more service information about the navigation system.
Route has not been completed. Please try again from a different location.	Routing to or from a place (new area) that is not in the database. Try planning a different route to or from a different location that is clearly displayed on the map (map matched).
No alternate route found. Original route will be guided.	No alternate route method was found. The original route method will be used.
This destination cannot be found in database.	The destination was not found in the database. Try another destination nearby, or select the destination with the interface dial.

Navigation System - '09-11 models

DTC Troubleshooting

DTC 1001: FROM System Info Error

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).

1. Clear hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-82).

Is DTC 1001 indicated?

YES—Replace the audio-navigation unit (see page 23-154), because there is an internal problem with the Flash-ROM.■

NO—Intermittent failure, the system is OK at this time.■

DTC 1101: Media Bus Send Error

NOTE:

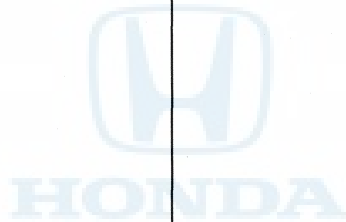
- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).

1. Clear hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-82).

Is DTC 1101 indicated?

YES—Replace the audio-navigation unit (see page 23-154).■

NO—Intermittent failure, the system is OK at this time.■





DTC 1201: DVD High Temp

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).
- This code sets when the internal temperature of the ECU rises above 158 °F (70 °C). The unit is designed to shut down to protect the ECU. This could be caused by an inoperative ECU fan or if the passenger compartment temperature exceeds the maximum. Do the troubleshooting when the unit is within the allowable temperature range.

1. Check that the temperature is below 158 °F (70 °C) in the passenger compartment.
2. Clear the hard error code (see page 23-83).
3. Turn the ignition switch to LOCK (0), and then back to ON (II).
4. Check for the hard error code (see page 23-82).

Is DTC 1201 indicated?

YES—Replace the audio-navigation unit (see page 23-154). ■

NO—Intermittent failure, the system is OK at this time. If the unit repeatedly comes back with the DTC, replace the audio-navigation unit (see page 23-154). ■

DTC 1202: DVD Low Temp

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).
- This code sets when the internal temperature of the ECU falls below −4 °F (−20 °C). The unit is designed to shut down to protect the ECU. This is usually caused by very cold exterior temperatures. Do the troubleshooting when the unit is within the allowable temperature range.

1. Check that the temperature is above −4 °F (−20 °C) in the passenger compartment.
2. Clear the hard error code (see page 23-83).
3. Turn the ignition switch to LOCK (0), and then back to ON (II).
4. Check for the hard error code (see page 23-82).

Is DTC 1202 indicated?

YES—Replace the audio-navigation unit (see page 23-154). ■

NO—Intermittent failure, the system is OK at this time. If the unit repeatedly comes back with the DTC, replace the audio-navigation unit (see page 23-154). ■

(cont'd)

Navigation System - '09-11 models

DTC Troubleshooting (cont'd)

DTC 1301: GPS Antenna Error

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).
- Make sure the vehicle is parked outside, away from buildings.
- Aftermarket metallic window tint or electronic devices located near the audio-navigation unit or GPS antenna can potentially interfere with the operation of the navigation system.

1. Clear the hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-82).

Is DTC 1301 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Turn the ignition switch to LOCK (0).
5. Check for poor connections or loose terminals at the audio-navigation unit connector H (2P).
6. Clear the hard error code.
7. Turn the ignition switch to LOCK (0), and then back to ON (II).
8. Check for the hard error code.

Is DTC 1301 indicated?

YES—Replace the GPS antenna (see page 23-158), then retest. If the DTC does not clear, replace the audio-navigation unit (see page 23-154). ■

NO—Intermittent failure, the system is OK at this time. If the problem returns, replace the audio-navigation unit (see page 23-154). ■

DTC 1302: GPS Receiver Error 1

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).
- Make sure the vehicle is parked outside, away from buildings.
- Aftermarket metallic window tint or electronic devices located near the audio-navigation unit or GPS antenna can potentially interfere with the operation of the navigation system.

1. Clear the hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-82).

Is DTC 1302 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. If the unit repeatedly comes back with the DTC, replace the audio-navigation unit (see page 23-154). ■

4. Turn the ignition switch to LOCK (0).
5. Check for poor connections or loose terminals at the audio-navigation unit connector H (2P).
6. Clear the hard error code.
7. Turn the ignition switch to LOCK (0), and then back to ON (II).
8. Check for the hard error code.

Is DTC 1302 indicated?

YES—Replace the GPS antenna (see page 23-158), then retest. If the DTC does not clear, replace the audio-navigation unit (see page 23-154). ■

NO—Intermittent failure, the system is OK at this time. If the unit repeatedly comes back with the DTC, replace the audio-navigation unit (see page 23-154). ■



DTC 1303: GPS Receiver Error 2

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).
- Make sure the vehicle is parked outside, away from buildings.
- Aftermarket metallic window tint or electronic devices located near the audio-navigation unit or GPS antenna can potentially interfere with the operation of the navigation system.

1. Clear the hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-82).

Is DTC 1303 indicated?

YES—Replace the audio-navigation unit (see page 23-154). ■

NO—Intermittent failure, the system is OK at this time. If the unit repeatedly comes back with the DTC, replace the audio-navigation unit (see page 23-154). ■

DTC 1305: Gyro Error 2: ECU Temp XX °C

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).
- Make sure the vehicle is parked outside, away from buildings.
- Aftermarket metallic window tint or electronic devices located near the audio-navigation unit or GPS antenna can potentially interfere with the operation of the navigation system.
- Do this test only when the passenger compartment temperature is between -4°F (-20°C) and 158°F (70°C).

1. Clear hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-82).

Is DTC 1304 indicated?

YES—Replace the audio-navigation unit (see page 23-154). ■

NO—Intermittent failure, the system is OK at this time. If the problem returns, replace the audio-navigation unit (see page 23-154). ■

(cont'd)

Navigation System - '09-11 models

DTC Troubleshooting (cont'd)

DTC 1306: Vehicle Speed Pulse

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).

1. Clear the hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then start the engine.
3. Check for the hard error code (see page 23-82).

Is DTC 1306 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time.■

4. Go into the Self-Diagnosis mode, and use the Car Status test (see page 23-121) to check the vehicle speed pulse.
5. Drive the vehicle, and watch the VSP signal.

Does the VSP signal change from [0] when stopped to [1] when the vehicle is moving?

YES—Replace the audio-navigation unit (see page 23-154).■

NO—Do the symptom troubleshooting for vehicle position icon constantly leaves road, moves erratically, or is displayed very far from actual vehicle position (see page 23-138).■

DTC 1307: DVD Read Error

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check any official Honda service website for more information about the navigation system.
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).

1. Check the navigation DVD (see page 23-80).

Is the navigation DVD the correct color and version for the vehicle? Is it scratch free?

YES—Go to step 2.

NO—Replace the navigation DVD, and retest.■

2. Turn the ignition switch to ON (II).

Is there a DVD error message?

YES—Go to DVD read error messages (see page 23-144).■

NO—Go to step 3.

3. Clear the hard error code (see page 23-83).
4. Turn the ignition switch to LOCK (0), then back to ON (II).
5. Check for the hard error code (see page 23-82).

Is DTC 1307 indicated?

YES—Replace the audio-navigation unit (see page 23-154).■

NO—Intermittent failure, the system is OK at this time see How to identify navigation DVD versions, and how to inspect a DVD for damage (see page 23-80). If the unit repeatedly comes back with the DTC, replace the audio-navigation unit (see page 23-154).■



DTC 1402: Audio Error 2

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check any official Honda service website for more service information about the navigation system.
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).

1. Clear the hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-82).

Is DTC 1402 indicated?

YES—Replace the audio-navigation unit (see page 23-154).■

NO—Intermittent failure, the system is OK at this time.■

DTC 2601: Display Diag: Connect

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).

1. Clear the hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Go into the Diagnostic Menu, and select the Self-Diagnosis Mode in the Select Diagnosis Items menu (see page 23-107).
4. Check the System Links.

Is the Display icon red?

YES—Replace the audio-navigation unit (see page 23-154).

NO—Intermittent failure, the system is OK at this time.■



(cont'd)

Navigation System - '09-11 models

DTC Troubleshooting (cont'd)

DTC 2605: H/U Diag: Connect

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).

1. Clear the hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back ON (II).
3. Check the Error History (see page 23-82).

Is Hard Error 2601 indicated?

YES—Do the 2601 troubleshooting. ■

NO—Go to step 4.

4. Go into the Diagnostic Menu, and select the Self-Diagnosis Mode in the Select Diagnosis Items menu (see page 23-107).
5. Select the System Links.

Is the Radio icon red?

YES—Replace the audio-navigation unit (see page 23-154). ■

NO—Intermittent failure, the system is OK at this time. ■

DTC 2609: VRAM Diag

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).

1. Clear the hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Go into the Diagnostic Menu, and select the Self-Diagnosis Mode in the Select Diagnosis items menu (see page 23-107).
4. Select the System Links, then select the ECU Info.

Is V-RAM OK indicated?

YES—Intermittent failure, the system is OK at this time. If the unit repeatedly comes back with the DTC, replace the audio-navigation unit (see page 23-154). ■

NO—Replace the audio-navigation unit (see page 23-154). ■



DTC 2610: DRAM Diag

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).

1. Clear the hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Go into the Diagnostic Menu, and select the Self-Diagnosis Mode in the Select Diagnosis items menu (see page 23-107).
4. Select the System Links.

Is the ECU info icon red?

YES—Go to step 5.

NO—Intermittent failure; the system is OK at this time. ■

5. Select the System Links, then select the ECU Info icon.

Is D-RAM in Navi ECU OK indicated?

YES—Intermittent failure, the system is OK at this time. If the unit repeatedly comes back with the DTC, replace the audio-navigation unit (see page 23-154). ■

NO—Replace the audio-navigation unit (see page 23-154). ■

DTC 2701: GPS Diag: Antenna

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).
- Make sure the vehicle is parked outside, away from buildings.
- Check for electronic aftermarket accessories (possibly hidden) mounted near the GPS antenna or the audio-navigation unit.
- Check for aftermarket metallic window tint.

1. Clear the hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Go into the Diagnostic Menu, and select the Self-Diagnosis Mode in the Select Diagnosis items menu (see page 23-107).
4. Select the System Links.

Is the GPS Ant icon red?

YES—Go to step 5.

NO—Intermittent failure; the system is OK at this time. Check for loose connections at audio-navigation unit connector H (2P). ■

5. Select the GPS Ant icon.

Is Antenna OK indicated?

YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0).
7. Check for poor connections at audio-navigation unit connector H (2P).

Is the connection OK?

YES—Replace the GPS antenna (see page 23-158). ■

NO—Repair the poor connections. ■

(cont'd)

Navigation System - '09-11 models

DTC Troubleshooting (cont'd)

DTC 2702: GPS Diag: Receiver in Navi ECU

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).
- Make sure the vehicle is parked outside, away from buildings.
- Check for electronic aftermarket accessories (possibly hidden) mounted near the GPS antenna or the audio-navigation unit.
- Check for aftermarket metallic window tint.

1. Clear the hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Go into the Diagnostic Menu, and select the Self-Diagnosis Mode in the Select Diagnosis items menu (see page 23-107).
4. Select the System Links.

Is the GPS Ant icon red?

YES—Go to step 5.

NO—Intermittent failure; the system is OK at this time. Check for loose connections at audio-navigation unit connector H (2P).■

5. Select the GPS Ant icon.

Is Receiver in Navi ECU OK indicated?

YES—Intermittent failure, the system is OK at this time. If the unit repeatedly comes back with the DTC, replace the audio-navigation unit (see page 23-154).■

NO—Replace the audio-navigation unit (see page 23-154).■

DTC 2706: Gyro Diag: ECU Temp XX °C

NOTE:

- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).
- Do this test only when the passenger compartment temperature is between -4°F (-20°C) and 158°F (70°C).

1. Clear the hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back ON (II).
3. Check for the hard error code (see page 23-82).

Is DTC 2706 indicated?

YES—Replace the navigation unit (see page 23-154).■

NO—Intermittent failure, the system is OK at this time. If the unit repeatedly comes back with the DTC, replace the audio-navigation unit (see page 23-154).■



DTC 2707: Mic Diag

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-75).

1. Clear the hard error code (see page 23-83).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).

3. Go into the Diagnostic Menu, and select the Self-Diagnosis Mode in the Select Diagnosis items menu (see page 23-107).

4. Select the System Links.

Is the Mic icon red?

YES—Go to step 5.

NO—Go to step 8.

5. Turn the ignition switch to LOCK (0).

6. Check for poor connections or loose terminals at audio- navigation unit connector D (12P).

Are the connections OK?

YES—Go to step 7.

NO—Repair poor connections or loose terminals.■

7. Select the Mic in the System Links.

8. Press the navigation TALK button on the steering wheel switch, then check the Mic Level (see page 23-117).

Is the microphone level OK?

YES—Intermittent failure, the system is OK at this time.■

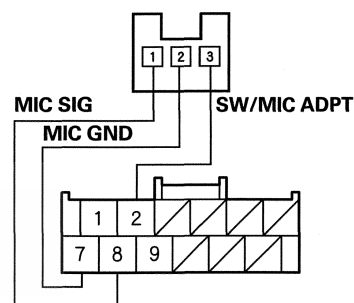
NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).
10. Disconnect the navigation unit connector D (12P).
11. Disconnect the microphone connector (3P).

12. Check for continuity between audio-navigation unit connector D (12P) and the microphone connector (3P) according to the table.

Microphone connector	Audio-navigation unit connector	Wire color
1	D8	LT GRN
2	D7	PUR
3	D2	RED

MICROPHONE CONNECTOR (3P)
Wire side of female terminals



AUDIO-NAVIGATION UNIT CONNECTOR D (12P)
Wire side of female terminals

Is there continuity?

YES—Substitute a known-good microphone assembly (see page 23-158), and recheck.■

NO—There is an open or high resistance in the wire between the microphone and audio-navigation unit.■

Navigation System - '09-11 models

Symptom Troubleshooting

No picture is displayed

Diagnostic Test: Self-Diagnosis Mode

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Before troubleshooting, make sure you have the anti-theft code for the navigation system.
- Make sure that the correct DVD color and version are installed.
- Inspect the DVD for dirt or damage (see page 23-80).
- Check any official Honda service website for more service information about the navigation system.

1. Check the No. 1 (10 A) and the No. 14 (7.5 A) fuses in the under-dash fuse/relay box the 30 A fuse (auxiliary under-dash fuse box) on the wire harness rear the under-dash fuse/relay box. Reinstall the fuses if they are OK.

Are the fuses OK?

YES—Go to step 2.

NO—Replace the fuse, and recheck. ■

2. Turn the ignition switch to ACCESSORY (I).

3. Operate the radio, and listen to the audio.

Can you hear the audio?

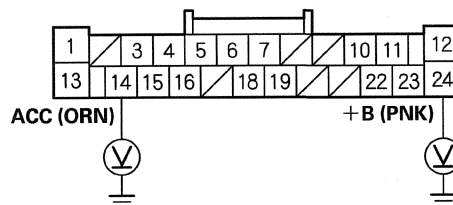
YES—Go to step 4.

NO—Check the ACC circuit or refer to the audio system troubleshooting. ■

4. Turn the ignition switch to ON (II).

5. Measure the voltage between body ground and audio-navigation unit connector A (24P) terminals No. 14 and No. 24 individually.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

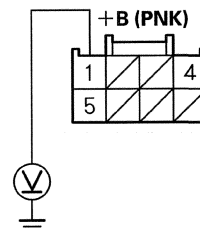
Is there battery voltage?

YES—Go to step 6.

NO—If the +B wire does not have voltage, repair an open in the wire between the under-dash fuse/relay box and the audio-navigation unit. If the ACC wire does not have voltage, repair an open in the wire between the under-dash fuse/relay box and the audio-navigation unit. ■

6. Measure the voltage between audio-navigation unit connector C (8P) terminal No. 1 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR C (8P)



Wire side of female terminals

Is there battery voltage?

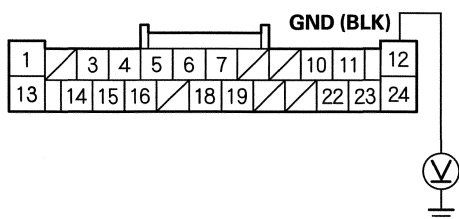
YES—Go to step 7.

NO—There is an open or high resistance in the wire between the navigation unit and body ground (G503). ■



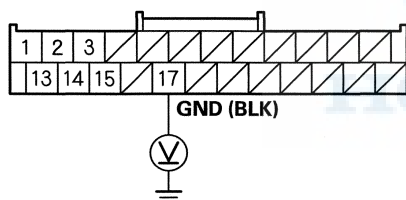
7. Measure the voltage between audio-navigation unit connector A (24P) terminals No. 12 and body ground, between audio-navigation unit connector B (24P) terminal No. 17 and body ground, and between audio-navigation unit connector C (8P) terminal No. 4 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



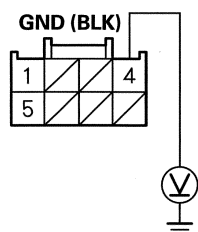
Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR B (24P)



Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR C (8P)



Wire side of female terminals

Is there less than 0.2 V on all terminals?

YES—Replace the audio-navigation unit (see page 23-154). ■

NO—There is an open or high resistance in the wire between audio-navigation unit connector A (24P) terminal No. 12 or audio-navigation unit connector B (24P) terminal No. 17 and body ground (G503 and G502), or audio-navigation unit connector C (8P) and body ground (G503). ■

(cont'd)

Navigation System - '09-11 models

Symptom Troubleshooting (cont'd)

Vehicle position icon constantly leaves road, moves erratically, or is displayed very far from actual vehicle position

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check that the GPS antenna is plugged in.
- This is not the same condition as when driving off-road (or on a fire or logging road). This condition is caused by a loss of map matching from a bad sensor input. Check for aftermarket metallic window tinting or other objects that can block the GPS signal. Always do the Map matching (see page 23-78) before proceeding with the troubleshooting.
- Make sure that the correct DVD color and version are installed.
- Inspect the DVD for dirt or damage.
- Check any official Honda service website for more service information about the navigation system.
- Check the GPS signal reception in an open area.

1. Check the GPS icon on the navigation screen.

Is the GPS icon white?

YES—Do the troubleshooting for GPS icon is white or not shown (see page 23-141).■

NO—Go to step 2.

2. Go into the Self-Diagnosis Mode, and do the Yaw Rate test (see page 23-120) to check the yaw rate sensor.

Is the yaw rate sensor OK?

YES—Go to step 3.

NO—Replace the audio-navigation unit (see page 23-154).■

3. Go into the Self-Diagnosis Mode, and use the Car Status test (see page 23-121) to check the vehicle speed pulse.

Is the vehicle speed pulse OK?

YES—The condition may be normal. Check to see if the condition occurs in the same place in a known-good vehicle. If it does, the problem could be in the database. Go to step 4.

NO—Check for an open in the VSP wire between the audio-navigation unit and the ECM/PCM. If the wire is OK, substitute a known-good audio-navigation unit (see page 23-154), and retest. If the problem goes away, replace the original audio-navigation unit (see page 23-154). If the problem does not go away, replace the ECM/PCM (see page 11-215).■

4. Substitute a known-good audio-navigation unit, and check to see if the problem occurs in the same place.

Does the problem occur in the same place?

YES—The problem is in the database. Report the problem according to the Navigation System Manual under Reporting Errors.■

NO—Replace the original audio-navigation unit (see page 23-154).■



Picture is missing a color or tone or is an odd color

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Make sure that the correct DVD color and version are installed.
- Inspect the DVD for dirt or damage.
- Check any official Honda service website for more service information about the navigation system.
- Check the navigation screen settings for brightness, contrast, and black level, and check the color screen for map color and menu color.
- Before troubleshooting, make sure you have anti-theft code for the navigation system.
- Check for aftermarket accessories that may interfere with the navigation system.

1. Turn the ignition switch to ON (II).

2. Go into the Detail Information & Settings select Monitor Check, and use RGB Color test under Monitor Check (see page 23-110).

Are the red, green, and blue colored circles shown?

YES—The system is OK at this time. ■

NO—Replace the audio-navigation unit (see page 23-154). ■

Picture has lines or rolls

Diagnostic Test: Monitor Check

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Always compare the screen image to a known-good vehicle. If the screen looks the same, inform the customer that it is a characteristic of the system.
- Check the connectors for poor connections or loose terminals.
- Make sure that the correct DVD color and version are installed.
- Inspect the DVD for dirt or damage.
- Check any official Honda service website for more service information about the navigation system.
- Check the navigation screen settings for brightness, contrast, and black level, and check the color screen for map color and menu color.
- Before troubleshooting, make sure you have anti-theft code for the navigation system.
- After troubleshooting, enter the anti-theft code for the navigation system.

1. Eject the navigation DVD.

Is the DVD the correct color (turquoise)?

YES—Go to step 2.

NO—Replace the DVD. ■

2. Inspect the DVD read surface for damage or dirt (see page 23-80).

Is it damaged or dirty?

YES—Clean the DVD, or replace it if needed. Reinstall the DVD, and recheck. ■

NO—Go to step 3.

3. Check for electronic aftermarket accessories (possibly hidden) mounted near the audio-navigation unit.

Are there any electronic accessories?

YES—Disable the accessories, and recheck. ■

NO—Go to step 4.

4. Turn the ignition switch to ON (II).

(cont'd)

Navigation System - '09-11 models

Symptom Troubleshooting (cont'd)

5. Go into the Diagnostic mode, and use the RGB Color test under Monitor Check (see page 23-110).

Is the picture missing a red, green or blue color circle?

YES—Do the troubleshooting for picture is missing a color or tone or is an odd color (see page 23-139).■

NO—Go to step 6.

6. Turn the ignition switch to the ACCESSORY (I) position, and observe the navigation picture.

Did the lines or rolls on the screen go away?

YES—Check for sources of electrical noise, such as poor battery connection, alternator, defective battery, aftermarket accessories or cell phone, and poor connection in the audio-navigation unit.■

NO—Replace the audio-navigation unit (see page 23-154).■

Navigation display buttons do not work or respond properly

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Confirm the correct DVD color and version disc is installed in the audio-navigation unit (see page 23-79) as the wrong DVD or software version can cause a hardware malfunction.
- Check the connectors for poor connections or loose terminals.
- Inspect the DVD for dirt or damage.
- Check any official Honda service website for more service information about the navigation system.
- Before troubleshooting, make sure you have anti-theft code for the audio-navigation system.
- After troubleshooting, enter the anti-theft code for the audio-navigation system if necessary.

1. Turn the ignition switch to ON (II).

Does the navigation display turn on?

YES—Go to step 2.

NO—Refer to troubleshooting for no picture is displayed (see page 23-136).■

2. Try to enter the navigation system diagnostic mode (see page 23-107).

Does the navigation system enter into the system diagnostic mode?

YES—Go to step 3.

NO—Replace the audio-navigation unit (see page 23-154).■

3. Go into Detail Information & Settings, and select Unit Check, then do the Hard Key Test.

Do all the hard buttons around the display function properly?

YES—Intermittent failure, the system is OK at this time.■

NO—Replace the audio-navigation unit (see page 23-154).■



GPS icon is white or not shown

Diagnostic Test: Self-Diagnosis Mode

NOTE:

- Check the vehicle battery condition first (see page 22-68).
 - With good reception, the icon is normally green.
 - Make sure the GPS antenna is plugged in.
 - Check for any aftermarket accessories or metallic window tinting that may be interfering with the GPS signal.
 - Make sure the vehicle is parked outside and away from buildings.
 - Refer to GPS Information (see page 23-118) for real-time satellite reception display.
1. Check for aftermarket metallic window tint on the rear window and electronic aftermarket accessories (possibly hidden) mounted near the GPS antenna or the audio-navigation unit.

Is there aftermarket metallic window tint or electronic accessories?

YES—Remove tint or the accessories, and recheck. ■

NO—Go to step 2.
 2. Turn the ignition switch to ON (II).
 3. Go into the Self-Diagnosis Mode, and use the System Links diagnostic (see page 23-108) to check the GPS antenna.

Is the GPS Ant icon red?

YES—Check for a kinked, crushed, or disconnected GPS antenna wire. If icon is still red, replace the GPS antenna (see page 23-158). ■

NO—Check that nothing is blocking the GPS antenna located in the dashboard, and recheck. Substitute a known-good GPS antenna, and recheck. ■
 - If the symptom is gone, replace the GPS antenna.
 - If the symptom is still present, substitute a known-good audio-navigation unit, and recheck. If the symptom is gone, replace the original audio-navigation unit (see page 23-154).

Navigation display will not close

NOTE:

- Check for, and remove, any objects or debris jammed behind the display.
 - Check the vehicle battery condition first (see page 22-68).
 - Check the connectors for poor connections or loose terminals.
1. Check the CD slot. Look for foreign objects, a stuck CD, broken or sticking slot.

Is the CD slot OK?

YES—Go to step 2.

NO—Replace the audio-navigation unit (see page 23-154). ■
 2. Check the PC card.

Is the PC card fully seated?

YES—Go to step 3.

NO—Reseat the card or remove it. If it still won't close, replace the audio-navigation unit. ■
 3. Check the PC card.

Does the PC card have its memory clip properly installed?

YES—Go to step 4.

NO—Remove the card. The door won't close if the memory chip is missing or improperly installed. ■
 4. Check the navigation DVD cover.

Is the cover properly installed (closed)?

YES—Go to step 5.

NO—Close the navigation DVD cover properly, and retest. ■
 5. Press the OPEN/CLOSE button.

Does the display open and/or close normally?

YES—The system is OK at this time. ■

NO—Replace the audio-navigation unit (see page 23-154). ■

(cont'd)

Navigation System - '09-11 models

Symptom Troubleshooting (cont'd)

Navigation display does not open or opens part way

NOTE:

- Check for, and remove, any objects or debris jammed behind the display.
- If the display's Open/Close button does not work, you must manually open the display to obtain the customer's navigation DVD, Audio CD, and PC card (see page 23-153).
- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Press the OPEN/CLOSE button.

Does the display open normally?

YES—The system is OK at this time. ■

NO—Replace the audio-navigation unit (see page 23-154). ■

Voice guidance cannot be heard, is broken up, or there is static

Diagnostic Test: Self-Diagnosis Mode

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the navigation volume level (see the navigation system manual).
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.
- If a Hard Error Code is stored, check the Hard Error Code troubleshooting first.
- Make sure that the correct DVD color and version are installed.
- Inspect the DVD for dirt or damage (see page 23-80).
- Before troubleshooting, make sure you have anti-theft code for the navigation system.
- After troubleshooting, enter the anti-theft code for the navigation system if necessary.

1. Turn the ignition switch to ON (II).

2. Check the audio system operation.

Can you hear the audio system?

YES—Go to step 3.

NO—Do the troubleshooting for No sound is heard from the speaker(s) (display is normal) (with navigation) (see page 23-39). ■

3. Press the SET-UP button.

4. Check the volume and voice feedback setting for the navigation system in set-up.

Is either set to off?

YES—Set the voice feedback to on, select a comfortable volume level and recheck.

NO—Go to step 5.

5. Select the Self-Diagnosis mode.

6. Check for an error code in the Hard Error History.

Is a Hard Error Code in stored?

YES—Refer to the Hard Error Code troubleshooting. ■

NO—Make sure all the pre-conditions noted at the beginning of this procedure have been checked. If OK, replace the audio-navigation unit (see page 23-154). ■



Voice control does not work/respond

Diagnostic Test: Mic Level

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Make sure that the correct DVD color and version are installed.
- Check any official Honda service website for more service information about the navigation system.
- Before assuming that a voice complaint is hardware related, ensure that the voice control system is being operated correctly.
 - Make sure you are on the correct screen when trying to issue a voice command. For instance, the command "Find the nearest Italian Restaurant" only works on Map screen. (See the navigation system manual for a complete list of allowed voice commands for the information being displayed).
 - Close the windows and sunroof.
 - Set the fan speed to low (1 or 2).
 - Adjust the air flow from the air conditioning vents so that they do not blow against the microphone on the ceiling.
 - Pause after pressing the navigation TALK button then give a voice command clearly in a natural speaking voice. If the system cannot recognize your command, speak louder.
 - If you speak a command with something in your mouth, or your voice is too husky, or high pitched, the system may misunderstand your command.
- Check the connectors for poor connections or loose terminals.
- Check for a loose roof console microphone; if it's loose, tighten it.
- Before troubleshooting, make sure you have anti-theft code for the navigation system.
- After troubleshooting, enter the anti-theft code for the the navigation system if necessary.
- Determine if the problem only happens to one person, or everyone who uses the system.
- If the system only has a problem with one person's voice, this should be considered a system limitation.
- If a Hard Drive Error Code is stored, check the Hard Error Code troubleshooting first.
- Inspect the DVD for dirt and damage (see page 23-80).

1. Go into the Self-Diagnostic Mode select, Mic Icon Menu, and use the Mic Level test under Functional Setup (see page 23-117) to check the operation of the navigation Talk and navigation Back buttons.

Do the navigation TALK and navigation BACK icons turn green when the TALK and BACK buttons are operated?

YES—Go to step 2.

NO—Go to step 3.

2. Use the Mic Level diagnostic under Functional Setup (see page 23-117) to check the operation of the microphone.

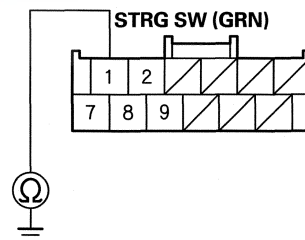
Is the microphone operational?

YES—Check the operation of the voice control system (see the navigation system manual), and compare system operation with a known-good vehicle.■

NO—Go to step 6.

3. Turn the ignition switch to LOCK (0).
4. Disconnect the navigation unit connector D (12P).
5. Measure the resistance between the audio-navigation unit connector D (12P) terminal No. 1 and body ground in each switch position according to the table.

AUDIO-NAVIGATION UNIT CONNECTOR D (12P)



Wire side of female terminals

Position	Resistance
No button pressed	About 10 kΩ
Navigation TALK	About 2.2 kΩ
Navigation BACK	About 660 Ω

Is the resistance as specified?

YES—Substitute a known-good audio-navigation unit, and recheck. If the symptom goes away, replace the audio-navigation unit (see page 23-154).■

NO—Check the voice control switch (see page 23-156). If the voice control switch is OK, repair an open or short between the switch and the audio-navigation unit.■

(cont'd)

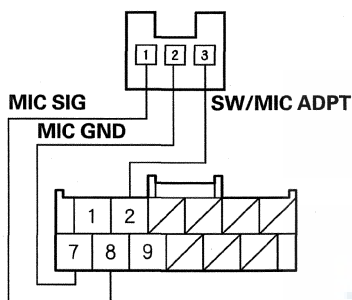
Navigation System - '09-11 models

Symptom Troubleshooting (cont'd)

6. Turn the ignition switch to LOCK (0).
7. Disconnect the audio-navigation unit connector D (12P) and the microphone connector (3P).
8. Check for continuity between navigation unit connector D (12P) and the microphone connector (3P) according to the table.

Microphone connector	Audio-navigation Unit connector	Wire color
1	D8	LT GRN
2	D7	PUR
3	D2	RED

MICROPHONE CONNECTOR (3P)
Wire side of female terminals



AUDIO-NAVIGATION UNIT CONNECTOR D (12P)
Wire side of female terminals

Is there continuity?

YES—Substitute a known-good microphone assembly, and recheck. If the symptom is still present, replace the audio-navigation unit (see page 23-154).■

NO—Repair an open or high resistance in the wire between the microphone and the navigation unit.■

DVD read error messages

Diagnostic Test: Car Status

NOTE:

- Check the vehicle battery condition first (see page 22-68).
 - Confirm the correct DVD color and version is installed in the audio-navigation unit (see page 23-79).
 - Refer to General Troubleshooting for a list of common DVD read error messages and the probable causes (see page 23-125).
 - Check any official Honda service website for more service information about the navigation system.
 - Go into the Diagnostic mode and use the ECU Info of Unit Check (see page 23-113) diagnostic to check the status of the DVD cover.
 - Inspect the navigation DVD for scratches or damage.
 - The following troubleshooting is for the error message shown on the error messages table (see page 23-125).
1. Check the DVD-ROM reading surface for scratches and finger prints.

Are there any scratches or finger prints on the DVD-ROM reading surface?

YES—Clean or replace the DVD-ROM (see page 23-154).■

NO—If the problem occurs occasionally when the system is cold, this is normal. If the problem occurs frequently when driving, replace the audio-navigation unit (see page 23-154).■



Display day/night mode does not work or does not work properly

NOTE:

- Turn the headlight on, and check that the dash brightness setting is not set to high.
- Check the connectors for poor connections or loose terminals.
- Always check for and resolve all CAN DTCs before troubleshooting the navigation system.
- Verify that the correct audio-navigation unit is installed for this model. Go into the Diagnostic mode and use Version (see page 23-122).
- Make sure that the correct DVD color and version are installed.
- Inspect the DVD for dirt or damage (see page 23-80).
- Check any official Honda service website for more service information about the navigation system.

1. Turn the ignition switch to ON (II).
2. Make sure the instrument panel brightness control is not on full brightness. Turn the headlights on, and adjust the dash brightness to the middle range.
3. Change the day/night mode under Set-up to Auto and recheck.

Does the display change to day and night modes when turning the headlights on and off?

YES—The system is OK at this time. ■

NO—Go to step 4.

4. Go into the Diagnostic Menu, and use the Car Status test to check for an ILL signal (see page 23-121).

Is the ILL signal OK?

YES—Replace the audio-navigation unit (see page 23-154). ■

NO—Check the ILL+ circuit between the navigation unit and No. 29 (10 A) fuse in the under-dash fuse/relay box. ■

System locks up or freezes constantly

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Always check for and resolve all CAN DTCs before troubleshooting the navigation system.
- Verify that the correct audio-navigation unit is installed for this model. Go into the Diagnostic mode, and use Version (see page 23-122).
- Make sure that the correct DVD color and version are installed.
- Inspect the DVD for dirt or damage (see page 23-80).
- Check any official Honda service website for more service information about the navigation system.
- Before troubleshooting, make sure you have anti-theft code for the navigation system.
- After troubleshooting, enter the anti-theft code for the navigation system.
- Check the DVD for damage or scratches.
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Remove the DVD, and check the DVD reading surface for scratches and finger prints.

Are there any scratches or finger prints on the DVD-ROM reading surface?

YES—Clean or replace the DVD-ROM (see page 23-154) and recheck. ■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0), and then back to ON (II).

Does the system reboot, lock up, or freeze?

YES—Replace the audio-navigation unit (see page 23-154). ■

NO—The system is OK at this time. Go into the Diagnostic mode, and use the Unit Check diagnostic (see page 23-113) to check the audio-navigation unit and display panel control unit status. If any status are NG, replace the affected units. ■

(cont'd)

Navigation System - '09-11 models

Symptom Troubleshooting (cont'd)

Vehicle icon wanders across the map when driving (does not follow a displayed road) or map vehicle ICON spins

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This is not the same condition as when driving off-road (or on a fire or logging road).
- This condition is caused by a loss of map matching from a bad sensor input. Check for aftermarket or other objects that can block the GPS signal. Always perform Map matching (see page 23-78) before proceeding with the troubleshooting.
- Verify that the correct audio-navigation unit is installed for this model. Go into the Diagnostic mode, and use Version (see page 23-122).
- Make sure that the correct DVD color and version are installed.
- Check for aftermarket metallic window tinting.
- Inspect the DVD for dirt or damage (see page 23-80).
- Check any official Honda service website for more service information about the navigation system.
- Before troubleshooting, make sure you have anti-theft code for the navigation system.
- After troubleshooting, enter the anti-theft code for navigation system.
- Check the DVD for damage or scratches.
- Check the connectors for poor connections or loose terminals.

1. Check the GPS icon on the navigation screen.

Is the GPS icon white or missing?

YES—Do the troubleshooting for GPS icon is white or not shown (see page 23-141).■

NO—Go to step 2.

2. Go into the Self-Diagnostic mode, and use the Yaw Rate diagnostic (see page 23-120) to check the yaw rate sensor.

Is the yaw rate sensor OK?

YES—Go to step 3.

NO—Replace the audio-navigation unit (see page 23-154).■

3. Go into the Diagnostic mode, and use the Car Status diagnostic (see page 23-121) to check the vehicle speed pulse (VSP) and the BACK signals.

Are the vehicle speed pulse and the BACK signals OK?

YES—The symptom may be a characteristic of the system. Check to see if the symptom occurs in the same place in a known-good vehicle. If it does, the problem could be in the database. Go to step 4.

NO—

- If the problem is the vehicle speed pulse, troubleshoot the vehicle speed signal circuit LT BLU wire for open or short. If OK, swap a known-good ECM/PCM. If the problem or symptom goes away, replace the original ECM/PCM (see page 11-215).
- If the BACK signal is indicated ON (I) when in any shift lever position other than reverse, troubleshoot the back-up light switch circuit or MICU (A/T models).■

4. Substitute a known-good audio-navigation unit, and check to see if the problem occurs in the same place.

Does the problem occur in the same place?

YES—The problem is in the database, and should be considered a characteristic of the system. Report the problem according to the navigation system manual under Reporting Errors, and look for improvements in future databases.■

NO—Replace the audio-navigation unit (see page 23-154).■



Navigation system does not accept security code

NOTE:

- Check the vehicle battery condition first (see page 22-68).
 - If the navigation display touch screen functions do not respond, go to Detail Information & Settings, and select Monitor Check. Do the Touch Panel Check 1 and Touch Panel Check 2 test (see page 23-110).
 - If the navigation display hard buttons do not respond, go to Detail Information & Settings, and select Unit Check. Select the Hard Key, and do the button checks (see page 23-113).
 - The system will not operate without the 4-digit security (anti-theft) code. Follow the this procedure. (After 10 consecutive tries, you must cycle the key to continue trying)
 - The Navigation System Diagnosis and Core Return Form is available on ISIS, under Job aids, and can be printed out for recording this information. This information will help the reman facility determine what caused the failure.
 - Verify that the correct audio-navigation unit is installed for this model. Go into the Diagnostic mode, and use Version (see page 23-122).
 - Check the connectors for poor connections or loose terminals.
 - Before troubleshooting, make sure you have anti-theft code for the navigation system.
 - Make sure that the correct DVD color and version are installed.
 - Inspect the DVD for dirt or damage.
 - Check any official Honda service website for more service information about the navigation system.
1. Go into the Diagnostic mode, and use the ECU Info under the Unit Check diagnosis (see page 23-113). A brief diagnostic runs for 20 seconds, and the serial number is displayed.

Is the serial number displayed?

YES—Go to step 4.

NO—Go to step 2.

2. Remove the audio-navigation unit (see page 23-154).

3. Check the serial number on the label on the underside of the audio-navigation unit.

Is the serial number confirmed on the underside of the audio-navigation unit?

YES—Go to step 4.

NO—Replace the audio-navigation unit (see page 23-154).■

4. Using the serial number, look up the navigation security code in the Interactive Network. Select: Service, Vehicle Information, Anti-Theft code Inquiry, and then select Navigation from the “product” dropdown box. Enter the serial number.

Is a 4-digit code displayed on the screen?

YES—Go to step 5.

NO—Call the Warranty Department to obtain the code (the telephone number is in the PDI service bulletin). Then go to step 5.

5. Check that the obtained code works to bypass the code screen in the navigation system.

Does the code work?

YES—The system is OK at this time. Return the vehicle to the customer, and give them the anti-theft code.■

NO—Go to step 6.

6. Try entering four zeros (0000) as the code.

Do the four zeros work to bypass the code screen?

YES—Replace the control unit, and enter “Security code is 0000” in the problem description field of the core return form.■

NO—Replace the control unit, and enter “Won't take security code”, in the problem description field of the core return form; (as proof, enclose the sticker that contains the Serial number and the Code).■

(cont'd)

Navigation System - '09-11 models

Symptom Troubleshooting (cont'd)

Navigation display stays on with ignition switch in LOCK (0)

NOTE:

- Check for aftermarket accessories that may interfere with the navigation system.
- Check the connectors for poor connections or loose terminals.
- Before troubleshooting, make sure you have anti-theft code for the navigation system.
- After troubleshooting, enter the anti-theft code for the navigation system.
- The vehicle may have been used for a show event. Check for a short jumper harness in-line with the audio-navigation unit connector A. If a jumper harness is present, remove it, and return it to Tech Line.

1. Remove the key from the ignition.

Does the navigation screen stay on?

YES—Go to step 2.

NO—The system is OK at this time.■

2. Check for battery voltage on audio-navigation unit connector A (24P) terminal No. 14.

Is there battery voltage?

YES—Troubleshoot a short to battery voltage on the ACC circuit.■

NO—Replace the audio-navigation unit (see page 23-154).■

Navigation cannot control audio system

Diagnostic Test: System Links

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Verify that the correct audio-navigation unit is installed for this model. Go into the Diagnostic mode, and use Version (see page 23-122).
- Check the connectors for poor connections or loose terminals.
- Before troubleshooting, make sure you have anti-theft code for the navigation system.
- After troubleshooting, enter the anti-theft code for the navigation system if necessary.
- Make sure that the correct DVD color and version are installed.
- Inspect the DVD for dirt or damage (see page 23-80).
- Check any official Honda service website for more service information about the navigation system.

1. Turn the ignition switch to ON (II).

2. Check if the navigation system can control the audio and disc functions properly.

Can the navigation system control the audio and disc functions properly?

YES—Intermittent failure, the system is OK at this time.

NO—Go to step 3.

3. Go into the Diagnostic mode, and select the Self-Diagnosis Mode diagnostic (see page 23-107).

Is the Radio icon red?

YES—Do the Audio unit power switch will not turn on (no information display and no sound) (with navigation) troubleshooting (see page 23-35).■

NO—Substitute a known-good audio-navigation unit (see page 23-154), and recheck. If the symptom gone, replace the audio-navigation unit (see page 23-154).■



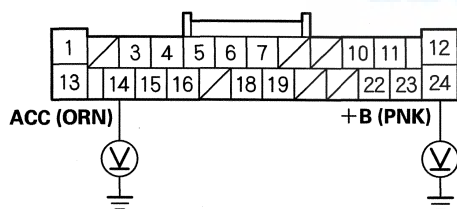
Navigation frequently asks for anti-theft code and/or needs GPS initialization

NOTE:

- This is often caused by a loss of battery power, a low or poor battery condition, or a poor ground.
- Make sure that the correct DVD color and version are installed.
- Check any official Honda service website for more service information about the navigation system.

1. Turn the ignition switch to LOCK (0).
2. Disconnect audio-navigation unit connector A (24P), and check for loose terminals.
Are any of the terminals loose?
YES—Repair or replace the loose terminal(s). ■
NO—Go to step 3.
3. Turn the ignition switch to ON (II).
4. Measure the voltage between body ground and audio-navigation unit connector A (24P) terminals No. 14 and No. 24 individually.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

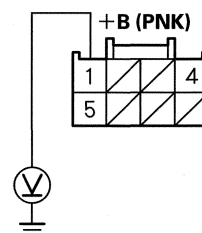
Is there battery voltage?

YES—Go to step 5.

NO—If the +B wire does not have voltage, repair open in the wire between the under-dash fuse/relay box and audio-navigation unit connector A (24P). If the ACC wire does not have voltage, repair open in the wire between the driver's under-dash fuse/relay box and audio-navigation unit connector A (24P). ■

5. Measure the voltage between audio-navigation unit connector C (8P) terminal No. 1 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR C (8P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 6.

NO—Repair open or high resistance in the wire between audio-navigation unit connector C (8P) and the under-dash fuse/relay box. ■

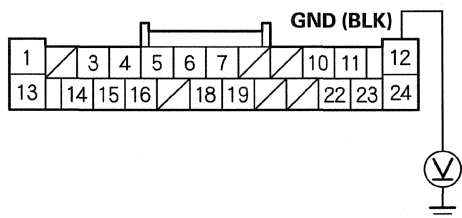
(cont'd)

Navigation System - '09-11 models

Symptom Troubleshooting (cont'd)

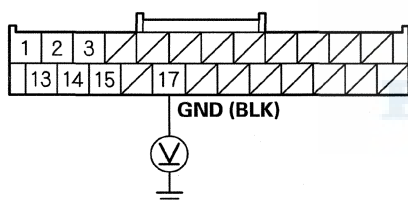
6. Measure the voltage between audio-navigation unit connector A (24P) terminals No. 12 and body ground, between audio-navigation unit connector B (24P) terminal No. 17 and body ground, and between audio-navigation unit connector C (8P) terminal No. 4 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



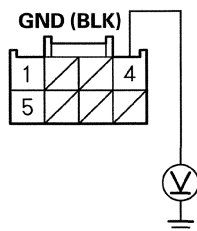
Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR B (24P)



Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR C (8P)



Wire side of female terminals

Is there less than 0.2 V on all terminals?

YES—Replace the audio-navigation unit (see page 23-154).■

NO—Repair open or high resistance in the wire between audio-navigation unit connector A (24P) terminal No. 12 or audio-navigation unit connector B (24P) terminal No. 17 and body ground (G503 and G502), or audio-navigation unit connector C (8P) and body ground (G503).■



The Acura Globe Screen (not the Honda Globe Screen) appears every time the vehicle is started

NOTE:

- The navigation DVD and the audio-navigation unit are correct for the vehicle, but earlier and possibly later versions of the navigation software may have been installed. When this happens, the software may not be recognized by the audio-navigation unit, and could cause the audio-navigation unit to revert to an Acura model profile.
- Check any official Honda service website for more service information about the correct navigation DVD.

1. Remove the audio-navigation unit (see page 23-154), and verify that the parts number printed on the audio-navigation unit label is the correct one for the year/model vehicle you are working on.

Is the correct audio-navigation unit installed based on the part number?

YES—Go to step 2.

NO—Replace the audio-navigation unit with the correct unit for the year/model vehicle you are working on. ■

2. Reinstall the audio-navigation unit.

3. Remove the navigation DVD.

4. Note the software version marked on the DVD label, and verify if it is the correct version for the vehicle year/model you are working on by checking any official Honda service website and searching for any related service information about the navigation system and navigation software.

Is the software version marked on the DVD label the correct one for the vehicle year/model you are working on?

YES—Replace the audio-navigation unit (see page 23-154). ■

NO—Go to step 5.

5. Obtain the correct version DVD (see page 23-78) and install it.

Does the navigation system boot-up with the Honda Globe Screen?

YES—The problem is resolved, troubleshooting is complete. ■

NO—The system still shows Acura Globe Screen. Replace the audio-navigation unit (see page 23-154). ■

(cont'd)

Navigation System - '09-11 models

Symptom Troubleshooting (cont'd)

Audio-navigation unit will not eject or accept the navigation DVD

1. Check the No. 1 (10 A) fuse and the No. 14 (7.5 A) fuse in the under-dash fuse/relay box and the 30 A fuse (auxiliary under-dash fuse box) on the wire harness near the under-dash fuse/relay box.

Are the fuses OK?

YES—Go to step 2.

NO—Replace the blown fuse(s), and recheck. ■

2. Turn the ignition switch to ON (II).

3. Eject the DVD from the audio-navigation unit (see page 23-153).

Does the navigation DVD eject?

YES—Go to step 2.

NO—Go to step 5.

4. Reinsert the audio-navigation DVD into the navigation unit.

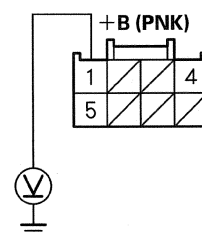
Does the audio-navigation unit accept the navigation DVD?

YES—No problems at this time, the system is normal. Inspect for loose or poor connections at terminals No. 14, No. 24 of audio-navigation unit connector A (24P), and No. 1 of audio-navigation unit connector C (8P). ■

NO—Replace the audio-navigation unit (see page 23-154). ■

5. Measure the voltage between audio-navigation unit connector C (8P) terminal No. 1 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR C (8P)



Wire side of female terminals

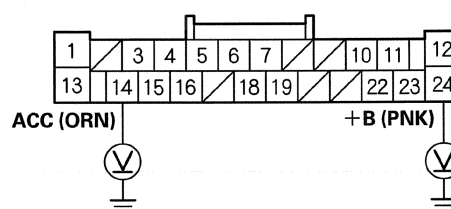
Is there battery voltage?

YES—Go to step 6.

NO—There is an open in the PNK wire between audio-navigation unit connector C (8P) terminal No. 1 and the No. 1 (10 A) fuse in the under-dash fuse/relay box.

6. Measure the voltage between body ground and audio-navigation unit connector A (24P) terminals No. 14 and No. 24.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there battery voltage?

YES—Replace the audio-navigation unit (see page 23-154). ■

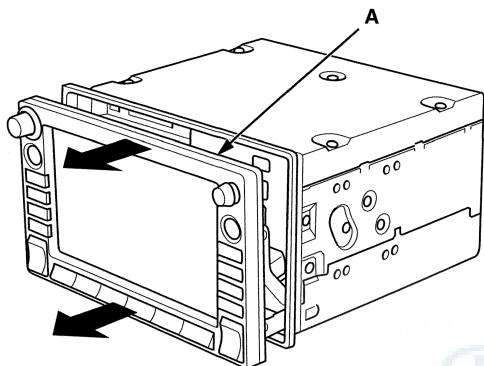
NO—There is an open in the PNK wire between audio-navigation unit connector A (24P) terminal No. 24 and No. 1 (10 A) fuse in the under-dash fuse/relay box, or between the audio-navigation unit connector A (24P) terminal No. 14 and No. 14 (7.5 A) fuse in the under-dash fuse/relay box. ■



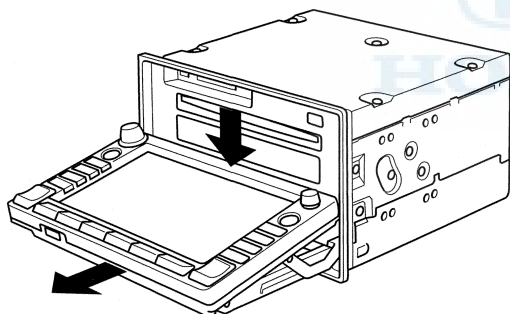
CD, DVD, and PC Card Removal/Installation

If the display will not open, use this procedure to manually open the display and remove the CD, DVD, and/or the PC card.

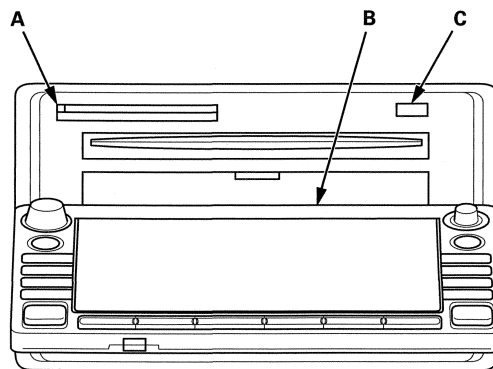
1. Remove the audio-navigation unit from the vehicle (see page 23-154).
2. On the bench, carefully pull the display (A) straight out (about 1/2 inch).



3. Fold down the display as shown in the diagram.



4. Push the PC card eject button (A) to eject the customer's PC card (if installed). Power is not required for this function.



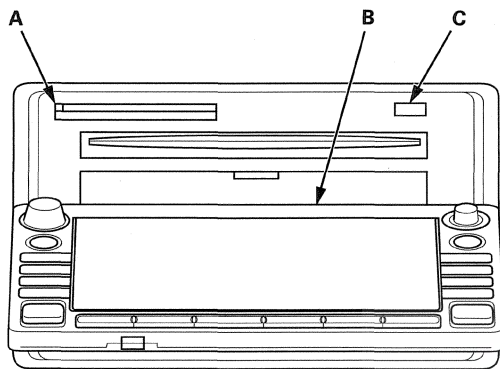
5. Open the plastic cover (B) for the navigation DVD slot. Do not remove the plastic cover.
6. With the display open, temporarily reconnect the unit in the dash (to power it up).
7. Push the CD eject button (C), and navigation DVD eject button and remove the discs (holding both discs by their edges to avoid fingerprints). To avoid scratches, place the navigation DVD and the customer's CD in a jewel case if available.
8. Close the plastic cover that covers the navigation DVD slot.
9. Close the display by first returning the display to the upward position, and then pushing the entire display straight back into the unit.
10. After installing the new audio-navigation unit, re-insert the navigation DVD, the customer's CD, and the PC card.

Navigation System - '09-11 models

DVD-ROM Replacement

NOTE: Check any official Honda service website for more service information about the navigation system.

1. Turn the ignition switch to ON (II).
2. Push the PC card eject button (A) to eject the customer's PC card (if installed). Power is not required for this function.



3. Open the plastic cover (B) for the navigation DVD slot. Do not remove the plastic cover.
4. Push the CD eject button (C), and navigation DVD eject button and remove the discs (holding both discs by their edges to avoid fingerprints). To avoid scratches, place the navigation DVD, and customer's CD in a jewel case if available.
5. Insert the new DVD-ROM with the white label facing up.
6. Close the front cover. Do not turn the ignition switch to LOCK (0); watch the navigation screen until the data is down loaded to the audio-navigation unit.
7. Do the Map Matching (see page 23-78).

NOTE: After servicing, the front cover and PC card slot door must be closed.

8. Reinsert the customer's CD and PC card.

Audio-Navigation Unit Removal/Installation

SRS components are located in this area. Review the SRS component location (see page 24-13).

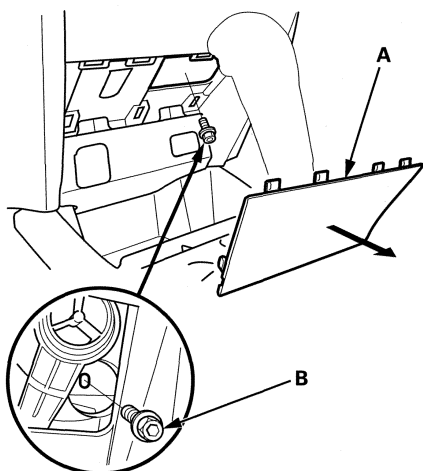
Also review the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

NOTE:

- Before replacing the audio-navigation unit, back-up the customer data using system diagnostic mode Save Users Memory under the functional set up (see page 23-116).
 - If the audio-navigation unit is replaced or disconnected, Map Matching must be done (see page 23-78).
 - Put on gloves to protect your hands.
 - Take care not to scratch the dashboard and related parts.
 - Lay a workshop towel under the parts when working on them to protect the face panel from scratches or other damage.
 - Do not work in a dusty or dirty place.
 - Discharge static electricity from your body before and during the work.
 - Do not touch the circuit board(s) with your bare hands.
 - Do not work with dirty hands.
 - Be careful not to fold the flat plate cable.
 - Do not touch the terminal connector of the flat plate cable with your bare hands. (If you have touched it, wipe it off thoroughly.)
 - Before replacing the audio-navigation unit, make sure to remove the customer's navigation DVD, and their audio CD, or PC card. Remanufactured audio-navigation units do not come with a navigation DVD. Re-install the customer's navigation DVD, audio CD, and audio PC card into the new remanufactured unit. If the navigation display won't open, manually remove the navigation DVD, audio CD, and PC card (see page 23-153).
1. Make sure you have the 4-digit anti-theft code for the navigation system.
 2. Eject the DVD from the original audio-navigation unit (see page 23-153). To avoid scratching or damaging the DVD, temporarily place the DVD in a jewel case.

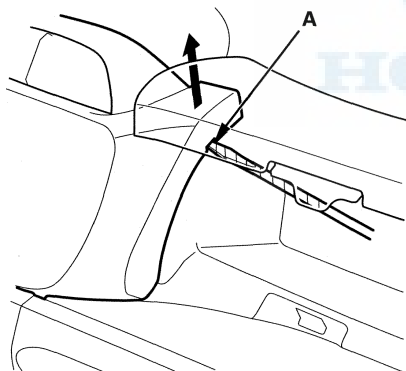


3. Remove the center lower cover (A).



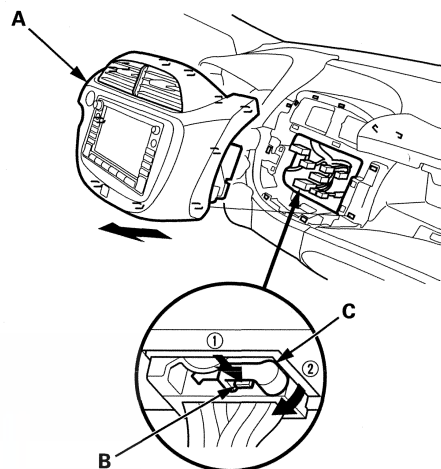
4. Move the recirculation control lever to FRESH to ease access, then remove the mounting bolt (B).

5. Open the dashboard upper tray lid. Insert a flat-tip screwdriver in the groove (A), then pull the screwdriver shaft up slightly.



6. Pull the center panel (A) out and disconnect the connectors, then remove the center panel/audio-navigation unit assembly.

NOTE: When you disconnect audio-navigation unit connector A, while pushing the tab (B), pull the lever (C) up and disconnect the connector.

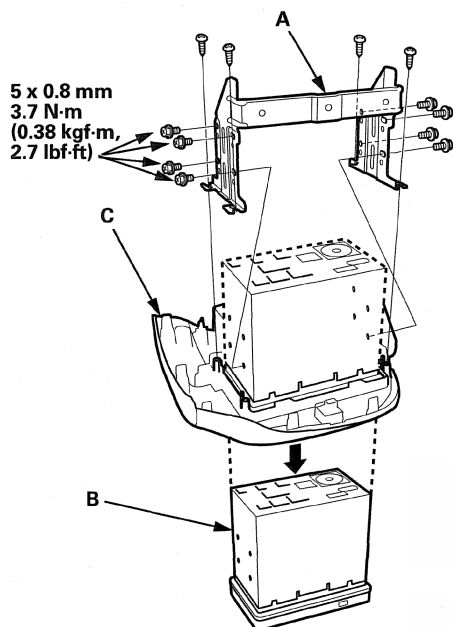


(cont'd)

Navigation System - '09-11 models

Audio-Navigation Unit Removal/Installation (cont'd)

7. Remove the screws, brackets (A), and the audio-navigation unit (B) from the center panel (C).



8. Install the audio-navigation unit in the reverse order of removal, and make sure all connectors are secure.
9. Turn the ignition switch to ON (II), then reinstall the customer's original DVD, verifying that the DVD is free of scratches or smudges.
10. Check any official Honda service website for more service information about the navigation system.

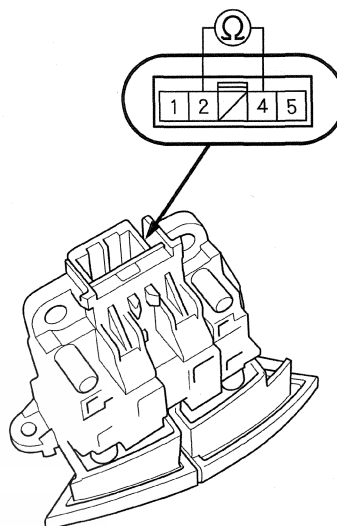
NOTE: Simply transferring the DVD from the original audio-navigation unit to the new audio-navigation unit does not assure the correct software for the vehicle will be loaded into the new audio-navigation unit. Doing the DVD transfer without doing software patches may cause the new audio-navigation unit to appear to be malfunctioning.

11. Enter the new navigation anti-theft code, then enter the radio presets.
12. Park the vehicle outside, and do the GPS initialization (see page 23-77).
13. Give the new navigation anti-theft code to the customer.

Voice Control Switch Test

SRS components are located in this area. Review the SRS component location (see page 24-13), and the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

1. Remove the voice control switch (see page 23-157).



2. Measure the resistance between terminals No. 2 and No. 4 in each switch position according to the table.

Position	Resistance
No button pressed	About 10 k Ω
Navigation TALK	About 2.2 k Ω
Navigation BACK	About 650 Ω

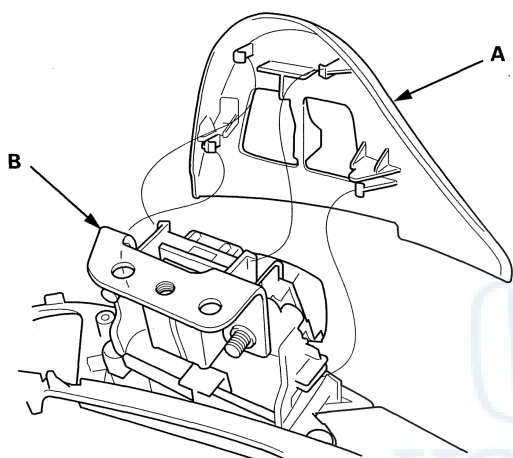
3. If the resistance is not as specified, replace the voice control switch (see page 23-157).



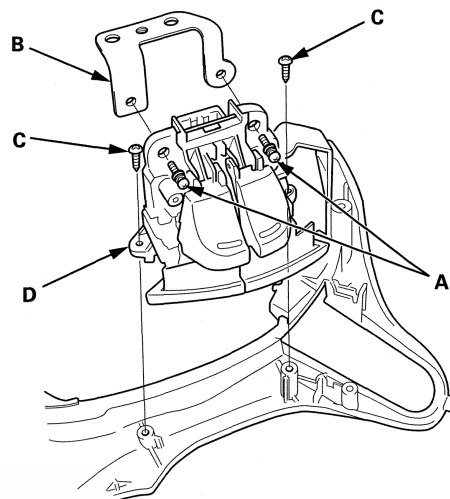
Voice Control Switch Replacement

SRS components are located in this area. Review the SRS component location (see page 24-13), and the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

1. Remove the steering wheel (see page 17-6).
2. Remove the audio remote switch (see page 23-72).
3. Remove the switch cover (A) from the voice control switch (B).



4. Remove the screws (A), and remove the set plate (B).

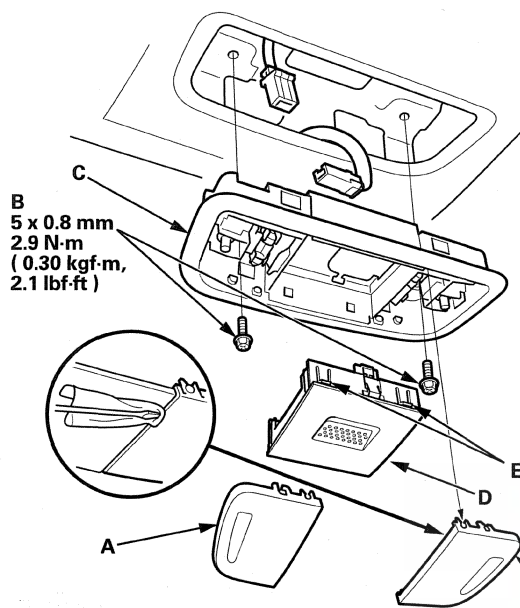


5. Remove the screws (C), and remove the voice control switch (D).
6. Install the voice control switch in the reverse order of removal.

Navigation System - '09-11 models

Microphone Replacement

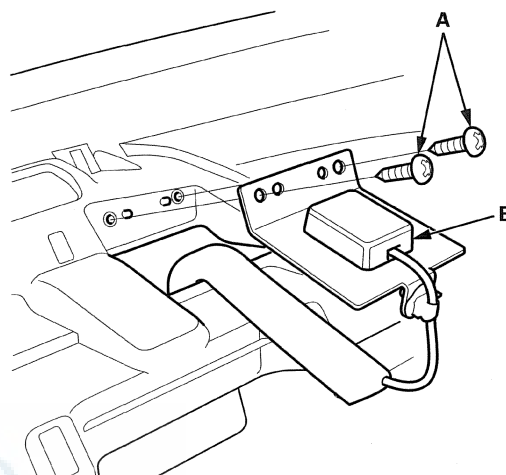
1. Remove the front individual map light lens (A) using a flat-tip screwdriver.



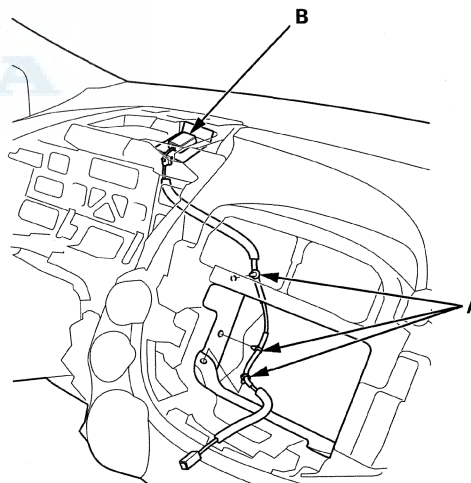
2. Remove the bolts (B), then disconnect the connectors, and remove the map light housing (C).
3. Carefully pry off the microphone housing (D) from the map light housing while pressing the retaining tabs (E).
4. Install the microphone in the reverse order removal.

GPS Antenna Removal/Installation

1. Remove the audio-navigation unit (see page 23-154).
2. Remove the gauge control module (see page 22-294).
3. Remove the screws (A) from the GPS antenna (B).



4. Remove the wire harness clips (A), screws, and GPS antenna (B).



5. Install the GPS antenna in the reverse order of removal.

Audio, Navigation, and Telematics - '12 model

Audio, Navigation, and Telematics

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Control Unit Input

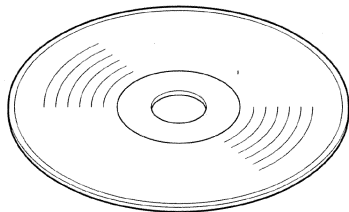
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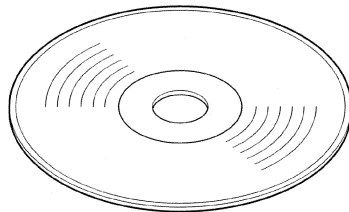
Audio, Navigation, and Telematics - '12 model

Special Tools

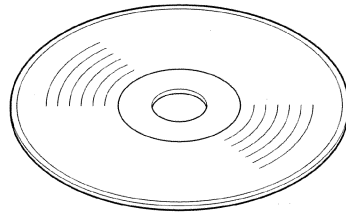
Ref.No.	Tool Number	Description	Qty
①	07AAZ-SDBA100	Diagnostic CD	1
②	07AAZ-SDBA200	Skip Test CD	1
③	07AAZ-SDBA300	Skip Test CD	1



①



②



③

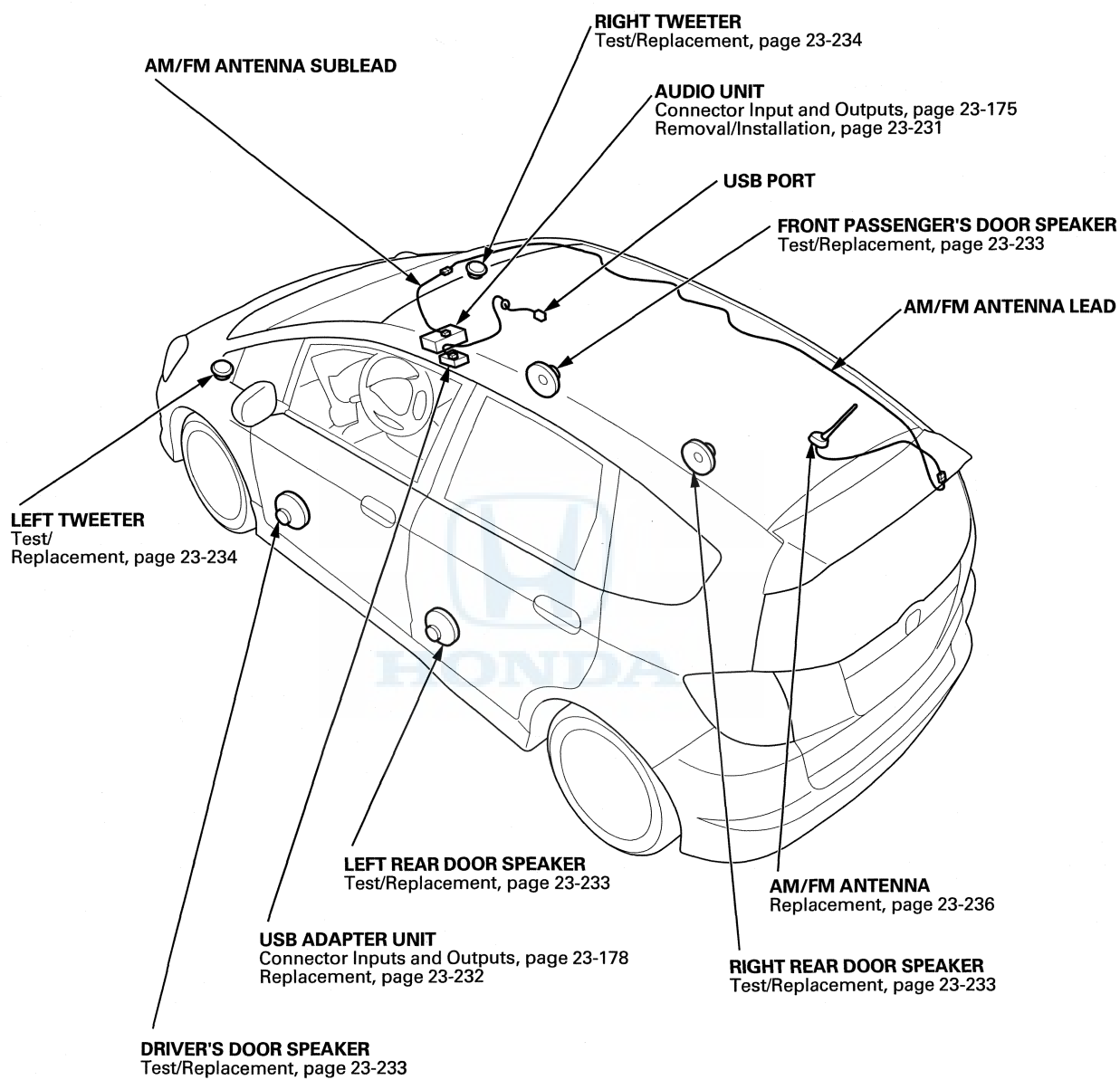


Audio System - '12 model



Component Location Index

Without navigation

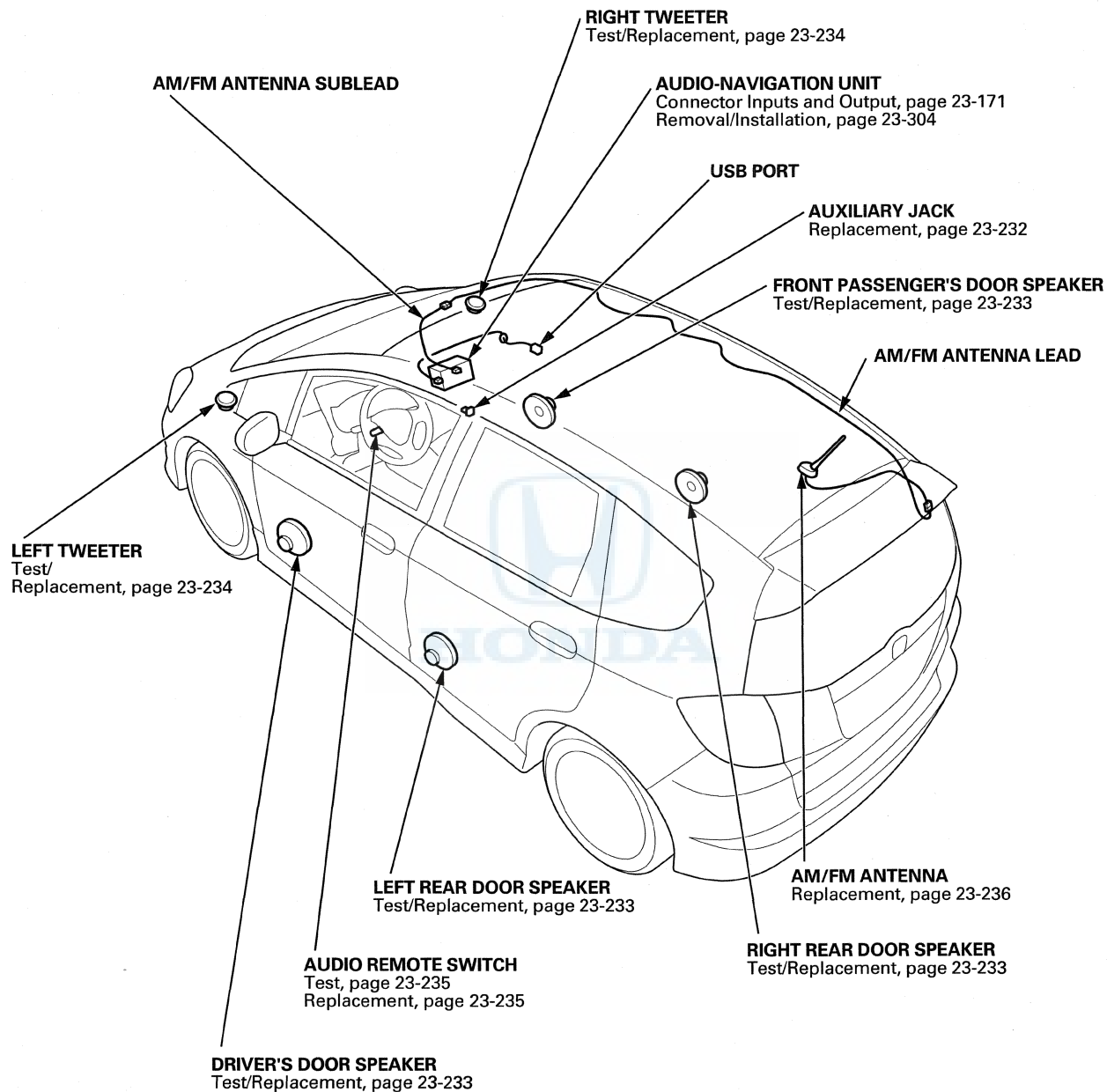


(cont'd)

Audio System - '12 model

Component Location Index (cont'd)

With navigation





Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
Poor AM or FM radio reception or interference (with navigation)	Symptom Troubleshooting (see page 23-192)	<ul style="list-style-type: none"> AM/FM antenna lead and/or sublead short or open in the wire AM/FM antenna open
Poor AM or FM radio reception or interference (without navigation)	Symptom Troubleshooting (see page 23-194)	<ul style="list-style-type: none"> AM/FM antenna lead and/or sublead short or open in the wire AM/FM antenna open
Audio-navigation unit power switch will not turn on (No information display and no sound) (with navigation)	Symptom Troubleshooting (see page 23-197)	
Audio unit power switch will not turn on (No information display and no sound) (without navigation)	Symptom Troubleshooting (see page 23-198)	
Audio-navigation unit power switch will not turn off (with navigation)	Symptom Troubleshooting (see page 23-199)	
Audio unit power switch will not turn off (without navigation)	Symptom Troubleshooting (see page 23-200)	
No sound is heard from the speaker(s) (display is normal) (with navigation)	Symptom Troubleshooting (see page 23-200)	
No sound is heard from the speaker(s) (display is normal) (without navigation)	Symptom Troubleshooting (see page 23-203)	
Audio system sound is weak or distorted (display is normal)	Symptom Troubleshooting (see page 23-205)	
Radio preset memory is lost	Symptom Troubleshooting (see page 23-206)	<ul style="list-style-type: none"> Battery condition Battery cable condition
Volume does not change	Symptom Troubleshooting (see page 23-206)	
Volume does not increase with speed (with navigation)	Symptom Troubleshooting (see page 23-207)	
Volume does not increase with speed (without navigation)	Symptom Troubleshooting (see page 23-208)	
Volume is too high or too low when driving at freeway speeds	Symptom Troubleshooting (see page 23-209)	
Radio tuner does not change stations	Symptom Troubleshooting (see page 23-209)	
Display does not dim or brighten with dimmer (without navigation)	Symptom Troubleshooting (see page 23-210)	
Audio-navigation unit button illumination does not work (with navigation)	Symptom Troubleshooting (see page 23-211)	
Audio unit button illumination does not work (without navigation)	Symptom Troubleshooting (see page 23-212)	
Audio remote switch does not work properly (with navigation)	Symptom Troubleshooting (see page 23-213)	
Audio unit button does not work (without navigation)	Symptom Troubleshooting (see page 23-214)	
Audio unit disc indicator does not work (without navigation)	Symptom Troubleshooting (see page 23-215)	

(cont'd)

Audio System - '12 model

Symptom Troubleshooting Index (cont'd)

Symptom	Diagnostic procedure	Also check for
Audio disc does not load	Symptom Troubleshooting (see page 23-215)	
Audio disc does not eject	Symptom Troubleshooting (see page 23-216)	
Audio disc does not play	Symptom Troubleshooting (see page 23-216)	
Audio disc skips	Symptom Troubleshooting (see page 23-217)	Tire pressure (over-inflated), disc smudged, dirty, or scratched
USB input sound is low or cannot be heard (with navigation)	Symptom Troubleshooting (see page 23-218)	Compatibility of the USB devices (see Owner's Manual)
USB input sound is low or cannot be heard (without navigation)	Symptom Troubleshooting (see page 23-218)	Compatibility of the USB devices (see Owner's Manual)
USB device does not function (with navigation)	Symptom Troubleshooting (see page 23-220)	Compatibility of the USB devices (see Owner's Manual)
USB device does not function (without navigation)	Symptom Troubleshooting (see page 23-221)	Compatibility of the USB devices (see Owner's Manual)
Auxiliary input sound is low or cannot be heard (with navigation)	Symptom Troubleshooting (see page 23-224)	





System Description

Overview

The audio-navigation unit or audio unit acts as the processor for all audio functions. To select audio functions, use one of the following inputs:

- Audio-navigation unit or audio unit
- Audio remote switch on the steering wheel (with navigation)
- Navigation voice control system (with navigation)

The audio display provides the current audio status. For vehicles with navigation, additional audio information is available by touching the audio button on the navigation screen (See the Owner's Manual and the navigation system manual for more details.).

The audio system is equipped with the auxiliary input jack (AUX) in the center panel (without navigation), or in the center lower trim (with navigation). The system accepts auxiliary audio inputs using a 3.5 mm stereo miniplug.

The audio unit has a built-in EEPROM (electrically erasable programmable read-only memory). This memory holds the audio presets (AM/FM radio frequency, sound settings, etc.) even when the battery is disconnected.

A security signal is daisy-chained between the audio and vehicle components and integrated into the vehicle's security system.

Speed-sensitive volume compensation (SVC)

The audio system is equipped with speed-sensitive volume compensation (SVC). The audio unit receives the vehicle speed pulse (VSP) from the ECM/PCM. The system processes the speed input and increases the audio system volume level as the vehicle speed increases to compensate for the interior noises that occur at higher speeds. When the vehicle slows down, the volume returns to its normal level. The SVC has four settings: SVC OFF, LOW, MID, and HIGH that can be adjusted using the audio unit. The factory default setting is MID (see the Owner's Manual for more information).



(cont'd)

Audio System - '12 model

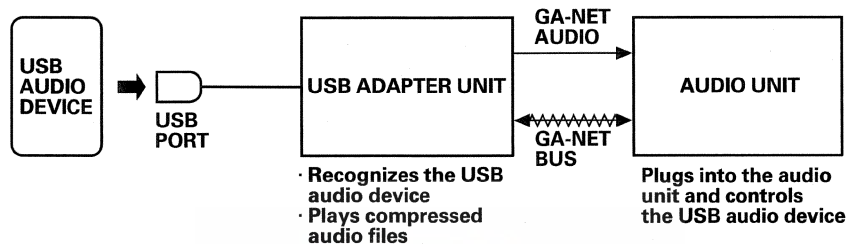
System Description (cont'd)

USB adapter

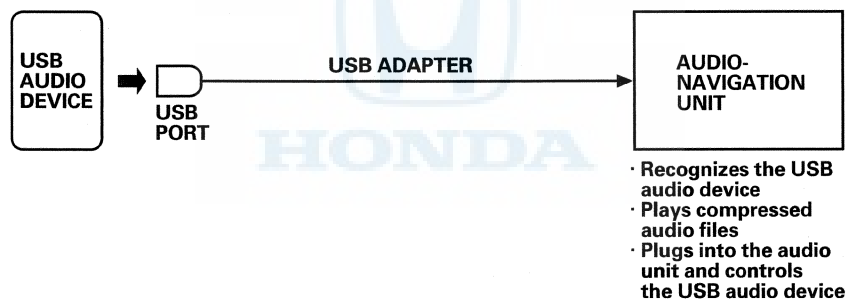
- The audio system supports compressed audio files that are saved on a USB audio device and connected to the audio unit through the USB adapter.
- The audio unit supports GA-Net address and commands for the USB adapter unit (without navigation).
- When the USB device with audio files is connected to the USB adapter, you can select and play the music files using the audio unit controls.
- The audio or audio-navigation unit powers the USB audio device through the USB adapter.
- Connect the USB audio device using the USB adapter cable located in the glove box (see Owner's Manual).

NOTE: Not all players and player functions work with the USB adapter. See the Owner's Manual for more information.

Without navigation:



With navigation:





Muting Logic

The navigation system allows voice control of the audio system and the CD player. Voice control commands are communicated on the GA-Net. When using the navigation TALK/BACK button, the audio is muted on all speakers and you get navigation sound on the front channels. When using the navigation or route guidance (RG), the front speakers give the navigation sound and the rear speakers continue to play. For more information, see the navigation section. The outline of the interruption function is shown in this table.

Contents	Audio output				
	Left front CH	Right front CH	Right rear CH	Left rear CH	Subwoofer CH
Pressing Navigation TALK/BACK Buttons	Navigation output	Navigation output	Muted	Muted	Muted
Route Guidance	Navigation output	Navigation output	Audio	Audio	Audio
HFL	Telephone output	Telephone output	Muted	Muted	Muted
HFL and Route Guidance	Navigation output	Telephone output	Muted	Muted	Muted



(cont'd)

Audio System - '12 model

System Description (cont'd)

NOTE: All items may not apply to this vehicle. See the Owner's Manual for more information.

Audio Glossary

Item	Definition
Active noise cancellation	The active noise cancellation system cancels some of the vehicle noise. This occurs in the 1,500–2,400 rpm range. Microphones detect the low frequency sound, and the system outputs a canceling sound from the audio speaker.
AM (Amplitude Modulation)	The type of transmission used in the standard radio broadcast band from 530 to 1710 kHz.
Amplifier	A device that increases the level of a signal by increasing the current or voltage.
Antenna	A device used to send or receive electromagnetic waves through the air.
ATA (PC Card)	A type of card that is used for playing WMA and MP3 music files in the PC card slot.
Audio remote switch	The switches on the steering wheel that control the audio system.
Auxiliary jack	Allows the customer to use a portable audio device to input audio recordings.
Balance	A control that changes the relative volume of the left and right channels.
Band	A range of frequencies between two definite limits. Bands are assigned by the Federal Communications Commission for specific uses.
Bass	An adjustment for the low frequency sounds of around 160 Hz and below.
Bluetooth Audio	Allows the customer to play audio recordings stored on their cell phone through the audio system.
Byte	A unit of storage for computer files and memory. A CD holds approximately 700 million bytes.
Compact flash	A standard for small-size (3 x 4 cm), memory cards used in mobile computers, PDAs, and digital cameras. Compact flash memory cards are available in size of 32 MB up to 4 GB or more and can be played in the audio PC slot.
CD	A 4.5-inch plastic disc containing digital audio recording that is played optically on a laser equipped player. Never use discs with a paper label. In a hot vehicle, labels can curl up and jam the unit.
CD changer	CD player that can store and play more than one CD. Two types are available. Some units accept CDs fed into the changer one at a time, and others accept a magazine (with CDs stacked in a container).
CD player	A component designed to play compact disc recordings using a laser optical pickup. The signal from a CD player usually requires amplification.
CSF (Cold Start Fix) screens	These screens are displayed if the system requires a GPS initialization. The vehicle should be moved outside into an open area away from buildings/power lines.
db (Decibels)	A method of measuring sound or radio signal strength received by the audio unit antenna.
Distortion	Inexact reproduction of an audio signal caused by playing music at levels the audio system cannot handle.
DUET	A serial data communication line used for sub display.
DVD (Digital Versatile Disc)	A 4.5-inch CD-like format used for storing movies with digital audio and video features. The DVD-A format is a DVD format designed for DVD audio systems. Some vehicles can play DVD and DVD-A formats.
Equalizer	A device that changes the relative volume of individual frequency bands to suit personal tastes of the listener.
Fader	The control that adjusts the relative volume levels of front and rear speakers in a four-speaker system.
Format	To prepare a PC Card to receive files this function is done on a PC. Always choose either FAT or FAT32, as the NTFS format is not accepted by the system. Pick the default sectors for the format method selected.
FM (Frequency Modulation)	The form of modulation used for radio and television sound transmission in most of the world. Less prone to interference than AM. The FM broadcast band in North America covers roughly 87.7 to 107.9 MHz.
GA-Net	The GA-Net allows the audio unit to communicate with all the audio and navigation components in a vehicle. If there is an open in the GA-Net or components, the entire audio and navigation system may appear inoperative.



Audio Glossary (cont'd)

Item	Definition
GB (Gigabyte)	A unit of memory or disk storage equal to one billion bytes (1000 million bytes).
HDD (External)	Abbreviation for hard disc drive. They are sensitive to heat and it is not recommended that they be used in the PC card slot for playing audio files.
HDD (Internal)	Abbreviation for hard disc drive. Some audio-navigation units use an HDD to store navigation software, map data, customer information, and music. The HDD replaces the navigation DVD.
Hz (Hertz)	The unit of frequency equal to one cycle per second (cps). One kilohertz (kHz) equals 1,000 cps; one megahertz (MHz) equals 1 million cps.
Integrated amplifier	A component that combines a pre amp and a power amp into a single unit. A receiver combines an integrated amp and a tuner into a single unit.
LCD (Liquid Crystal Display)	A type of digital display that changes reflectance or transmittance when an electrical field is applied to it.
Memory	Circuitry or devices that hold information in electrical or magnetic form, such as the AM/FM radio presets.
MB (Megabyte)	One million bytes. Written as 1 MB. Megabytes are used as a measure of digital storage space. For example, a CD can hold 650 MB.
Mic (Microphone)	An abbreviation for microphone. For vehicles with navigation, the microphone accepts navigation voice commands to control audio and navigation functions.
Mute	When the navigation gives guidance, the front speakers are muted (no music). When you use the voice control system, all of the speakers are muted.
Noise	Unwanted random sounds like buzzing, hiss, pops, static, whine, etc.
PC card	The slot used for playing MP3 and WMA music files. The PC card is usually a combination of a small flash card in a PCMCIA adaptor that slides into the slot. The ATA, SD, and compact flash types of cards have been tested up to 1 GB.
PCMCIA	A computer standard for the slot that the PC card slides into. Another term for the PC card slot.
Processor	The part of an audio device that performs tasks/calculations. In the audio unit, the processor handles muting to allow the navigation system to speak its voice commands, and the decoding/playback of the sound files, etc.
Radio	A head unit that combines a tuner, a preamplifier, and often a power-amplifier.
Route guidance	Spoken voice used for turn-by-turn navigation from the audio speakers.
Stereo	A recording of at least two channels where you can hear sound or music from the left or right side.
SD (Secure Digital) card	This compact type of memory card allows for fast data transfer and has built-in security functions. SD cards have a small write-protection switch on the side.
SD module	Some audio-navigation units use an SD module to store navigation software, map data, and customer information. The SD module replaces the navigation DVD.
Shield	A metallic foil or braided wire layer surrounding conductors which are designed to prevent electrostatic or electromagnetic interference (noise) from external sources such as buzzing or popping sounds heard on the speakers.
Loudspeaker	A device that converts electrical energy into acoustical energy (sound).
SVC (Speed-sensitive volume compensation)	The SVC increases the audio volume to compensate for increased interior noise when the vehicle is driven at freeway speeds.
Subwoofer	A loudspeaker made to reproduce the lowest audio frequencies, from about 25 Hz to 125 Hz.
Track	A sound recording on a CD, tape, or PC Card.
Treble	An adjustment to control the volume of the high frequency sounds.
Tuner	A component (or part of a component) that receives radio signals and selects one broadcast from many.
Tweeter	A speaker designed to reproduce the higher frequencies (treble) only.
USB jack	See USB port.
USB port	Allows the customers to play data such as input audio recording from portable audio devices (such as i-pod) or data from USB flash memory. The USB is used for playing the compressed audio files (MP3, WMA, ACC, etc.) on the external device through the audio unit.

(cont'd)

Audio System - '12 model

System Description (cont'd)

Audio Glossary (cont'd)

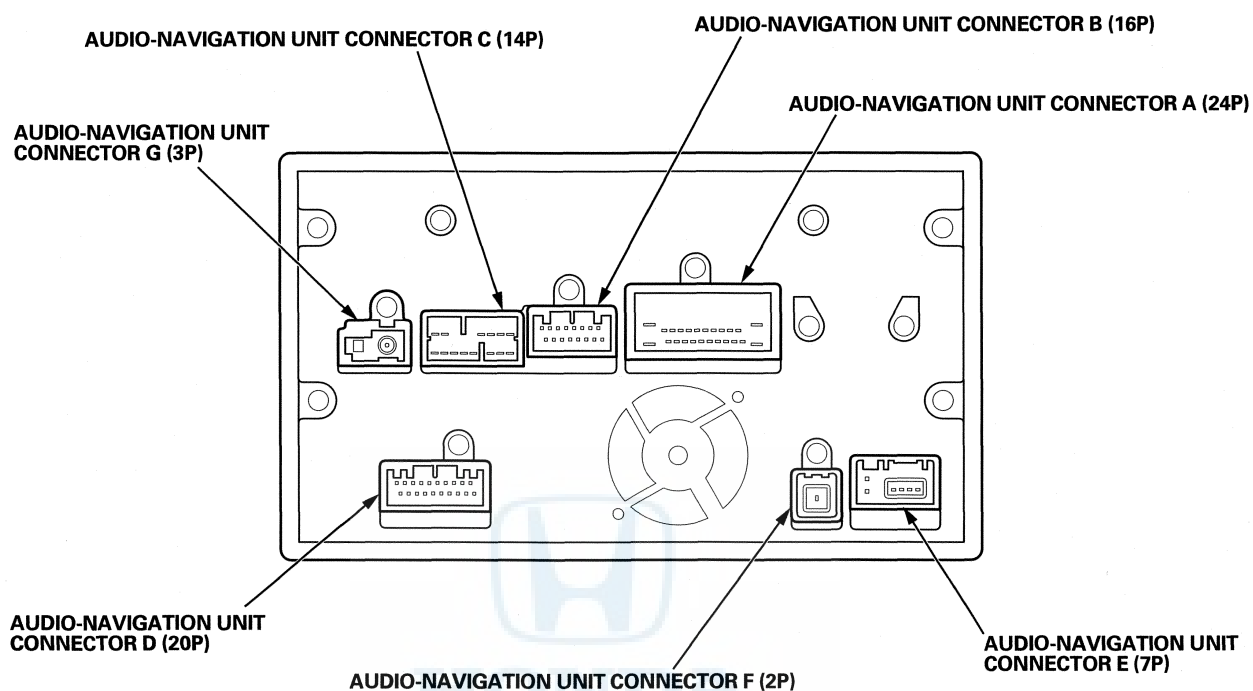
Item	Definition
Woofer	A speaker that is designed to reproduce low (bass) frequencies only.
XM radio	Satellite based radio transmission, which also uses a ground based repeater network to ensure seamless reception. The channels originate from XM's broadcast center, in Washington D.C. and uplink to two satellites. These satellites transmit the signal across the entire continental United States.
XM receiver	The external component that receives and processes the XM signals from the XM satellites and terrestrial (land) stations. The audio unit communicates to the XM receiver over the GA-Net bus.





Audio Unit Connector for Inputs and Outputs

With navigation



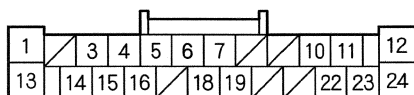
NOTE: Refer to the navigation section for audio-navigation unit connector D and F inputs and outputs (see page 23-261).

(cont'd)

Audio System - '12 model

System Description (cont'd)

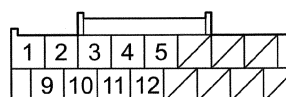
AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Cavity	Wire color	Connects to
A1	RED	Dashlights brightness controller (ILL-)
A3	BLU	Data link connector (DLC) (K-line)
A4	GRN	Security control unit (MICU) (SCTY)
A5	WHT	Audio remote switch (REMOTE GND)
A6	ORN	Right rear door speaker (RR R-)
A7	BLU	Right rear door speaker (RR R+)
A10	BRN	Left rear door speaker (RR L-)
A11	GRY	Left rear door speaker (RR L+)
A12	BLK	Body ground to G503 (GND)
A13	GRY	No. 29 (10 A) fuse in the under-dash fuse/relay box (ILL+)
A14	ORN	No. 14 (7.5 A) fuse in the under-dash fuse/relay box (ACC)
A15	BLU	ECM/PCM (Vehicle speed pulse) (VSP)
A16	PNK	Audio remote switch (REMOTE)
A18	RED	Front passenger's door speaker (-) (FR R-)
A19	BRN	Front passenger's door speaker (+) (FR R+)
A22	LT GRN	Driver's door speaker (-) (FR L-)
A23	LT BLU	Driver's door speaker (+) (FR L+)
A24	PNK	No. 1 (10 A) fuse in the under-dash fuse/relay box (+B)

AUDIO-NAVIGATION UNIT CONNECTOR B (16P)



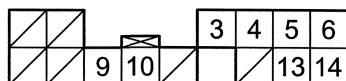
Wire side of female terminals

Cavity	Wire color	Connects to
B1	YEL	Auxiliary jack assembly (AUX L)
B2	BLU	Auxiliary jack assembly (AUX SIG GND)
B3	GRN	Auxiliary jack assembly (AUX R)
B4	PNK	HandsFreeLink control unit (TELEM SIG+)
B5	GRY*	Shield for terminals No. 4 and No. 12 (TELEM SIG SIG)
B9	WHT	Auxiliary jack assembly (AUX DET)
B10	BRN	Auxiliary jack assembly (AUX GND)
B11	GRY*	Shield for terminals No. 1, No. 2, and No. 3 (AUX SH GND)
B12	BLU	HandsFreeLink control unit (TELEM SIG-)

*: The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the schematic.



AUDIO-NAVIGATION UNIT CONNECTOR C (14P)

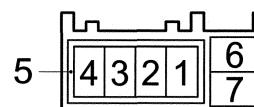


Wire side of female terminals

Cavity	Wire color	Connects to
C3	GRY*	Shield for terminals No. 9 and No. 10 (GA-NET BUS SH)
C4	GRY*	Shield for terminals No. 5, No. 6, No. 13, and No. 14 (AUDIO SH)
C5	BLK	HandsFreeLink control unit (AUDIO R+)
C6	WHT	HandsFreeLink control unit (AUDIO L+)
C9	YEL	HandsFreeLink control unit (GA-NET BUS+)
C10	GRN	HandsFreeLink control unit (GA-NET BUS-)
C13	RED	HandsFreeLink control unit (AUDIO R-)
C14	GRN	HandsFreeLink control unit (AUDIO L-)

*: The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the schematic.

AUDIO-NAVIGATION UNIT CONNECTOR E (7P)



Terminal side of female terminals

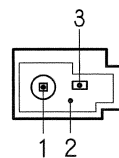
Cavity	Wire color	Connects to
E1	—	USB adapter (USB VBUS)
E2	—	USB adapter (USB DATA-)
E3	—	USB adapter (USB DATA+)
E4	—	USB adapter (USB GND)
E5	—	Shield for terminals No. 1, No. 2, No. 3, and No. 4 (USB SH)
E6	—	Connect to terminals No. 7 (USB DET)
E7	—	Connect to terminals No. 6 (USB DET GND)

(cont'd)

Audio System - '12 model

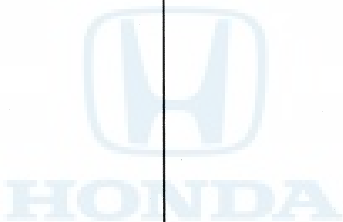
System Description (cont'd)

AUDIO-NAVIGATION UNIT CONNECTOR G (3P)



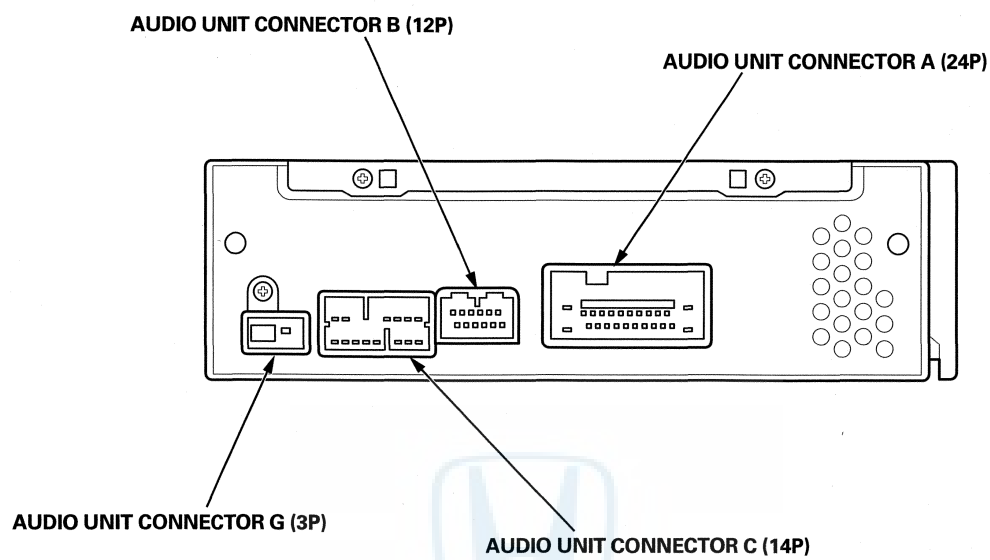
Terminal side of female terminals

Cavity	Wire color	Connects to
G1	—	AM/FM antenna (RF IN)
G2	—	Shield for terminal No. 1 (RF SH)
G3	—	AM/FM antenna (ANT +B)





Without navigation

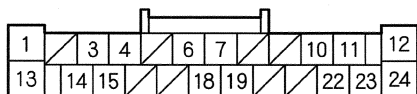


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Audio System - '12 model

System Description (cont'd)

AUDIO UNIT CONNECTOR A (24P)

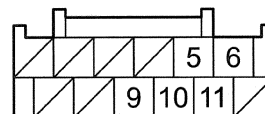


Wire side of female terminals

Cavity	Wire color	Connects to
A1	RED	Dashlights brightness controller (ILL-)
A3	BLU	Data link connector (DLC) (K-line)
A4*	GRN	Security control unit (MICU) (SCTY)
A6	ORN	Right rear door speaker (RR R-)
A7	BLU	Right rear door speaker (RR R+)
A10	BRN	Left rear door speaker (RR L-)
A11	GRY	Left rear door speaker (RR L+)
A12	BLK	Body ground to G503 (GND)
A13	GRY	No. 29 (10 A) fuse in the under-dash fuse/relay box (ILL+)
A14	ORN	No. 14 (7.5 A) fuse in the under-dash fuse/relay box (ACC)
A15	BLU	ECM/PCM (Vehicle speed pulse) (VSP)
A18	RED	Front passenger's door speaker (-) (FR R-)
A19	BRN	Front passenger's door speaker (+) (FR R+)
A22	LT GRN	Driver's door speaker (-) (FR L-)
A23	LT BLU	Driver's door speaker (+) (FR L+)
A24	PNK	No. 1 (10 A) fuse in the under-dash fuse/relay box (+B)

*: With security

AUDIO UNIT CONNECTOR B (12P) (With HansFreeLink)



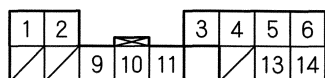
Wire side of female terminals

Cavity	Wire color	Connects to
B5	GRY*	Shield for terminals No. 9 and No. 10 (TELEM SIG SH)
B6	BLU	HandsFreeLink control unit (HFL ICON)
B9	BLU	HandsFreeLink control unit (TELEM SIG-)
B10	PNK	HandsFreeLink control unit (TELEM SIG+)
B11	BRN	HandsFreeLink control unit (HFL MUTE)

*: The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the circuit diagram.



AUDIO UNIT CONNECTOR C (14P) (With USB adapter unit)

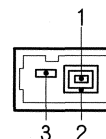


Wire side of female terminals

Cavity	Wire color	Connects to
E1	ORN	USB adapter unit (+B)
E2	BLU	USB adapter unit (SYS ACC)
E3	GRY*	Shield for terminals No. 9 and No. 10 (GA-NET BUS SH)
E4	PNK*	Shield for terminals No. 5, No. 6, No. 13, and No. 14 (AUDIO SH)
E5	BRN	USB adapter unit (AUDIO R+)
E6	WHT	USB adapter unit (AUDIO L+)
E9	YEL	USB adapter unit (GA-NET BUS+)
E10	GRN	USB adapter unit (GA-NET BUS-)
E11	BLK	USB adapter unit (GND)
E13	RED	USB adapter unit (AUDIO R-)
E14	LT BLU	USB adapter unit (AUDIO L-)

*: The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the schematic.

AUDIO UNIT CONNECTOR G (3P)



Terminal side of female terminals

Cavity	Wire color	Connects to
G1	—	AM/FM antenna (RF IN)
G2	—	Shield for terminal No. 1 (RF SH)
G3	—	AM/FM antenna (ANT +B)

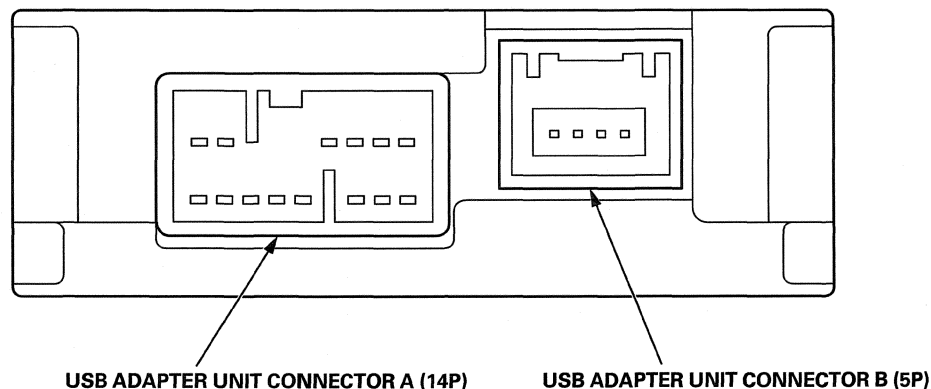
(cont'd)

Audio System - '12 model

System Description (cont'd)

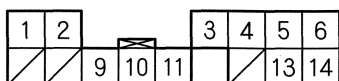
USB Adapter Unit Connector for Inputs and Outputs

Without navigation





USB ADAPTER UNIT CONNECTOR A (14P)

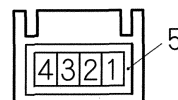


Wire side of female terminals

Cavity	Wire color	Connects to
A1	ORN	Audio unit or Audio-navigation unit (+B)
A2	BLU	Audio unit or Audio-navigation unit (SYS ACC)
A3	GRY*	Shield for terminals No. 9 and No. 10 (GA-NET BUS SH)
A4	PNK*	Shield for terminals No. 5, No. 6, No. 13, and No. 14 (GA-NET AUDIO SH)
A5	BRN	Audio unit or Audio-navigation unit (AUDIO R+)
A6	WHT	Audio unit or Audio-navigation unit (AUDIO L+)
A9	YEL	Audio unit or Audio-navigation unit (GA-NET BUS+)
A10	GRN	Audio unit or Audio-navigation unit (GA-NET BUS-)
A11	BLK	Audio unit or Audio-navigation unit (GND)
A13	RED	Audio unit or Audio-navigation unit (AUDIO R-)
A14	LT BLU	Audio unit or Audio-navigation unit (AUDIO L-)

*: The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire listed on the schematic.

USB ADAPTER UNIT CONNECTOR B (5P)



Terminal side of female terminals

Cavity	Wire color	Connects to
B1	—	USB adapter (USB VBUS)
B2	—	USB adapter (USB DATA-)
B3	—	USB adapter (USB DATA+)
B4	—	USB adapter (USB GND)
B5	—	Shield for terminals No. 1, No. 2, No. 3, and No. 4 (USB SH)

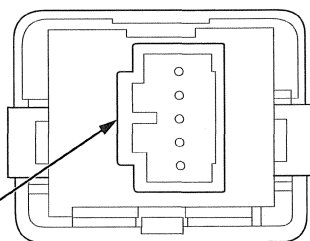
(cont'd)

Audio System - '12 model

System Description (cont'd)

Auxiliary Jack Assembly Connector for Inputs and Outputs

With navigation

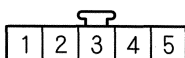


AUXILIARY JACK ASSEMBLY 5P CONNECTOR



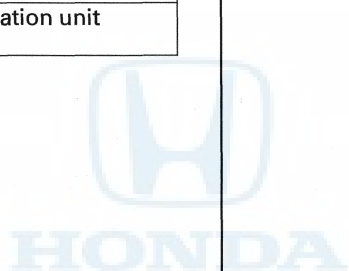


AUXILIARY JACK ASSEMBLY 5P CONNECTOR



Wire side of female terminals

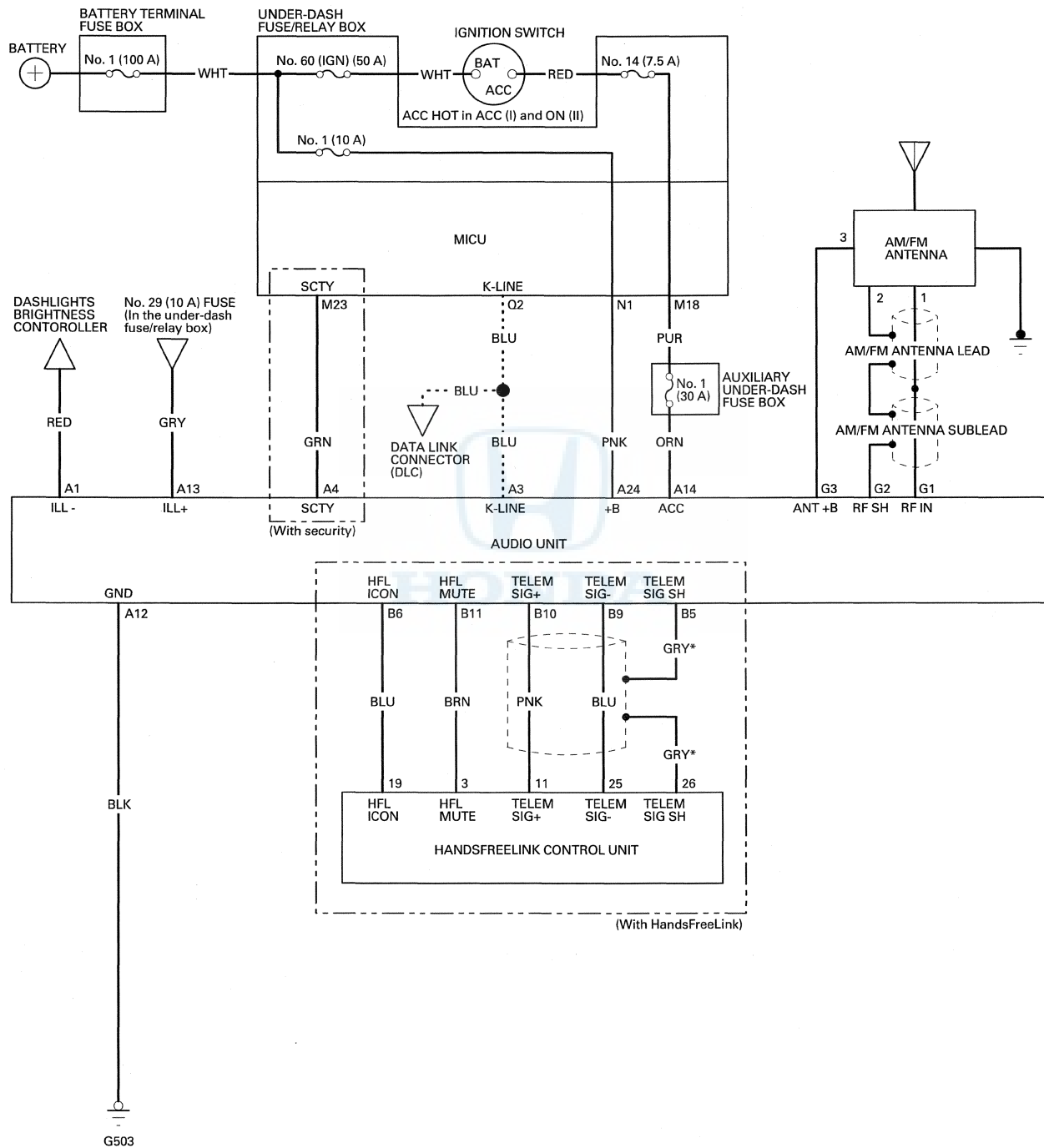
Cavity	Wire color	Connects to
1	WHT	Audio-navigation unit (AUX DET)
2	BRN	Audio-navigation unit (AUX GND)
3	BLU	Audio-navigation unit (AUX SIG GND)
4	YEL	Audio-navigation unit (AUX L)
5	GRN	Audio-navigation unit (AUX R)



Audio System - '12 model

Circuit Diagram

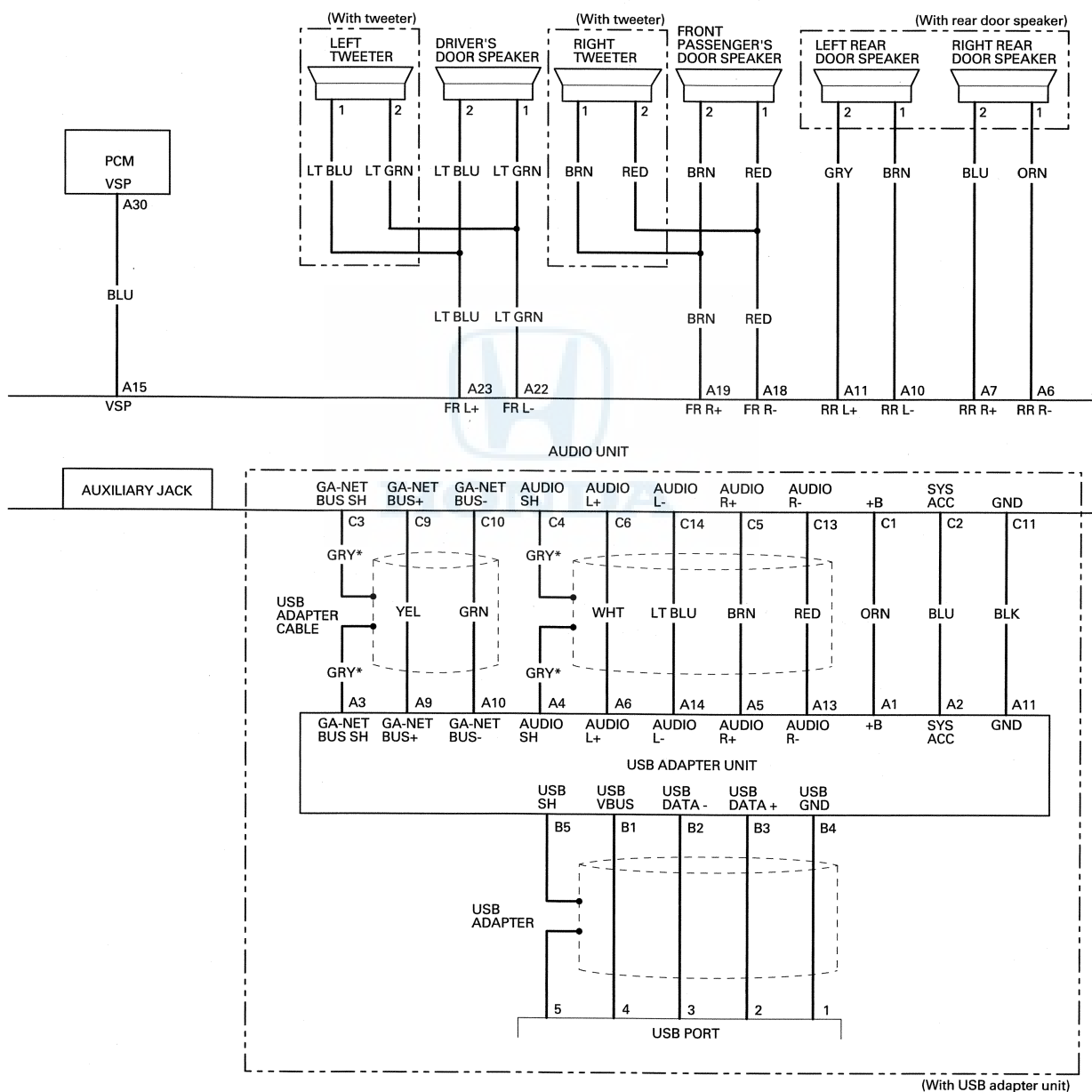
Without Navigation





* : The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire shown on the circuit diagram.

----- : Other communication line
 ----- : Shielding

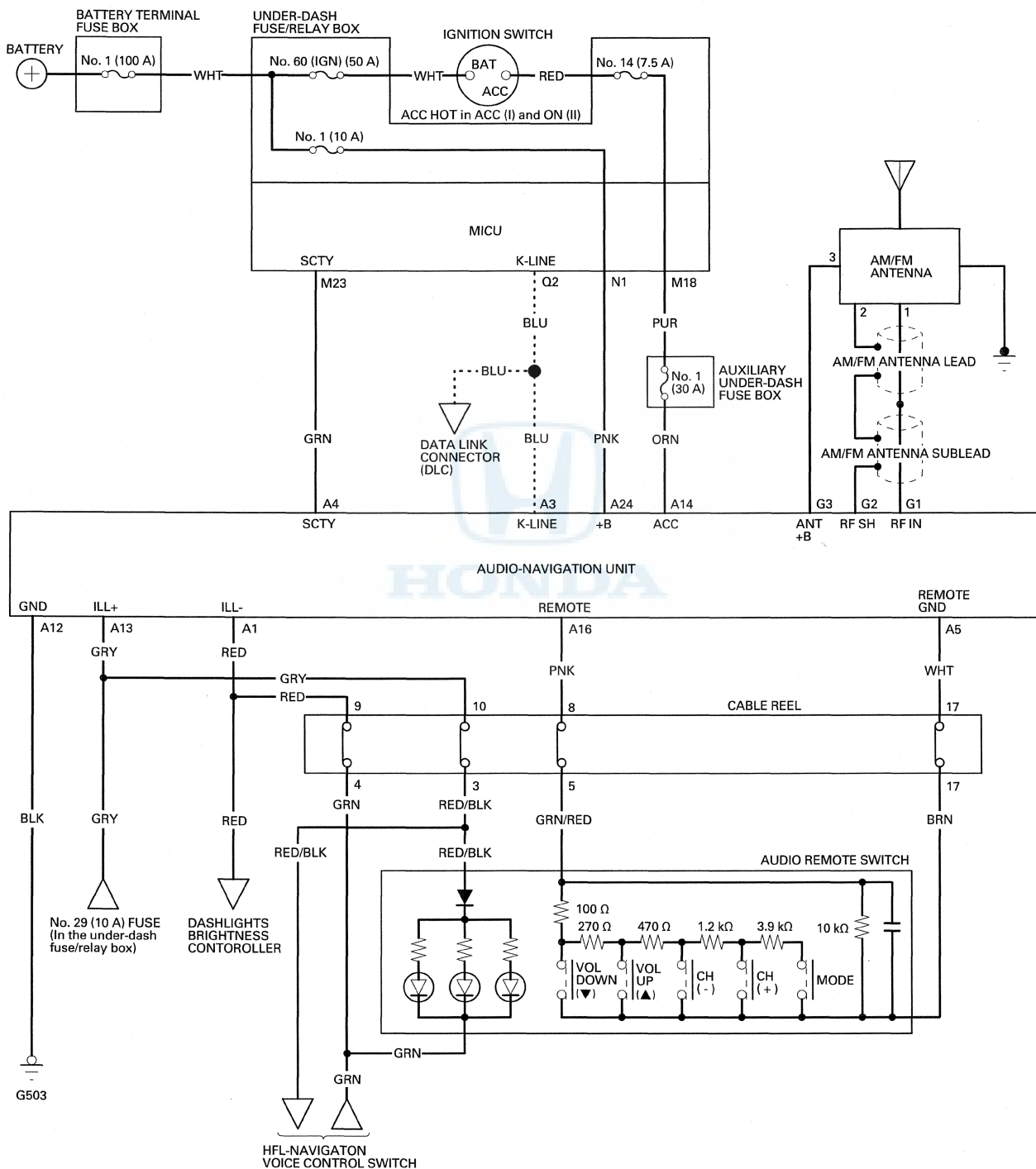


(cont'd)

Audio System - '12 model

Circuit Diagram (cont'd)

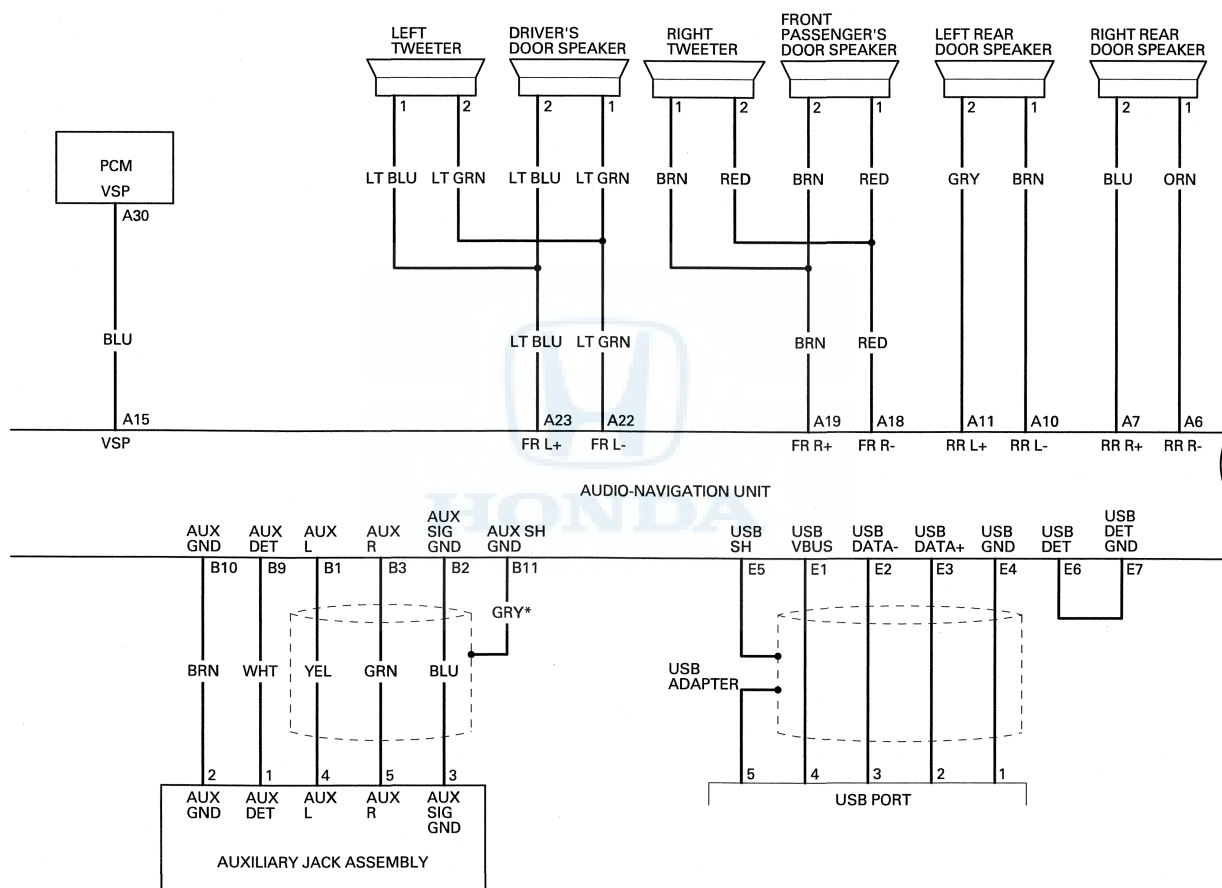
With Navigation





* : The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire shown on the circuit diagram.

----- : Other communication line
 ----- : Shielding



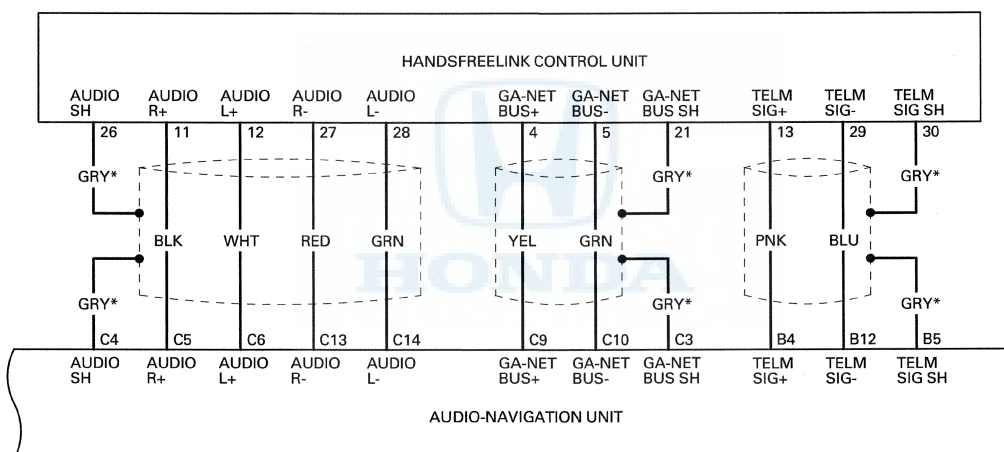
(cont'd)

Audio System - '12 model

Circuit Diagram (cont'd)

* : The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire shown on the circuit diagram.

----- : Shielding





Self-Diagnostic Function

The audio system has a self-diagnostic function.

The audio-navigation unit (with navigation) does not support this function.

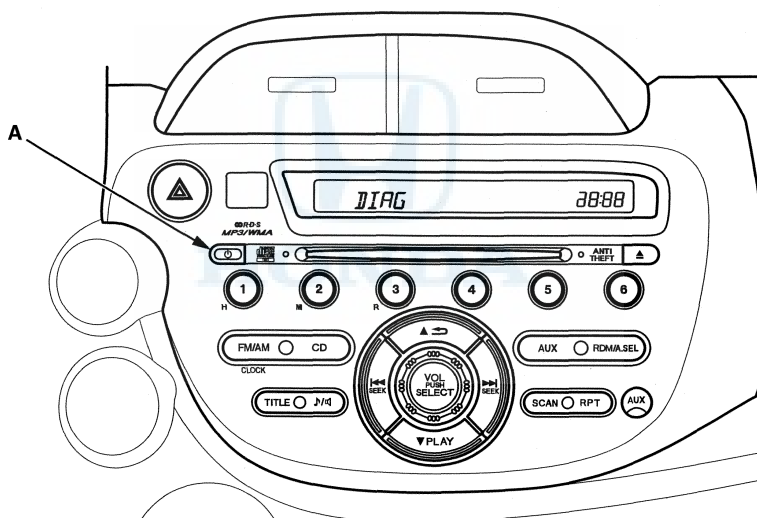
NOTE:

- Not all self-diagnostic functions appear on all models.
- There may be other self-diagnostic functions that are for factory use only.
- The self-diagnostic function does not find every problem with the audio system. Check any official Honda service website for more information about the audio system.

How to Obtain the Audio Unit Serial Number

NOTE: This procedure can only be done after the power has been disconnected and reconnected to the audio unit, and the audio unit displays CODE when the audio unit is turned on.

1. Turn the ignition switch to ON (II).
2. Make sure the audio system is turned off.
3. Press and hold the preset No. 1 and No. 6 buttons.
4. While holding the buttons, push the power button (A) on.



5. Release the buttons, and the self-diagnosis begins.
6. The display shows an 8-digit serial number, for example, SN 12345678, appears on the display.
7. Use all 8 numbers as the serial number when using the Interactive Network (iN) to retrieve the 5-digit anti-theft code.
8. The self-diagnostic mode ends when you turn off the audio unit or turn the ignition switch to LOCK (0).

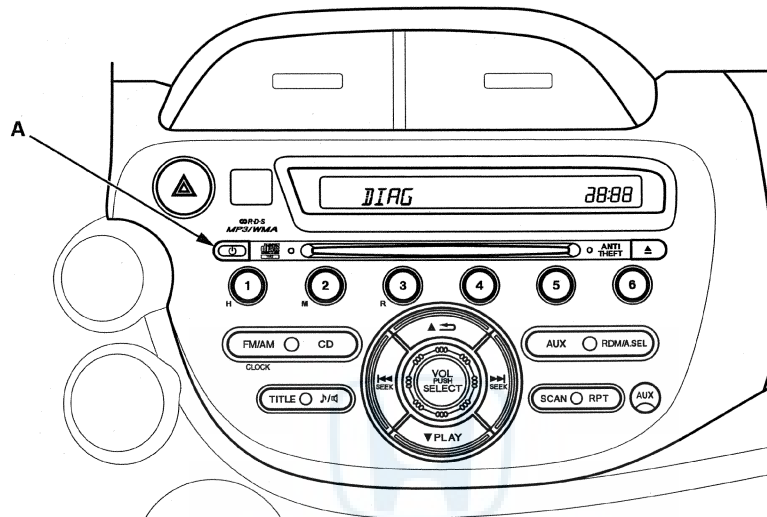
(cont'd)

Audio System - '12 model

Self-Diagnostic Function (cont'd)

How to Use the Audio System Self-diagnostic Function

1. Turn the ignition switch to ON (II).
2. Make sure the audio system is turned off.
3. Push and hold the preset No. 1 and No. 6 buttons.
4. While holding the buttons, push the power button (A) to on.



5. Release the buttons and the self-diagnostic mode begins.



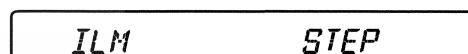
6. When you are in the self-diagnostic mode, pressing a preset button starts the diagnostic mode that is assigned to that preset switch.

	Button operation	Desired result	Diagnostic procedure
	Press the preset No. 2 button	The audio unit (center panel) switch name and/or value should be displayed (Except power button)	Audio unit button(s) does not work (see page 23-214).
A	Press the preset No. 3 button	All of the segments should turn on, then turn off.	This test checks if any audio unit LCD segments are stuck on or are dead (off). If there are any segments stuck on or are dead, replace the audio unit.
B	Press the preset No. 4 button	When the parking light switch is on, the illumination steps should change from — step to 22 step while adjusting the dash brightness control knob	<ul style="list-style-type: none"> • Audio unit button illumination does not work (see page 23-212). • Gauge control module (Lighting)
C	Press the preset No. 5 button	When you drive the vehicle, the VSP indicates the vehicle speed in km/h.	Volume does not increase with speed (see page 23-208).

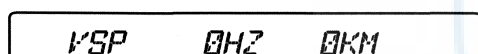
A



B



C



7. If the diagnosis result is not matching the desired result, do the applicable system troubleshooting.
8. The self-diagnostic mode ends when you turn off the audio unit or turn the ignition switch to LOCK (0).

(cont'd)

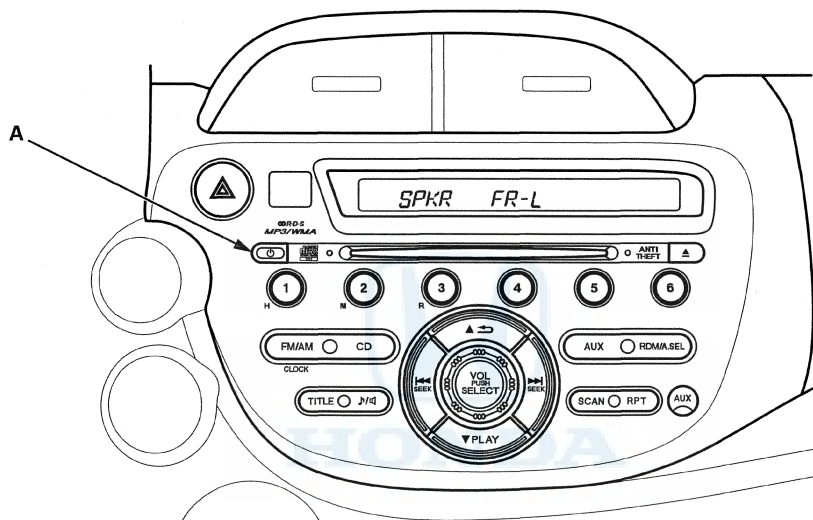
Audio System - '12 model

Self-Diagnostic Function (cont'd)

Speaker Check Mode

NOTE:

- There may be other self-diagnostic functions that are for factory use only.
 - If no sound is heard from the speakers, go to No sound is heard from the speaker(s) (see page 23-203).
1. Turn the ignition switch to ON (II).
 2. Make sure the audio system is turned off.
 3. Push and hold the preset No. 1 and No. 3 buttons.
 4. While holding the buttons, push the power button (A) on.



5. Release the buttons and the speaker check mode begins.
6. Each time you press the SKIP or SKIP button, the speaker outputs a beep and tests the speakers in the order listed.

NOTE: Adjust the volume level to a comfortable level with the VOL PUSH SELECT knob.

Order of Speakers

- SKIP is pressed: ①→②→③→④→⑤
- SKIP is pressed: ①→⑤→④→③→②

	Speaker	Displayed Segments
①	Driver's door speaker and left tweeter*1	SPKR FR-L
②	Front passenger's door speaker and left tweeter*1	SPKR FR-R
③	Right rear door speaker*2	SPKR RR-R
④	Left rear door speaker*2	SPKR RR-L
⑤	All speakers	SPKR ALL

*1: With tweeter
*2: With rear door speaker

7. If any speaker(s) fail to sound, go to symptom troubleshooting.
8. To end the speaker check mode, turn the audio unit off, or turn the ignition switch to LOCK (0).

NOTE: The volume level remains at the same level as when you did the speaker test. If you turned the volume up to do the speaker mode test, return the volume to its normal level.

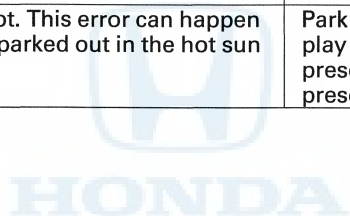


Error Codes

The audio system can display a few error codes when some of the problems are detected with the disc player or the disc. This is not a complete list of the audio error codes. Refer to symptom troubleshooting, or go to any official Honda service website for more service information.

CD Error Codes (without navigation)

Error Code Displayed	Possible Cause	Solution
CD UNSUPPORTED	Track/File format not supported.	Current track will be skipped. The next supported track or file plays automatically. <ul style="list-style-type: none">• Verify that CD file names end in CDA.• Verify that CD-R or CD-RW with compressed music formats end in MP3 or WMA.• Other file formats like i-Tunes (AAC) or Ogg are not recognized.• WMA files may have (DRM) copy protection and cannot be read.
BAD DISC/PLEASE CHECK/OWNERS MANUAL/PUSH EJECT	<ul style="list-style-type: none">• CD label jammed in the mechanism.• The wrong type disc is inserted.• CD eject mechanism or motor is inoperative.• CD spindle motor won't spin up the CD.	<ul style="list-style-type: none">• Eject CD and insert a known-good CD.• If PUSH EJECT is flashing, press the EJECT button and hold it for 5 seconds. If the disc does not eject, try again. If the disc still won't eject, replace the unit.
HEAT ERROR	Disc player is hot. This error can happen if the vehicle is parked out in the hot sun all day.	Park the vehicle in a cooler place for a while and play the disc again. If the error code is still present, try another disc. If the error code is still present, replace the audio unit.



Audio System - '12 model

Symptom Troubleshooting

Poor AM or FM radio reception or interference (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the radio reception in an open area.
- Compare it to a known-good vehicle of the same model, year, and trim level whenever possible.
- If necessary, have the customer demonstrate the symptom.
- Poor reception/interference can be caused by any of these conditions:
 - The radio station is far away.
 - Atmospheric conditions are unfavorable.
 - Tall buildings, mountains, or high-voltage power lines are nearby.
 - Electronic accessories.
 - Non-standard antenna mast.
 - Check for aftermarket accessories plugged into the vehicle accessory power sockets (including cell phones).
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).

2. Do the seek stop test (see page 23-230).

Does the test vehicle receive 90 % of the same stations as the known-good vehicle?

YES—Multipath interference or weak station. Operation is normal at this time.■

NO—Go to step 3.

3. Check if the radio reception/interference is the same as the known-good vehicle in several locations.

Is the reception/interference the same as the known-good vehicle in several different locations?

YES—Multipath interference or weak station. Operation is normal.■

NO—Go to step 4.

4. Check the reception/interference while the engine is running, and compare it to the known-good vehicle.

Is there noise (static or whine) only with the engine running?

YES—Check the antenna and radio grounds. If OK, check the charging system, the fuel injection system (fuel pump), the HVAC blower motor, and the ignition system.■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).

6. Check the antenna mast for cracks or other damage. Make sure that the AM/FM antenna is not loose.

NOTE: Do not use any tools to tighten the antenna mast.

Is there any damage?

YES—Replace the AM/FM antenna (see page 23-236).■

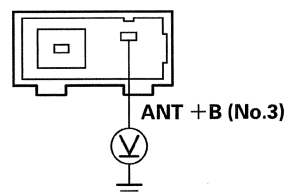
NO—Go to step 7.

7. Disconnect the AM/FM antenna 3P connector.

8. Turn the ignition switch to ON (II).

9. Measure the voltage between AM/FM antenna 3P connector terminal No. 3 and body ground.

AM/FM ANTENNA 3P CONNECTOR



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 15.

NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).

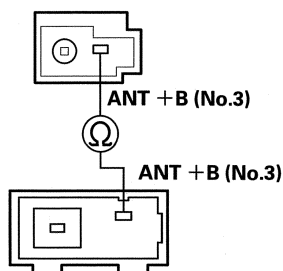
11. Remove the audio-navigation unit (see page 23-304).

12. Disconnect audio-navigation unit connector G (3P).



13. Check for continuity between audio-navigation unit connector G (3P) terminal No. 3 and AM/FM antenna 3P connector terminal No. 3.

AUDIO-NAVIGATION UNIT CONNECTOR G (3P)
Terminal side of female terminals



AM/FM ANTENNA 3P CONNECTOR
Terminal side of female terminals

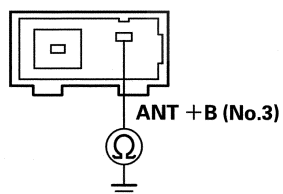
Is there continuity?

YES—Go to step 14.

NO—There is an open in the wire between the audio-navigation unit and the AM/FM antenna. ■

14. Check for continuity between AM/FM antenna 3P connector terminal No. 3 and body ground.

AM/FM ANTENNA 3P CONNECTOR



Terminal side of female terminals

Is there continuity?

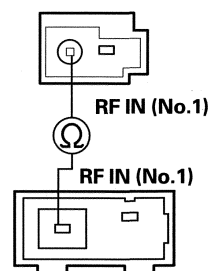
YES—Repair a short in the wire between the audio-navigation unit and the AM/FM antenna. ■

NO—Substitute a known-good audio-navigation unit (see page xx-xxx), and recheck. ■

15. Remove the audio-navigation unit (see page 23-304).

16. Check for continuity between audio-navigation unit connector G (3P) terminal No. 1 and AM/FM antenna 3P connector terminal No. 1.

AUDIO-NAVIGATION UNIT CONNECTOR G (3P)
Terminal side of female terminals



AM/FM ANTENNA 3P CONNECTOR
Terminal side of female terminals

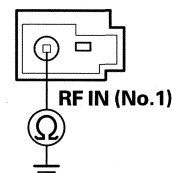
Is there continuity?

YES—Go to step 17.

NO—Replace the antenna lead and/or the sublead. ■

17. Check for continuity between audio-navigation unit connector G (3P) terminal No. 1 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR G (3P)



Terminal side of female terminals

Is there continuity?

YES—Replace the antenna lead and/or the sublead. ■

NO—Go to step 18.

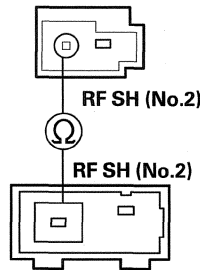
(cont'd)

Audio System - '12 model

Symptom Troubleshooting (cont'd)

18. Check for continuity between audio-navigation unit connector G (3P) terminal No. 2 and AM/FM antenna 3P connector terminal No. 2.

AUDIO-NAVIGATION UNIT CONNECTOR G (3P)
Terminal side of female terminals



AM/FM ANTENNA 3P CONNECTOR
Terminal side of female terminals

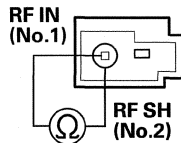
Is there continuity?

YES—Go to step 19.

NO—Replace the antenna lead and/or the sublead.■

19. Check for continuity between audio-navigation unit connector G (3P) terminals No. 1 and No. 2.

AUDIO-NAVIGATION UNIT CONNECTOR G (3P)



Terminal side of female terminals

Is there continuity?

YES—Replace the antenna lead and/or the sublead.■

NO—Replace the AM/FM antenna (see page 23-236), and recheck. If the reception is still poor, replace the audio-navigation unit (see page 23-304).■

Poor AM or FM radio reception or interference (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the radio reception in an open area.
- Compare it to a known-good vehicle of the same model, year, and trim level whenever possible.
- If necessary, have the customer demonstrate the symptom.
- Poor reception/interference can be caused by following:
 - The radio station is far away.
 - Atmospheric conditions are unfavorable.
 - Tall buildings, mountains, or high-voltage power lines are nearby.
 - Electronic accessories.
 - Non-standard antenna mast.
- Check for aftermarket accessories plugged into the vehicle accessory power sockets (including cell phones).
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).

2. Do the seek stop test (see page 23-230).

Does the test vehicle receive 90 % of the same stations as the known-good vehicle?

YES—Multipath interference or weak station. Operation is normal at this time.■

NO—Go to step 3.

3. Check if the radio reception/interference is the same as the known-good vehicle in several locations.

Is the reception/interference the same as the known-good vehicle in several different locations?

YES—Multipath interference or weak station. Operation is normal.■

NO—Go to step 4.



4. Check the reception/interference while the engine is running, and compare it to the known-good vehicle.

Is there noise (static or whine) only with the engine running?

YES—Check the antenna and radio grounds. If OK, check the charging system, the fuel injection system (fuel pump), the HVAC blower motor, and the ignition system. ■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).

6. Check the antenna mast for cracks or other damage. Make sure that the AM/FM antenna is not loose.

NOTE: Do not use any tools to tighten the antenna mast.

Is there any damage?

YES—Replace the AM/FM antenna (see page 23-236). ■

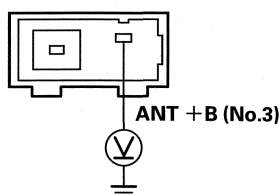
NO—Go to step 7.

7. Disconnect the AM/FM antenna 3P connector.

8. Turn the ignition switch to ON (II).

9. Measure the voltage between AM/FM antenna 3P connector terminal No. 3 and body ground.

AM/FM ANTENNA 3P CONNECTOR



Terminal side of female terminals

Is there battery voltage?

YES—Go to step 15.

NO—Go to step 10.

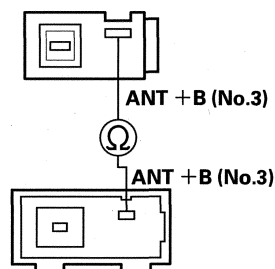
10. Turn the ignition switch to LOCK (0).

11. Remove the audio unit (see page 23-231).

12. Disconnect audio unit connector G (3P).

13. Check for continuity between audio unit connector G (3P) terminal No. 3 and AM/FM antenna 3P connector terminal No. 3.

AUDIO UNIT CONNECTOR G (3P) Terminal side of female terminals



AM/FM ANTENNA 3P CONNECTOR Terminal side of female terminals

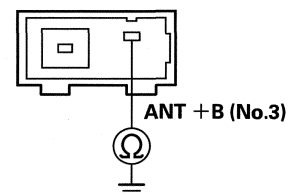
Is there continuity?

YES—Go to step 14.

NO—Repair an open in the wire between the audio unit and the AM/FM antenna. ■

14. Check for continuity between AM/FM antenna 3P connector terminal No. 3 and body ground.

AM/FM ANTENNA 3P CONNECTOR



Terminal side of female terminals

Is there continuity?

YES—Repair a short in the wire between the audio unit and the AM/FM antenna. ■

NO—Substitute a known-good audio unit (see page 23-231), and recheck. ■

15. Remove the audio unit (see page 23-231).

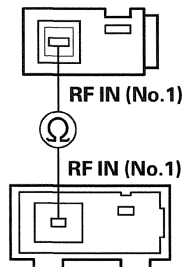
(cont'd)

Audio System - '12 model

Symptom Troubleshooting (cont'd)

16. Check for continuity between audio unit connector G (3P) terminal No. 1 and AM/FM antenna 3P connector terminal No. 1.

AUDIO UNIT CONNECTOR G (3P)
Terminal side of female terminals



AM/FM ANTENNA 3P CONNECTOR
Terminal side of female terminals

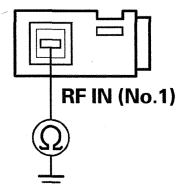
Is there continuity?

YES—Go to step 17.

NO—Replace the antenna lead and/or the sublead. ■

17. Check for continuity between audio unit connector G (3P) terminal No. 1 and body ground.

AUDIO UNIT CONNECTOR G (3P)



Terminal side of female terminals

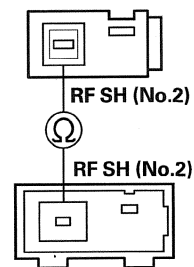
Is there continuity?

YES—Replace the antenna lead and/or the sublead. ■

NO—Go to step 18.

18. Check for continuity between audio unit connector G (3P) terminal No. 2 and AM/FM antenna 3P connector terminal No. 2.

AUDIO UNIT CONNECTOR G (3P)
Terminal side of female terminals



AM/FM ANTENNA 3P CONNECTOR
Terminal side of female terminals

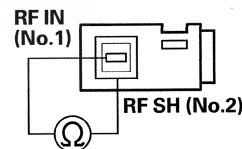
Is there continuity?

YES—Replace the antenna lead and/or the sublead. ■

NO—Go to step 19.

19. Check for continuity between audio unit connector G (3P) terminals No. 1 and No. 2.

AUDIO UNIT CONNECTOR G (3P)



Terminal side of female terminals

Is there continuity?

YES—Replace the antenna lead and/or the sublead. ■

NO—Replace the AM/FM antenna (see page 23-236), and recheck. If the reception is still poor, replace the audio unit (see page 23-231). ■



Audio-navigation unit power switch will not turn on (No information display and no sound) (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Eject all the CDs before removing the audio-navigation unit to prevent damaging the CD player's loading mechanism.

1. With the ignition switch ON (II), push the power switch ON to see if the audio-navigation unit turns on.

Does the audio-navigation unit display operate properly, and does the audio sound normal?

YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 2.

2. Turn the ignition switch to LOCK (0).

3. Check the No. 1 (10 A) fuse and the No. 14 (7.5 A) fuse in the under-dash fuse/relay box and the No. 1 (30 A) fuse (auxiliary under-dash fuse box) on the wire harness near the under-dash fuse/relay box.

Are the fuses OK?

YES—Go to step 4.

NO—Replace the fuse(s), and recheck. ■

4. Remove the audio-navigation unit (see page 23-304). Check that the audio-navigation unit is properly connected.

Is it connected properly?

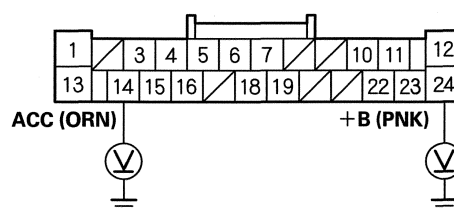
YES—Go to step 5.

NO—Reconnect the connectors, and recheck the function. ■

5. Turn the ignition switch to ON (II).

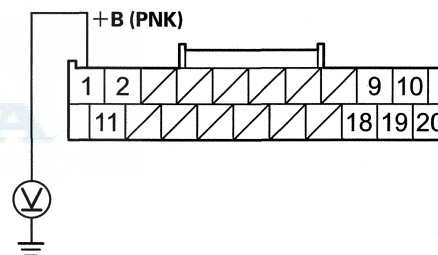
6. Measure the voltage between audio-navigation unit connector A (24P) terminal No. 14 and body ground, and between terminal No. 24 and body ground, and audio-navigation unit connector D (20P) terminal No. 1 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR D (20P)



Wire side of female terminals

Is there battery voltage on both terminals?

YES—Go to step 7.

NO—Repair an open in the wire(s) between the No. 1 (10 A) fuse and the No. 14 (7.5 A) in the under-dash fuse/relay box and the No. 1 (30 A) fuse (auxiliary under-dash fuse box) on the wire harness near the under-dash fuse/relay box and the audio unit. ■

7. Turn the ignition switch to LOCK (0).

8. Reconnect audio-navigation unit connector A (24P) and connector D (20P).

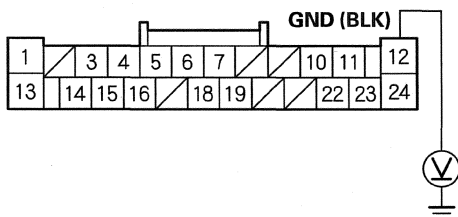
(cont'd)

Audio System - '12 model

Symptom Troubleshooting (cont'd)

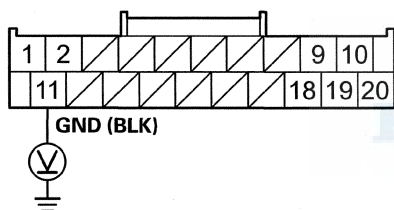
9. Measure the voltage between audio-navigation unit connector A (24P) terminal No. 12 and body ground, and between audio-navigation unit connector D (20P) terminal No. 11 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR D (20P)



Wire side of female terminals

Is there less than 0.2 V on all terminals?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—There is an open or high resistance in the wire between audio-navigation unit connector A (24P) terminal No. 12 or audio-navigation unit connector D (20P) terminal No. 11 and body ground (G503). ■

Audio unit power switch will not turn on (No information display and no sound) (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Eject all the CDs before removing the audio unit and CD changer to prevent damaging the CD player's loading mechanism.

1. With the ignition switch ON (II), push the power switch ON to see if the audio unit turns on.

Does the audio unit operate properly, and does the audio sound normal?

YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 2.

2. Turn the ignition switch to LOCK (0).

3. Check the No. 1 (10 A) fuse and the No. 14 (7.5 A) fuse in the under-dash fuse/relay box and No. 1 (30 A) fuse (auxiliary under-dash fuse box) on the wire harness near the under-dash fuse/relay box.

Are the fuses OK?

YES—Go to step 4.

NO—Replace the fuse(s), and recheck. ■

4. Remove the audio unit (see page 23-231). Check that the audio unit is properly connected.

Is the audio unit connected properly?

YES—Go to step 5.

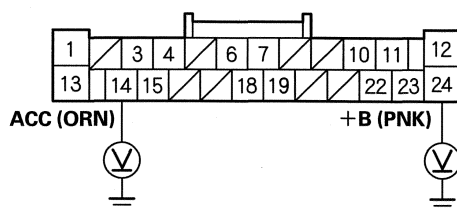
NO—Reconnect the connector, and recheck the function. ■

5. Turn the ignition switch to ON (II).



6. Measure the voltage between body ground and audio unit connector A (24P) terminal No. 14 and No. 24.

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

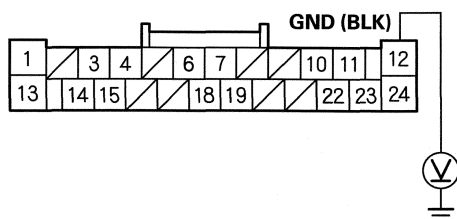
Is there battery voltage on the both terminals?

YES—Go to step 7.

NO—There is an open in the wire(s) between the No. 1 (10 A) fuse and the No. 14 (7.5 A) in the under-dash fuse/relay box and the No. 1 (30 A) fuse (auxiliary under-dash fuse box) on the wire harness near the under-dash fuse/relay box and the audio unit. ■

7. Turn the ignition switch to LOCK (0).
8. Reconnect audio unit connector A (24P).
9. Turn the ignition switch to ON (II).
10. Measure the voltage between audio unit connector A (24P) terminal No. 12 and body ground.

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there less than 0.2 V?

YES—Replace the audio unit (see page 23-231). ■

NO—There is an open or high resistance in the wire between audio unit connector A (24P) terminal No. 12 and body ground (G503). ■

Audio-navigation unit power switch will not turn off (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
 - Check the connectors for poor connections or loose terminals.
 - Check for aftermarket accessories plugged into the vehicle's accessory power sockets.
1. With the ignition switch ON (II), push the power switch off or turn the ignition switch to LOCK (0) to see if the audio-navigation unit turns off.

Is the audio-navigation unit OFF?

YES—Operation is normal at this time. ■

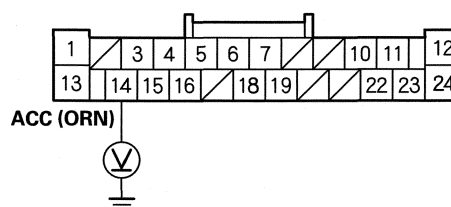
NO—Go to step 2.

2. Turn the ignition switch to LOCK (0).
3. Remove the audio-navigation unit (see page 23-304).

NOTE: Eject all the CDs before removing the audio-navigation unit to prevent damaging the CD player's loading mechanism.

4. Measure the voltage between audio-navigation unit connector A (24P) terminal No. 14 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there battery voltage?

YES—Check for short to power on ORN wire. ■

NO—Replace the audio-navigation unit (see page 23-304). ■

(cont'd)

Audio System - '12 model

Symptom Troubleshooting (cont'd)

Audio unit power switch will not turn off (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
 - Check the connectors for poor connections or loose terminals.
 - Check for aftermarket accessories plugged into the vehicle's accessory power sockets.
 - Eject any audio discs before removing the audio unit to prevent damaging the audio disc player's loading mechanism.
1. With the ignition switch in ON (II), press the power switch or turn the ignition switch to LOCK (0) to see if the audio unit turns off.

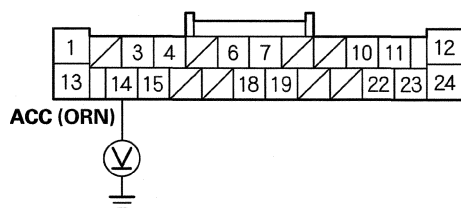
Is the audio unit OFF?

YES—Operation is normal at this time. ■

NO—Go to step 2.

2. Turn the ignition switch to LOCK (0).
3. Remove the audio unit (see page 23-231).
4. Measure the voltage between audio unit connector A (24P) terminal No. 14 and body ground.

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there voltage?

YES—Check for short to power on ORN wire. ■

NO—Replace the audio unit (see page 23-231). ■

No sound is heard from the speaker(s) (display is normal) (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Set the fader and the balance positions to the center.
- Before doing this symptom troubleshooting, refer to Audio-navigation unit power switch will not turn on (see page 23-197).
- If there is sound from the door speaker but not from the tweeter, replace the tweeter. If there is still no sound from the tweeter, repair or replace the harness.
- Some models have tweeter grills, but do not have tweeters or related wiring.

1. Turn the ignition switch to ON (II).

2. Make sure the volume is not set to the MIN level, and check for sound in all modes (AM/FM, CD, USB).

Is there sound in all modes, and is the sound normal?

YES—System is OK at this time. Check for poor connections at the audio unit, the speakers, and the stereo amplifier. ■

NO—

- If there is no sound in all modes, go to step 3.
- If there is no sound in AM/FM mode, go to AM or FM radio reception interference (see page 23-192).
- If there is no sound in CD mode, go to Audio disc does not play (see page 23-216).
- If there is no sound in the USB mode, go to USB input sound is low or cannot be heard (see page 23-218).

3. Check for sound in each mode (AM, FM and CD).

Is the sound OK in each mode?

YES—Intermittent failure, the system is OK at this time. Check for loose connections at the audio-navigation unit and the speaker(s). ■

NO—Go to step 4.



4. On the steering wheel, check the navigation talk command.

Is the navigation talk command function set?

YES—Cancel the navigation talk command by pressing the navigation BACK button, then recheck the function.■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).

6. Check the speaker(s) with no sound for any damage.

Is there any damage?

YES—Replace the speaker (see page 23-233), and recheck.■

NO—Go to step 7.

7. Remove the speaker(s) with no sound (see page 23-233), and disconnect its connector.

8. Check the speaker 2P connector for a loose or poor connection.

Reconnect the speaker 2P connector, and recheck the symptom; does it still fail?

YES—Go to step 9.

NO—Intermittent failure. Operation is normal.■

9. Test the speaker(s) (see page 23-233).

Is the speaker OK?

YES—Go to step 10.

NO—Replace the speaker(s) (see page 23-233), and recheck.■

10. Reconnect the speaker connector.

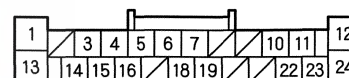
11. Remove the audio-navigation unit (see page 23-304), and disconnect audio-navigation unit connector A (24P).

12. Check for continuity between body ground and audio-navigation unit connector A (24P) according to the table.

NOTE: If no sound is heard from all speakers, check all of the wiring for shorts.

Speaker	Terminal	Wire color
Driver's door speaker	A22 (−)	LT GRN
	A23 (+)	LT BLU
Left tweeter	A22 (−)	LT GRN
	A23 (+)	LT BLU
Front passenger's door speaker	A18 (−)	RED
	A19 (+)	BRN
Right tweeter	A18 (−)	RED
	A19 (+)	BRN
Left rear door speaker	A10 (−)	BRN
	A11 (+)	GRY
Right rear door speaker	A6 (−)	ORN
	A7 (+)	BLU

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire(s) between the audio-navigation unit and the speaker.■

NO—Go to step 13.

13. Disconnect the connector(s) from the tweeter(s).

(cont'd)

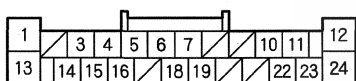
Audio System - '12 model

Symptom Troubleshooting (cont'd)

14. Measure the resistance between each pair of speaker terminals at audio-navigation unit connector A (24P) according to the table.

Speaker	Terminal	Wire color
Driver's door speaker	A22 (−)	LT GRN
	A23 (+)	LT BLU
Front passenger's door speaker	A18 (−)	RED
	A19 (+)	BRN
Left rear door speaker	A10 (−)	BRN
	A11 (+)	GRY
Right rear door speaker	A6 (−)	ORN
	A7 (+)	BLU

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

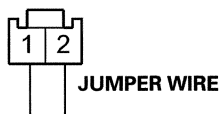
Is there about 4 Ω ?

YES—Go to step 15.

NO—Repair an open or a short in the wire between the audio-navigation unit and the speaker. ■

15. Disconnect the connector(s) from the front speaker(s).
16. Connect the tweeter connector terminal (+) and (−) with a jumper wire.

TWEETER CONNECTOR

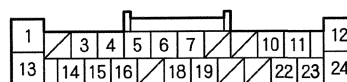


Wire side of female terminals

17. Check for continuity between each pair of speaker terminals at audio-navigation connector A (24P) according to the table.

Speaker	Terminal	Wire color
Left tweeter	A22 (−)	LT GRN
	A23 (+)	LT BLU
Right tweeter	A18 (−)	RED
	A19 (+)	BRN

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good audio-navigation unit (see page 23-304), and recheck. If the symptom/indication goes away, replace the original audio-navigation unit (see page 23-304). ■

NO—Repair an open in the wire between the audio-navigation unit and the speaker. ■



No sound is heard from the speaker(s) (display is normal) (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Set the fader and the balance positions to the center.
- If there is sound from the door speaker but not from the tweeter, replace the tweeter. If there is still no sound from the tweeter, repair or replace the harness (with tweeter).
- Some models have tweeter grills, but do not have tweeters or related wiring.

1. Turn the ignition switch to ON.

2. Make sure the volume is not set to the MIN level, and check for sound in all modes (AM/FM, CD, USB (with USB adapter unit)).

Is there sound in all modes, and is the sound normal?

YES—System is OK at this time. Check for poor connections at the audio unit, the speakers, and the stereo amplifier. ■

NO—

- If there is no sound in all modes, go to step 3.
- If there is no sound in AM/FM mode, go to AM or FM radio reception interference (see page 23-192).
- If there is no sound in CD mode, go to Audio disc does not play (see page 23-216).
- If there is no sound in the USB mode, go to USB input sound is low or cannot be heard (see page 23-218) (with USB adapter unit).

3. Do the speaker check mode with the Self-diagnostic Function (see page 23-190).

Do all speakers produce a tone?

YES—Substitute a known-good audio unit (see page 23-231), and recheck. If the symptom goes away, replace the original audio unit. ■

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).

5. Check the speaker(s) with no sound for any damage.

Is there any damage?

YES—Replace the speaker (see page 23-233), and recheck. ■

NO—Go to step 6.

6. Remove the speaker(s) with no sound (see page 23-233), and disconnect its connector.

7. Check the speaker 2P connector for a loose or poor connection.

Reconnect the speaker 2P connector, and recheck the symptom; is the condition still present?

YES—Go to step 8.

NO—Intermittent failure. Operation is normal. ■

8. Test the speaker(s) (see page 23-233).

Is the speaker OK?

YES—Go to step 9.

NO—Replace the speaker(s) (see page 23-233), and recheck. ■

9. Reconnect the speaker connector.

10. Remove the audio unit (see page 23-231), and disconnect audio unit connector A (24P).

(cont'd)

Audio System - '12 model

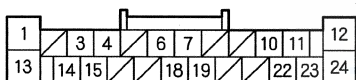
Symptom Troubleshooting (cont'd)

11. Check for continuity between body ground and audio unit connector A (24P) according to the table.

NOTE: If no sound is heard from all speakers, check all of the wiring for shorts.

Speaker	Terminal	Wire color
Driver's door speaker	A22 (-)	LT GRN
	A23 (+)	LT BLU
Left tweeter	A22 (-)	LT GRN
	A23 (+)	LT BLU
Front passenger's door speaker	A18 (-)	RED
	A19 (+)	BRN
	A10 (-)	BRN
Right tweeter	A18 (-)	RED
	A19 (+)	BRN
Left rear door speaker	A10 (-)	BRN
	A11 (+)	GRY
Right rear door speaker	A6 (-)	ORN
	A7 (+)	BLU

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire(s) between the audio unit and the speaker.■

NO—

- With tweeter: Go to step 12.
- Without tweeter: Go to step 13.

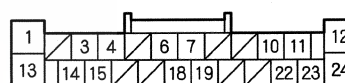
12. Disconnect the connector(s) from the tweeter(s).

13. Measure the resistance between both pairs of speaker wires (+) and (-) at audio unit connector A (24P) according to the table.

Speaker	Terminal	Wire color
Driver's door speaker	A22 (-)	LT GRN
	A23 (+)	LT BLU
Front passenger's door speaker	A18 (-)	RED
	A19 (+)	BRN
Left rear door speaker*	A10 (-)	BRN
	A11 (+)	GRY
Right rear door speaker*	A6 (-)	ORN
	A7 (+)	BLU

*: With rear speaker

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there about 4 Ω ?

YES—

- With tweeter: Go to step 14.
- Without tweeter: Substitute a known-good audio unit (see page 23-231), and recheck. If the symptom/indication goes away, replace the original audio unit.■

NO—Repair an open or short in the wire between the audio unit and the speaker.■

14. Disconnect the connector(s) from all the speaker(s).



15. Connect the tweeter connector terminals (+) and (−) with a jumper wire.

TWEETER CONNECTOR

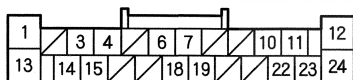


Wire side of female terminals

16. Check for continuity between each pair of speaker terminals at audio unit connector A (24P) according to the table.

Speaker	Terminal	Wire color
Left tweeter	A22 (−)	LT GRN
	A23 (+)	LT BLU
Right tweeter	A18 (−)	RED
	A19 (+)	BRN

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good audio unit (see page 23-231), and recheck. If the symptom/indication goes away, replace the original audio unit.■

NO—Repair an open in the wire between the audio unit and the speaker.■

Audio system sound is weak or distorted (display is normal)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Set the fader and balance positions to the center.

1. Turn the ignition switch to ON (II).

2. Turn on the audio unit or the audio-navigation unit, and check for sound in each mode (AM, FM, and CD).

Is there sound from the speakers, and is the sound quality normal in each mode?

YES—Intermittent failure, the system is OK at this time. Check for loose connections at the audio-navigation unit, the audio unit, and each speaker.■

NO—Speakers all work normally, but the sound quality is poor.■

- If the sound quality is poor only with AM or FM radio, go to poor AM or FM radio reception or interference.
 - With navigation (see page 23-192)
 - Without navigation (see page 23-194)
- If sound is poor in all modes, go to sound quality diagnosis (see page 23-226).

(cont'd)

Audio System - '12 model

Symptom Troubleshooting (cont'd)

Radio preset memory is lost

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connection or loose terminals.

1. Turn the ignition switch to ON (II).
2. Turn on the audio unit or the audio-navigation unit, and set each of the radio station preset buttons.

Do each of the buttons set properly?

YES—Go to step 3.

NO—

- With navigation: Replace the audio-navigation unit (see page 23-304).■
 - Without navigation: Replace the audio unit (see page 23-231).■
3. Turn the ignition switch to LOCK (0) for 1 minute, then turn it back to ON (II).
 4. Test the preset buttons for proper recall operation.

Do the preset buttons recall the set radio stations?

YES—System is normal at this time. Check the connections at the audio-navigation unit or the audio unit.■

NO—

- With navigation: Replace the audio-navigation unit (see page 23-304).
- Without navigation: Replace the audio unit (see page 23-231).

Volume does not change

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Set the fader and balance positions to the center.
- On vehicles with navigation, check the audio button operation by doing the hard key status test (see page 23-273) in the audio-navigation unit check screen. See the navigation system diagnostic mode (see page 23-268).

1. Turn the ignition switch to ON (II).

2. Turn on the audio unit or audio-navigation unit, and check for sound in each mode (AM, FM, and CD).

Is the sound normal?

YES—Go to step 3.

NO—Go to sound quality diagnosis (see page 23-226) and No sound is heard from the speaker(s) (display is normal).

- With navigation (see page 23-200).■
- Without navigation (see page 23-203).■

3. Operate the volume knob to see if the volume changes.

Does the volume change?

YES—Operation is normal at this time.■

NO—

- With navigation: Replace the audio-navigation unit (see page 23-304).
- Without navigation: Replace the audio unit (see page 23-231).■



Volume does not increase with speed (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
 - Check the connectors for poor connections or loose terminals.
 - Set the fader and balance positions to the center.
1. Check the SVC mode setting in the audio-navigation unit or audio unit sound setup.

Is the SVC set to off?

YES—Change the setting to at least the MID setting, and retest. ■

NO—Go to step 2.
 2. Do the System Diagnostic Mode of Navigation System for the vehicle speed pulse indication (VSP) in the Car Status (see page 23-276).

Does the Car Status indicate a VSP signal when the vehicle is moving?

YES—Substitute a known-good audio-navigation unit (see page 23-304) and retest. If the symptom/indication goes away, replace the original audio-navigation unit (see page 23-304). ■

NO—Go to step 3.
 3. Test-drive the vehicle at highway speeds, and monitor if the volume increases with speed.

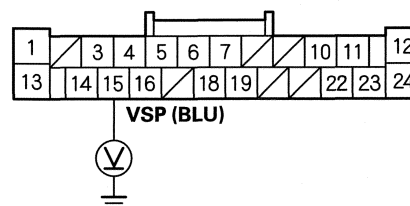
Does the volume increase?

YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 4.
 4. Remove the audio-navigation unit (see page 23-304), and disconnect audio-navigation unit connector A (24P).
 5. Raise the vehicle on a lift.
 6. Turn the ignition switch to ON (II).
 7. Press the brake pedal, and shift the transmission to N.

8. Slowly spin one of the front wheels by hand, and have an assistant measure the voltage at audio-navigation unit connector A (24P) terminal No. 15.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there a 0–5 V pulse?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—Repair an open or short in the wire between audio-navigation unit connector A (24P) terminal No. 15 and ECM/PCM connector A (44P) terminal No. 30. If no open or short is found, substitute a known-good ECM/PCM, and recheck. If the symptom/indication goes away, replace the original ECM/PCM (see page 11-215). ■

(cont'd)

Audio System - '12 model

Symptom Troubleshooting (cont'd)

Volume does not increase with speed (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Set the fader and balance positions to the center.

1. Check the SVC mode setting in the audio-navigation unit or audio unit sound setup.

Is the SVC set to off?

YES—Change the setting to at least the MID setting, and retest. ■

NO—Go to step 2.

2. Do the self-diagnostic function for the vehicle speed pulse indication (VSP) (see page 23-187).

Does the self-diagnostic function indicate a VSP signal when the vehicle is moving?

YES—Substitute a known-good audio unit (see page 23-231) and retest. If the symptom/indication goes away, replace the original audio unit (see page 23-231). ■

NO—Go to step 3.

3. Test-drive the vehicle at highway speeds, and monitor if the volume increases with speed.

Does the volume increase?

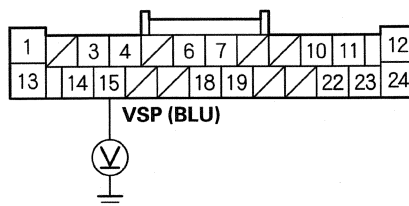
YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 4.

4. Remove the audio unit (see page 23-231), and disconnect audio unit connector A (24P).
5. Raise the vehicle on a lift.
6. Turn the ignition switch to ON (II).
7. Press the brake pedal, and shift the transmission to N.

8. Slowly spin one of the front wheels by hand, and have an assistant measure the voltage at audio unit connector A (24P) terminal No. 15.

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there a 0–5 V pulse?

YES—Replace the audio unit (see page 23-231). ■

NO—Repair an open or short in the wire between audio unit connector A (24P) terminal No. 15 and ECM/PCM connector A (44P) terminal No. 30. If no open or short is found, substitute a known-good ECM/PCM, and recheck. If the symptom/indicated goes away, replace the original ECM/PCM (see page 11-215). ■



Volume is too high or too low when driving at freeway speeds

NOTE:

- Check the vehicle battery condition first (see page 22-68).
 - Check the connectors for poor connections or loose terminals.
1. Test-drive the vehicle at highway speed, and monitor the volume level.

Is the volume level too high or too low?

YES—Go to step 2.

NO—Intermittent failure, the system is OK at this time.■

2. Change the SVC mode setting in sound setup to Low, Mid, and High.

Is the volume level still too high or too low?

YES—

- With navigation: Replace the audio-navigation unit (see page 23-304).■
- Without navigation: Replace the audio unit (see page 23-231).■

NO—Improper SVC setting for the customer's sound preference. Advise the customer to try different SVC settings.■

Radio tuner does not change stations

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- On vehicles with navigation, the audio button operation can be checked by doing the hard key status test in the audio-navigation unit check screen. See the navigation system diagnostic mode (see page 23-268).

1. Turn the ignition switch to ON (II).

2. Turn on the audio unit or audio-navigation unit, and check the audio information on the display panel.

Does the audio information display properly?

YES—Go to step 3.

NO—Go to Audio unit power switch will not turn on (no information display and no sound)

- With navigation: Go to Audio-navigation unit power switch will not turn on (see page 23-197).■
- Without navigation: Go to Audio unit power switch will not turn on (see page 23-198).■

3. Change the radio station using the tuning button or knob.

Does the radio station change?

YES—Intermittent failure: the tuning button or knob is OK at this time.■

NO—

- With navigation: Replace audio-navigation unit (see page 23-304).■
- Without navigation: Replace audio unit (see page 23-231).■

(cont'd)

Audio System - '12 model

Symptom Troubleshooting (cont'd)

Display does not dim or brighten with dimmer (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- If the vehicle is equipped with navigation, refer to Display day/night mode does not work or does not work properly (see page 23-300).

1. Turn the ignition switch to ON (II).
2. Turn the combination light switch on and off to see if the symptom can be duplicated.

Can the symptom be duplicated?

YES—Go to step 3.

NO—Operation is normal at this time.■

3. Turn the combination light switch off.
4. Operate the illumination control dial.

Does it operate normally?

YES—Operation is normal at this time.■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Disconnect and check audio unit connector A (24P) for a loose or a poor connection.

NOTE: Eject all the audio disc before removing the audio unit and audio disc changer to prevent damaging the audio disc player's loading mechanism.

7. Reconnect audio unit connector A (24P), and recheck the symptom.

Does the display dim normally?

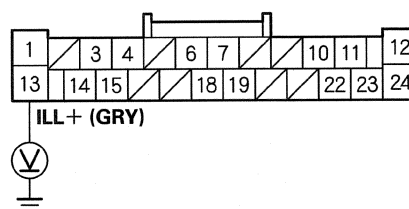
YES—Go to step 8.

NO—Operation is normal at this time.■

8. Turn the ignition switch to ON (II).

9. Measure the voltage between audio unit connector A (24P) terminal No. 13 and body ground.

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

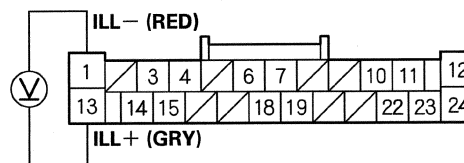
Is there battery voltage?

YES—Go to step 10.

NO—Check the No. 29 (10 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair an open in the wire between the fuse and audio unit connector A (24P).■

10. Measure the voltage between audio unit connector A (24P) terminals No. 13 and No. 1. Operate the dash light brightness controller dial to see if the voltage changes.

AUDIO UNIT CONNECTOR A (24P)



Wire side of female terminals

Does the voltage change?

YES—Substitute a known-good audio unit (see page 23-231), and recheck. If the symptom/indication goes away, replace the original audio unit (see page 23-231).■

NO—There is an open in the wire between the under-dash fuse/relay box and the gauge control module.■



Audio-navigation unit button illumination does not work (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Turn the combination lighting switch to the parking light position.
3. Check the illumination of the audio-navigation unit buttons.

Are the buttons illuminated?

YES—Intermittent problem: The audio-navigation unit is OK at this time. Check for loose or poor connections at audio-navigation unit connector A (24P).■

NO—Go to step 4.

4. Check the illumination of several other buttons not related to the navigation system.

Are the buttons illuminated?

YES—Go to step 5.

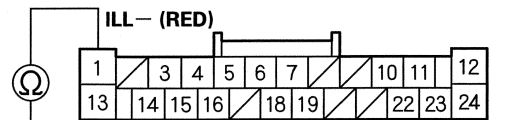
NO—Troubleshoot the dashboard illumination circuit. Check the No. 29 (10 A) fuse in the under-dash fuse/relay box.■

5. Turn the ignition switch to LOCK (0).
 6. Disconnect audio-navigation unit connector A (24P).
- NOTE: Eject all the CDs before removing the audio-navigation unit to prevent damaging the CD.
7. Disconnect gauge control module 32P connector.

8. Check for continuity between audio-navigation unit connector A (24P) terminal No. 1 and gauge control module 32P connector terminal No. 1.

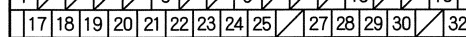
AUDIO-NAVIGATION UNIT CONNECTOR A (24P)

Wire side of female terminals



GAUGE CONTROL MODULE 32P CONNECTOR

Wire side of female terminals



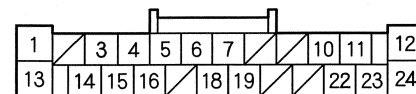
Is there continuity?

YES—Go to step 9.

NO—There is an open in the wire between the gauge control module and the audio-navigation unit.■

9. Turn the ignition switch to ON (II).
10. With the headlight switch still on, measure the voltage between audio-navigation unit connector A (24P) terminal No. 13 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



ILL + (GRY)



Wire side of female terminals

Is there battery voltage?

YES—Check the connections at audio-navigation unit connector A (24P). If all connections are OK, replace the audio-navigation unit (see page 23-304).■

NO—Check the No. 29 (10 A) fuse in the under-dash fuse/relay box. If the fuse OK, repair an open in the wire between the under-dash fuse/relay box and the audio-navigation unit.■

(cont'd)

Audio System - '12 model

Symptom Troubleshooting (cont'd)

Audio unit button illumination does not work (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Turn the combination lighting switch to the parking light position.
3. Check the illumination of the audio unit buttons.

Are the buttons illuminated?

YES—Intermittent problem: The audio unit is OK at this time. Check for loose or poor connections at audio unit connector A (24P).■

NO—Go to step 4.

4. Check the illumination of several other buttons not related to the audio system.

Are the buttons illuminated?

YES—Go to step 5.

NO—Troubleshoot the dashboard illumination circuit.■

5. Turn the ignition switch to LOCK (0).
6. Disconnect audio unit connector A (24P).

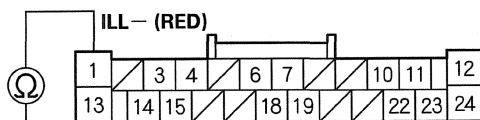
NOTE: Eject all the CDs before removing the audio unit and audio disc changer to prevent damaging the CD player's loading mechanism.

7. Disconnect gauge control module 32P connector.

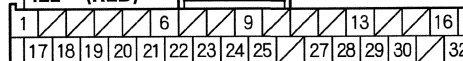
8. Check for continuity between audio unit connector A (24P) terminal No. 1 and gauge control module 32P connector terminal No. 1.

AUDIO UNIT CONNECTOR A (24P)

Wire side of female terminals



ILL- (RED)



GAUGE CONTROL MODULE 32P CONNECTOR

Wire side of female terminals

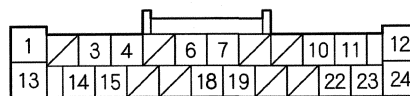
Is there continuity?

YES—Go to step 9.

NO—There is an open in the wire between the gauge control module and the audio unit.■

9. Turn the ignition switch to ON (II).
10. With the headlight switch still on, check for voltage between audio unit connector A (24P) terminal No. 13 and body ground.

AUDIO UNIT CONNECTOR A (24P)



ILL+ (GRY)



Wire side of female terminals

Is there battery voltage?

YES—Check the connections at audio unit connector A (24P). If all the connections are OK, replace the audio unit (see page 23-231).■

NO—Check the No. 29 (10 A) fuse in the under-dash fuse/relay box. If the fuse is OK, repair an open in the wire between the under-dash fuse/relay box and the audio unit.■



Audio remote switch does not work properly (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Audio button operation can be checked by doing the hard key status test in the audio-navigation unit check screen. See navigation system diagnostic mode (see page 23-268).

1. Test the audio remote switch (see page 23-235).

Is the audio remote switch OK?

YES—Go to step 2.

NO—Replace the audio remote switch (see page 23-235). ■

2. Turn the ignition switch to ON (II).

3. Turn on the audio-navigation unit, and check operation (volume up, volume down, CH (+), CH (−), MODE).

Is the navigation unit operation OK?

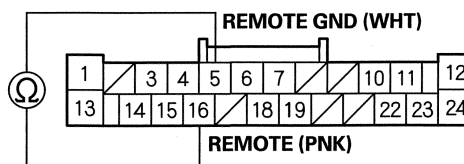
YES—Go to step 4.

NO—Replace the audio-navigation unit (see page 23-304). ■

4. Disconnect the audio-navigation unit connector A (24P).

5. Measure the resistance between audio-navigation unit connector A (24P) terminals No. 5 and No. 16 as specified in the table.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

AUDIO REMOTE SWITCH TABLE

Button held down	VOL DOWN	VOL UP	CH (−)	CH (+)	MODE	No button pressed
Resistance	about 100 Ω	about 357 Ω	about 775 Ω	about 1.7 k Ω	about 3.7 k Ω	about 10 k Ω

Is the resistance OK?

YES—Go to step 6.

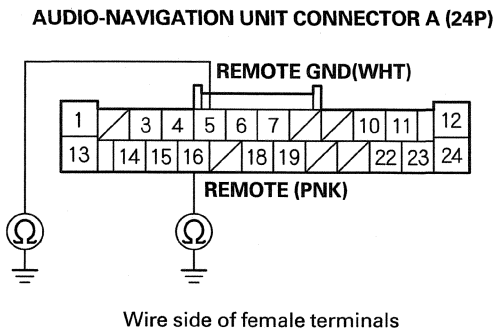
NO—There is an open or high resistance in the circuit between the audio-navigation unit and the audio remote switch. If the wires are OK, replace the cable reel (see page 24-186). ■

(cont'd)

Audio System - '12 model

Symptom Troubleshooting (cont'd)

6. Check for continuity between body ground and audio-navigation unit connector A (24P) terminals No. 5 and No. 16 individually.



Is there continuity?

YES—There is a short to body ground in the circuit between the audio-navigation unit and the audio remote switch. If the wires are OK, replace the cable reel (see page 24-186). ■

NO—Replace the audio-navigation unit (see page 23-304). ■

Audio unit button does not work (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- If the audio unit does not turn on, go to Audio unit power switch will not turn on (see page 23-198).

1. Turn the ignition switch to ON (II).
2. Using the Owner's Manual, check the operation of faulty button.

Is the symptom still present?

YES—Substitute a known-good audio unit (see page 23-231), and recheck. If the symptom/indication goes away, replace the original audio unit (see page 23-231). If the symptom is still present, substitute a known-good center panel (see page 23-231), and recheck. If the symptom/indication goes away, replace the original center panel (see page 23-231). ■

NO—The system is OK. There is a possibility that the customer used the button incorrectly. ■



Audio unit disc indicator does not work (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connections for poor connections or loose terminals.
- Audio disc with labels should not be used in the audio unit. They may damage the player mechanism.

1. Turn on the audio system.
2. Insert a known-good disc.

Is the DISC indicator (LED) indicated?

YES—The audio unit is OK at this time. Check for loose or poor connections at audio unit and center panel. ■

NO—Substitute a known-good audio unit (see page 23-231), and recheck. If the symptom/indication goes away, replace the original audio unit (see page 23-231). If the symptom is still present, substitute a known-good center panel (see page 23-231), and recheck. If the symptom/indication goes away, replace the original center panel (see page 23-231). ■

Audio disc does not load

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Audio disc labels should not be used in the audio-navigation unit or audio unit. They may damage the player mechanism.
- Make sure the audio disc is compatible with the system (see the Owner's Manual for more information).

1. Turn the ignition switch to ON (II).
2. Turn on the audio-navigation unit or the audio unit, and insert a known-good disc to see if the symptom can be duplicated.

Does the disc load?

YES—Operation is normal. If the disc loads normally, but will not play, go to Audio disc does not play (see page 23-216). ■

NO—Go to step 3.

3. Insert another disc.

Does the disc load?

YES—The original disc is faulty. ■

NO—

- With navigation: Replace the audio-navigation unit (see page 23-304). ■
- Without navigation: Replace the audio unit (see page 23-231). ■

(cont'd)

Audio System - '12 model

Symptom Troubleshooting (cont'd)

Audio disc does not eject

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Audio disc labels should not be used in the audio-navigation unit or the audio unit. They may damage the player mechanism.

1. Turn the ignition switch to ON (II).
2. Turn on the audio unit.

Does the system turn on?

YES—Go to step 3.

NO—Go to power switch will not turn on.

- With navigation: Go to Audio-navigation unit power switch will not turn on (see page 23-197).■
- Without navigation: Go to Audio unit power switch will not turn on (see page 23-198).■

3. Check to see if the disc ejects correctly with no binding by pushing the EJECT button.

Does the disc eject normally?

YES—Operation is normal.■

NO—

- With navigation: Replace the audio-navigation unit (see page 23-304).■
- Without navigation: Replace the audio unit (see page 23-231).■

Special Tools Required

Diagnostic CD 07AAZ-SDBA100

Audio disc does not play

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Disc labels should not be used in the navigation unit or audio unit. They may damage the player mechanism.

1. Turn the ignition switch to ON (II).
2. Turn on the audio-navigation unit or the audio unit, and try loading a known-good disc.

Does the disc load?

YES—Go to step 3.

NO—Go to Audio disc does not load (see page 23-215).■

3. Insert the audio diagnostic CD (T/N: 07AAZ-SDBA100) in the audio-navigation unit or audio unit.

Does the disc play?

YES—The original disc is faulty, or has an unreadable format.■

NO—

- With navigation: Replace the audio-navigation unit (see page 23-304).■
- Without navigation: Replace the audio unit (see page 23-231).■



Special Tools Required

- Diagnostic CD 07AAZ-SDBA100
- Skip Test CD 07AAZ-SDBA200
- Skip Test CD 07AAZ-SDBA300

Audio disc skips

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Over inflated tires can cause excessive vibration.
- Disc labels should not be used in the audio unit. They may damage the player mechanism.

1. Confirm the vehicle's tires are properly inflated with no cupping or flat spots.
2. Check the customer's disc for scratches, fingerprints, and marks.

NOTE: The following test should be done with audio unit bass and treble set to customers listening performance. When comparing to known-good vehicles, the comparison should be done on same model and trim level.

3. Test drive to identify when the customer's disc skips. The audio diagnostic CD (T/N: 07AAZ-SDBA100) can be used if customer's disc is not available. Use tracks 10—12. Use the customer's audio settings.

Does the disc skip?

YES—Go to step 4.

NO—Operation is normal. ■

4. Compare the customer's disc that skips to a known-good vehicle under the same conditions.

Does the disc skip in the known-good vehicle under the same conditions?

YES—The audio disc player operation is normal, the problem is with customer's disc. ■

NO—Go to step 5.

NOTE: Do the following test with vehicle parked and engine running.

5. Insert the skip test CD (T/N: 07AAZ-SDBA300) (ABEX-TCD-721). Play tracks 2—11, and note the track number(s) where the disc starts skipping. Do the same test on a known-good vehicle under the same conditions.

Does the disc skip on the same track number(s) as the known-good vehicle?

YES—Operation is normal at this time. ■

NO—Go to step 6.

6. Insert the skip test CD (T/N: 07AAZ-SDBA200) (ABEX-TCD-725B). Play tracks 7—11 and tracks 13—15, and note the track number(s) where the disc starts skipping. Do the same test on a known-good vehicle under the same conditions.

Does the disc skip on the same track number(s) as the known-good vehicle?

YES—Operation is normal. ■

NO—

- With navigation: Replace the audio-navigation unit (see page 23-304). ■
- Without navigation: Replace the audio unit (see page 23-231). ■

(cont'd)

Audio System - '12 model

Symptom Troubleshooting (cont'd)

USB input sound is low or cannot be heard (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Not all players and player functions work with the USB adapter. Please see the Owner's Manual for more information. Always test the customers USB device in a known-good vehicle of the same year and trim (if possible). Technologies change and are updated frequently which may result in USB devices working in newer vehicles, but not in older vehicles of the same model.

1. Turn the ignition switch to ON (II).
2. Turn on the audio unit and check to see if there is a specific speaker that has no sound.

Do all speakers make a sound?

YES—Go to step 3.

NO—Go to No sound is heard from the speaker(s) (see page 23-200). ■

3. Turn the ignition switch to LOCK (0).
4. Connect the customer's USB device to a known-good vehicle (same year/trim) equipped with an USB adapter, and check the USB device operation.

Is the USB device working properly?

YES—Go to step 5.

NO—The USB device is faulty. Also check the USB adapter and the USB adapter connector condition. ■

5. On the customer's vehicle, connect the customer's USB device to the USB adapter.
6. Turn the ignition switch to ON (II), and turn on the audio-navigation unit.
7. Check if the USB device can be operated with the audio-navigation unit (Folders or Files UP/DOWN, etc.).

Can the USB device be operated but no sound is heard?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—If the sound is normal, USB device is OK at this time. If the USB device cannot be operated, go to USB audio device does not function (see page 23-220). ■

USB input sound is low or cannot be heard (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Not all players and player functions work with the USB adapter. Please see the Owner's Manual for more information. Always test the customers USB device in a known-good vehicle of the same year and trim (if possible). Technologies change and are updated frequently which may result in USB devices working in newer vehicles, but not in older vehicles of the same model.

1. Turn the ignition switch to ON (II).
2. Do the speaker check mode with the self-diagnostic mode (see page 23-190).

Do all speakers make a sound?

YES—Go to step 3.

NO—Go to No sound is heard from the speaker(s) (see page 23-203). ■

3. Turn the ignition switch to LOCK (0).
4. Connect the customer's USB device to a known-good vehicle (same year/trim) equipped with an USB adapter, and check the USB device operation.

Is the USB device working properly?

YES—Go to step 5.

NO—The USB device is faulty. Also check the USB adapter and the USB adapter connector condition. ■

5. On the customer's vehicle, connect the customer's USB device to the USB adapter.
6. Turn the ignition switch to ON (II), and turn on the audio unit.
7. Check if the USB device can be operated with the audio unit (Folders or Files UP/DOWN, etc.).

Can the USB device be operated but no sound is heard?

YES—Go to step 8.

NO—If the sound is normal, USB device is OK at this time. If the USB device cannot be operated, go to USB audio device does not function (see page 23-221). ■

8. Turn the ignition switch to LOCK (0).
9. Disconnect audio unit connector C (14P).

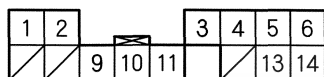


10. Disconnect USB adapter unit connector A (14P).

11. Check for continuity between the terminals of audio unit connector C (14P) according to the table.

From terminal (wire color)	To terminals (wire color)
E4 (GRY)	E5 (BRN), E6 (WHT), E13 (RED), E14 (LT BLU)
E5 (BRN)	E6 (WHT), E13 (RED), E14 (LT BLU)
E6 (WHT)	E13 (RED), E14 (LT BLU)
E13 (RED)	E14 (LT BLU)

AUDIO UNIT CONNECTOR C (14P)



Wire side of female terminals

Is there continuity between any of the terminals?

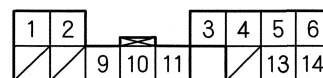
YES—There is a short in the wires between the audio unit and the USB adapter unit. Replace the affected shielded harness.■

NO—Go to step 12.

12. Check for continuity between audio unit connector C (14P) and USB adapter unit connector A (14P) according to the table.

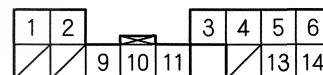
Audio- navigation unit connector	USB adapter unit connector	Wire color
E5	A5	BRN
E6	A6	WHT
E13	A13	RED
E14	A14	LT BLU

USB ADAPTER UNIT CONNECTOR A (14P)



Wire side of female terminals

AUDIO UNIT CONNECTOR C (14P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good USB adapter unit (see page 23-232), then reconnect all of the connectors and recheck. If the symptom/indication goes away, replace the original USB adapter unit (see page 23-232). If the symptom/indication is still present, replace the audio unit (see page 23-231).■

NO—Open in the wire(s) between the USB adapter unit and the audio-navigation unit or audio unit. Replace the affected shielded harness.■

(cont'd)

Audio System - '12 model

Symptom Troubleshooting (cont'd)

USB device does not function (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Check the USB device requirement:
 - Mass-storage class ready digital audio player with USB 2.0 port
 - More than 256 MB of RAM
 - Supports MP3, WMA, and AAC (encoded with the i-Tunes) files, DRM files are not supported
- Not all players and player functions work with the USB adapter. Please see the Owner's Manual for more information. Always test the customers USB device in a known-good vehicle of the same year and trim (if possible). Technologies change and are updated frequently which may result in USB devices working in newer vehicles, but not in older vehicles of the same model.

1. Turn the ignition switch to ON (II), and turn on the audio-navigation unit.
2. Connect the customer's USB device to the USB adapter, and check the USB connection indicate into Unit check of System Diagnosis Mode.

Is OK displayed?

YES—Go to step 3.

NO—Go to step 8.

3. Check the USB device operation.

Does the USB device work properly?

YES—The USB device is OK at this time. Check for loose or poor connections at the audio-navigation unit. Also check the USB adapter and the USB port.

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).

5. Connect the customer's USB device to a known-good vehicle (same year/trim) that is equipped with an USB adapter, and check the USB device operation.

Does the USB device work properly?

YES—Go to step 6.

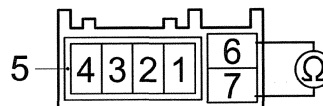
NO—USB device is faulty. Also check the USB adapter and the USB port condition.■

6. On the customer's vehicle, remove the audio-navigation unit (see page 23-304).

7. Disconnect audio-navigation unit connector E (7P).

8. Check for continuity between audio-navigation unit connector E (7P) terminals No. 6 and No. 7.

AUDIO-NAVIGATION UNIT CONNECTOR E (7P)



Terminal side of female terminals

Is there continuity?

YES—Go to step 9.

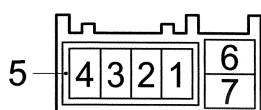
NO—Replace the USB adapter.■



9. Check for continuity between the terminals of audio-navigation unit connector E (7P) and USB jack 5P connector according to the table.

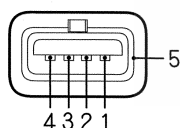
Audio-navigation unit connector	USB jack connector
E1	4
E2	3
E3	2
E4	1
E5	5

AUDIO-NAVIGATION UNIT CONNECTOR E (7P)



Terminal side of female terminals

USB JACK 5P CONNECTOR



Terminal side of male terminals

Is there continuity?

YES—Substitute a known-good USB adapter, and recheck. If the symptom/indication goes away, replace the original USB adapter. If the symptom/indication is still present, replace the audio-navigation unit (see page 23-304). ■

NO—There is an open in the wire(s) between the USB adapter unit and the USB adapter. Replace the affected shielded harness. ■

USB device does not function (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Check the USB device compatibility:
 - Mass-storage class ready digital audio player with USB 2.0 port
 - More than 256 MB of RAM
 - Supports MP3, WMA, and AAC (encoded with the i-Tunes) files, DRM files are not supported
- Not all players and player functions work with the USB adapter. Please see the Owner's Manual for more information. Always test the customer's USB device in a known-good vehicle of the same year and trim (if possible). Technologies change and are updated frequently which may result in USB devices working in newer vehicles, but not in older vehicles of the same model.

1. Turn the ignition switch to ON (II).

2. Turn on the audio unit.

3. Press the AUX button to select USB mode.

NOTE: Do not connect the USB device.

Is USB NO DATA displayed in the audio display?

YES—Go to step 4.

NO—Go to step 9.

4. Turn the ignition switch to LOCK (0).

5. Connect the customer's USB device to a known-good vehicle (same year/trim) that is equipped with a USB adapter, and check the USB device operation.

Is the USB device working properly?

YES—Go to step 6.

NO—USB device is faulty. Also check the USB cable and the USB port condition. ■

6. On the customer's vehicle, remove the USB adapter unit (see page 23-232).

7. Disconnect USB adapter unit connector B (5P).

(cont'd)

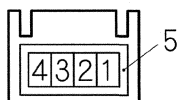
Audio System - '12 model

Symptom Troubleshooting (cont'd)

8. Check for continuity between terminals of USB adapter unit connector B (5P) and the USB jack 5P connector according to the table.

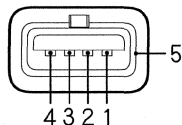
USB adapter unit connector	USB jack connector
B1	4
B2	3
B3	2
B4	1
B5	5

USB ADAPTER UNIT CONNECTOR B (5P)



Terminal side of female terminals

USB JACK 5P CONNECTOR



Terminal side of female terminals

Is there continuity?

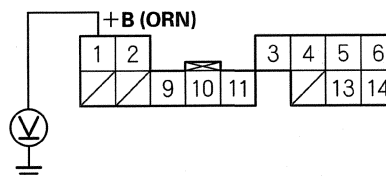
YES—Substitute a known-good USB adapter, and recheck. If the symptom/indication goes away, replace the original USB adapter. If the symptom/indication is still present, go to step 10.

NO—There is an open in the wire(s) between the USB adapter unit and the USB adapter. Replace the affected shielded harness.■

9. Turn the ignition switch to LOCK (0).

10. Measure the voltage between USB adapter unit connector A (14P) terminal No. 1 and body ground.

USB ADAPTER UNIT CONNECTOR A (14P)



Wire side of female terminals

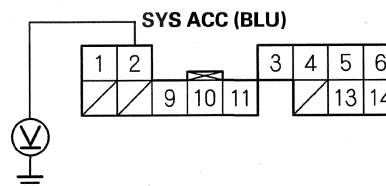
Is there battery voltage?

YES—Go to step 12.

NO—Check for an open or a short to ground in the wire between the audio unit and the USB adapter unit. If the wire is OK, substitute a known-good audio unit (see page 23-231), and recheck. If the symptom goes away, replace the original audio unit (see page 23-231).■

11. Measure the voltage between USB adapter unit connector A (14P) terminal No. 2 and body ground.

USB ADAPTER UNIT CONNECTOR A (14P)



Wire side of female terminals

Is there battery voltage?

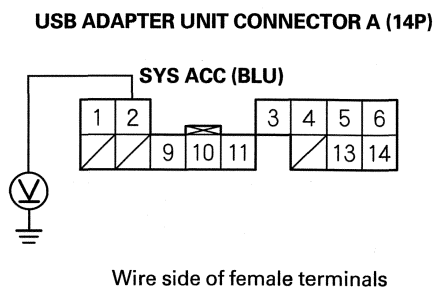
YES—Go to step 13.

NO—Substitute a known-good USB adapter unit (see page 23-232), and recheck.■

12. Turn the ignition switch to ON (II).



13. Measure the voltage between USB adapter unit connector A (14P) terminal No. 2 and body ground.

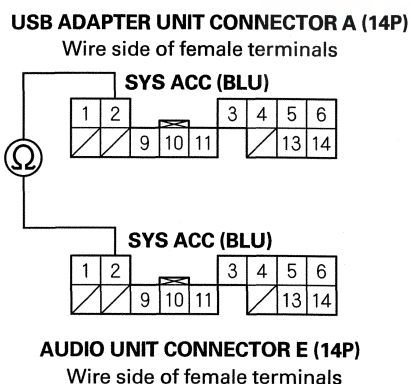


Is there less than 2.0 V?

YES—Go to step 18.

NO—Go to step 14.

14. Turn the ignition switch to LOCK (0).
15. Remove the audio unit (see page 23-231), and disconnect audio unit connector E (14P).
16. Disconnect USB adapter unit connector A (14P).
17. Check for continuity between USB adapter unit connector A (14P) terminal No. 2 and audio unit connector E (14P) terminal No. 2.

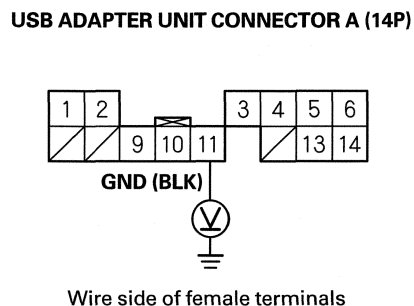


Is there continuity?

YES—Substitute a known-good audio unit (see page 23-231), reconnect all the connectors, and recheck. If the symptom/indication goes away, replace the original audio unit (see page 23-231). If the symptom/indication is still present, replace the USB adapter unit (see page 23-232).■

NO—Repair an open in the wire between the USB adapter unit and the audio unit.■

18. Measure the voltage between USB adapter unit connector A (14P) terminal No. 11 and body ground.



Is there less than 0.2 V?

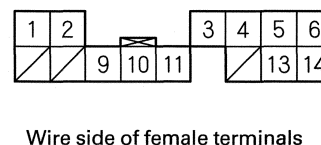
YES—Go to step 20.

NO—Repair an open in the wire between the USB adapter control unit and the audio unit.■

19. Turn the ignition switch to LOCK (0).
20. Remove the audio unit (see page 23-231), and disconnect audio unit connector C (14P).
21. Disconnect USB adapter unit connector A (14P).
22. Check for continuity between terminals of audio unit connector C (14P) according to the table.

From terminals	To terminals
C3 (GRY)	C9 (YEL), C10 (GRN)
C9 (YEL)	C10 (GRN)

AUDIO UNIT CONNECTOR C (14P)



Is there continuity between any of the terminals?

YES—There is a short in the wires between the audio unit and the USB adapter unit. Replace the affected shielded harness.■

NO—Go to step 23.

(cont'd)

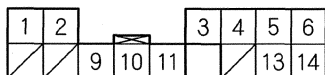
Audio System - '12 model

Symptom Troubleshooting (cont'd)

23. Check for continuity between terminals of audio unit connector C (14P) and USB adapter unit connector A (14P) according to the table.

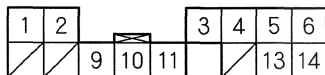
Audio unit connector	USB adapter unit connector	Wire color
C9	A9	YEL
C10	A10	GRN

AUDIO UNIT CONNECTOR C (14P)



Wire side of female terminals

USB ADAPTER UNIT CONNECTOR A (14P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good USB adapter unit (see page 23-232), then reconnect all of the connectors, and recheck. If the symptom/indication goes away, replace the original USB adapter unit (see page 23-232). If the symptom/indication is still present, replace the audio unit (see page 23-231).■

NO—There is an open in the wire(s) between the audio unit and the USB adapter unit. Replace the affected shielded harness.■

Auxiliary input sound is low or cannot be heard (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- Use auxiliary stereo cables with 3.5 mm ends only.
- Auxiliary accessories may be played on the audio-navigation unit using the auxiliary input.

1. Turn the ignition switch to ON (II).

2. Turn on the audio-navigation unit, and connect the customer's auxiliary accessory device to the auxiliary input jack.

3. Check the volume operation.

Is the sound normal?

YES—Operation is normal at this time.■

NO—Go to step 4.

4. Make sure the customer's auxiliary accessory device volume is set to high.

Is the volume set to high?

YES—Go to step 5.

NO—Raise the auxiliary accessory device volume to high. Make sure the audio-navigation unit volume is turned down before retesting.■

5. Substitute a known-good auxiliary audio accessory and/or auxiliary stereo cable, and recheck.

Does the auxiliary audio accessory operate properly?

YES—Original auxiliary audio accessory or auxiliary stereo cable is faulty.■

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0).

7. Remove the auxiliary jack assembly (see page 23-233), and check that the auxiliary jack assembly is properly connected.

Is the auxiliary jack assembly connected properly?

YES—Go to step 8.

NO—Reconnect the connector, and recheck the function.■

8. Disconnect the auxiliary jack assembly 5P connector.

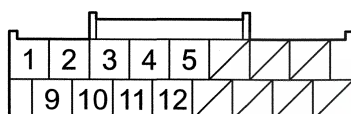
9. Disconnect audio-navigation unit connector B (16P).



10. Check for continuity between body ground and audio-navigation unit connector B (16P) according to the table.

Audio-navigation unit connector	Wire color
B1	YEL
B2	BLU
B3	GRN
B9	WHT
B10	BRN

AUDIO-NAVIGATION UNIT CONNECTOR B (16P)



Wire side of female terminals

Is there continuity?

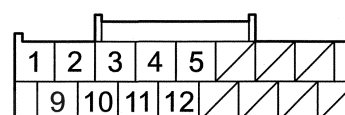
YES—Short to body ground in the wire(s) between the audio-navigation unit and the auxiliary jack assembly. Replace the affected shielded harness.■

NO—Go to step 11.

11. Check for continuity between the terminals of audio-navigation unit connector B (16P) according to the table.

From terminal	To terminals
B11 (GRY)	B1 (YEL), B2 (BLU), B3 (GRN)
B1 (YEL)	B2 (BLU), B3 (GRN)
B2 (BLU)	B3 (GRN)
B9 (WHT)	B10 (BRN)

AUDIO-NAVIGATION UNIT CONNECTOR B (16P)



Wire side of female terminals

Is there continuity?

YES—Short in the wire(s) between the audio-navigation unit and the auxiliary jack assembly. Replace the affected shielded harness.■

NO—Go to step 12.

(cont'd)

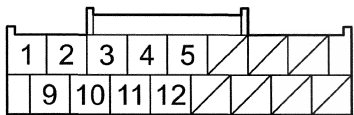
Audio System - '12 model

Symptom Troubleshooting (cont'd)

12. Check for continuity between audio-navigation unit connector B (16P) and the auxiliary jack assembly 5P connector according to the table.

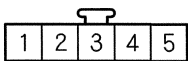
Audio-navigation unit connector	Auxiliary jack assembly connector	Wire color
B1	4	YEL
B2	3	BLU
B3	5	GRN
B9	1	WHT
B10	2	BRN

AUDIO-NAVIGATION UNIT CONNECTOR B (16P)



Wire side of female terminals

AUXILIARY JACK ASSEMBLY 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good auxiliary jack assembly (see page 23-233) and recheck. If the symptom/indication goes away, replace the original auxiliary jack assembly (see page 23-233). If the symptom/indication is still present, replace the audio-navigation unit (see page 23-304).■

NO—Open in the wire(s) between audio-navigation unit and auxiliary jack assembly. Replace the affected shielded harness.■

Sound Quality Diagnosis

Special Tools Required

Diagnostic CD 07AAZ-SDBA100

Use the following tests to check sound quality.

NOTE: Before beginning the following tests, write down the customer's bass, treble, fader and balance settings, then set them to their center positions for the testing.

Left/Right Channel ID

Do this test to confirm proper channel routing.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or the audio-navigation unit.
2. Play track No. 1 (left, both, right channel ID) at a normal, or slightly higher than normal, volume level.
3. The voice should be audible only from the channel or channels when indicated.
 - If the channel ID is correct for each side, go to phase test.
 - If the channel ID is not correct, check for:
 - Shorted speaker wire
 - Faulty the audio unit or the audio-navigation unit



Phase Test

Do this test to confirm proper speaker phasing.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or the audio-navigation unit.
2. Play track No. 2 (phase) at a normal, or slightly higher than normal, volume level.
3. The voice should sound centered and focused when it is in-phase.
4. The voice should sound diffused, and have less bass when it is out of phase.
 - If the voice changes from in-phase to out of phase as indicated by the prompt, the phasing is correct. Go to electrical noise test.
 - If the voice always sounds out of phase, phasing is not correct. Check for:
 - Crossed speaker wire
 - Faulty the audio unit or the audio-navigation unit

Electrical Noise Test

Do this test to check for electrical noise being induced into the audio system.

NOTE: Electrical noise may be caused by outside sources that cannot be handled by the audio system. Make sure you remove any cell phones and/or turn off any aftermarket devices before beginning this test.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or the audio-navigation unit.
2. Play track No. 4 (digital zero) at a normal, or slightly higher than normal, volume level.
3. Operate any electrical device that may create electrical noise in the audio system, including starting the engine.
4. Play track No. 5 (near digital zero) at a normal, or slightly higher than normal, volume level.
5. Operate any electrical device that may create electrical noise in the audio system, including starting the engine.
6. Play track No. 6 (SNR) at a normal, or slightly higher than normal, volume level.
7. Operate any electrical device that may create electrical noise in the audio system, including starting the engine.
 - If no abnormal noise is heard, go to the individual speaker test.
 - If the noise is present only during the SNR track, replace the audio unit or the audio-navigation unit.
 - If the noise is heard during the digital zero or near digital zero track, check for:
 - Poor ground at the audio unit or the audio-navigation unit, engine, or battery cable
 - Pinched or shorted speaker wire
 - Faulty the audio unit or the audio-navigation unit
 - Other faulty components causing excessive electrical noise (ignition coils, alternator, door lock actuators, etc.). Disconnect any suspect components, and then replay the tracks that were originally noisy. If the noise is gone, check the component's circuit and the component.

(cont'd)

Audio System - '12 model

Sound Quality Diagnosis (cont'd)

Individual Speaker Test

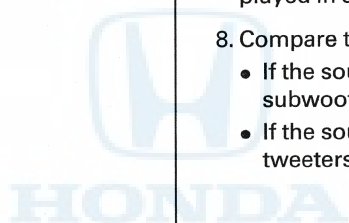
Do this test to identify a faulty speaker.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or the audio-navigation unit.
2. Play track No. 30 (steady 300 Hz tone) at a normal, or slightly higher than normal, volume level.
3. Listen to each speaker for poor sound compared to the other channels. Use the audio unit's or the audio-navigation unit's fader and balance settings to help isolate the channel with the problem.
 - If the sound quality produced by a specific speaker is poor, substitute it with a known-good speaker. If the poor sound quality continues, go to the sound balance test.
 - If the sound quality is OK, go to the sound balance test.

Sound Balance Test

Do this test to identify a faulty channel or the speaker.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or the audio-navigation unit.
2. Confirm the bass and treble are set to the center positions.
3. Play track No. 3 (pink noise) at a normal, or slightly higher than normal, volume level.
4. A static type sound should be heard through all speakers.
5. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or the audio-navigation unit of a known-good vehicle.
6. Set the bass and treble to the center positions.
7. Play track No. 3 (pink noise) all the same level as was played in step 3.
8. Compare the sounds made by the two vehicles.
 - If the sound does not have as much bass, check the subwoofer and circuit.
 - If the sound does not have enough hiss, check the tweeters and their circuits.





Frequency Sweep

Do this test to find rattles or reverberations that may cause a perception of poor sound quality.

1. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or the audio-navigation unit.
2. Play track No. 13 (sweep from 500 Hz to 35 Hz) at a normal, or slightly higher than normal, volume level.
3. Listen to each speaker for poor sound quality or reverberations caused by specific frequencies. Use the voice-over to estimate the frequency that causes the vibration. Use the audio unit's or the audio-navigation unit's fader and balance settings to help isolate the channel with the problem.
 - If vibrations or poor sound quality are heard, go to step 4.
 - If no vibrations or poor sound quality are heard, go to sound judging.
4. Choose the appropriate track from No. 14 to 25 (small range frequency sweep) or 26 to 53 (single frequencies) to recreate the frequency that caused the poor sound quality or vibration witnessed in step 3; this aids in diagnosis of the cause.

NOTE: When you get to the track that recreates the problem, select the repeat function on the audio unit or the audio-navigation unit, this will help you isolate the cause.

5. Replace or insulate the source of the vibration or, if the speaker is the source of the poor sound quality, replace it.

Sound Judging

Do this test to compare overall sound quality, imaging, and dynamics between the customer's vehicle and a known-good vehicle. Only use a vehicle of the same model and trim level for this test.

1. In the customer's vehicle, set the bass, treble, fader, and balance settings to the customer's normal settings that were written down before beginning the test.
2. Insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or the audio-navigation unit.
3. Play tracks No. 7 to 12 (sound quality, midland, dynamics, and imaging demonstration tracks) at a normal, or slightly higher than normal, volume level. Write down the volume setting being used.
4. Listen to areas of the track that stand out as being either very clear or poorer than other areas of the track.
5. In a known-good vehicle, insert the audio diagnostic CD (T/N 07AAZ-SDBA100) into the audio unit or the audio-navigation unit.
6. Play the tracks at the same volume level and the same bass, treble, balance, and fader settings as used in step 3 in the customer's vehicle.
7. Listen to the same area of the track that stood out as being either very clear or poorer than other areas of the track.
8. Compare the customer's vehicle's sound quality results the known-good vehicle's results.
 - If the sound quality in the customer's vehicle is comparable to the sound quality in the known-good vehicle, then the customer's vehicle is operating as designed.
 - If the sound quality is not comparable, check these items in order:
 - Loose or improperly installed the speakers or other hardware that may create interference from the vibrations generated by the speakers
 - Damaged speaker(s)
 - Faulty the audio unit or the audio-navigation unit

(cont'd)

Audio System - '12 model

Sound Quality Diagnosis (cont'd)

Seek Stop Test

Do this test to check the performance of the audio unit's or the audio-navigation unit's AM and FM reception. Refer to symptom troubleshooting: Audio system sound is weak or distorted (see page 23-205), or No sound is heard from the speakers (with navigation (see page 23-200), without navigation (see page 23-203)) before continuing with this test.

NOTE:

- Window tint, aftermarket theft-recovery devices and other aftermarket devices may affect reception.
 - Changes in cloud cover and other atmospheric conditions will affect the ability of the audio unit or the audio-navigation unit to receive radio signals.
1. Park the customer's vehicle in an open area away from buildings or other obstructions.
 2. Park a known-good vehicle (same year, model, and trim level) next to the customer's vehicle, facing the same direction.
 3. Start the engine in the customer's vehicle, and turn on the radio.
 4. Set the FM receiver to 87.7 MHz.
 5. Press the Seek + button, and record the first station that the audio unit or the audio-navigation unit locks onto.
 6. Press the Seek + button repeatedly, and write down each station that the audio unit or the audio-navigation unit locks onto until the station recorded in step 5 is reached again.
 7. Set the AM receiver to 530 kHz.
 8. Press the Seek + button, and record the first station that the audio unit or the audio-navigation unit locks onto.
 9. Press the Seek + button repeatedly, and write down each station that the audio unit or the audio-navigation unit locks onto until the station recorded in step 8 is reached again.
 10. Turn the ignition switch to LOCK (0).
 11. Start the engine in the known-good vehicle, and then do steps 4 thru 10 on the known-good vehicle.
 12. Compare the number of stations received in steps 6 and 9 in the customer's vehicle with the number of stations received in the known-good vehicle.
 - If the number of stations received is the same, or within 10 %, the audio unit's or the audio-navigation unit's tuner performance is OK. The problem may be atmospheric conditions, multi-path interference, or other obstructions to the radio signal.
 - If the customer's vehicle receives fewer stations by at least 10 %, go to Poor AM or FM radio reception or interference.
 - With navigation (see page 23-192)
 - Without navigation (see page 23-194)



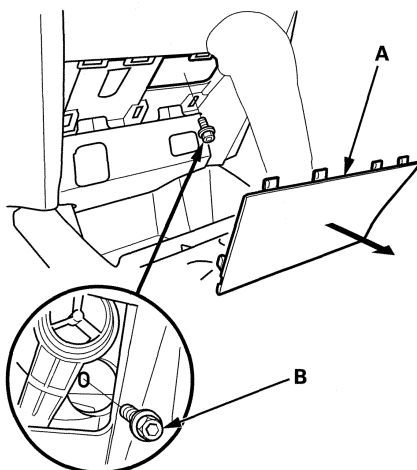
Audio Unit Removal/Installation

SRS components are located in this area. Review the SRS component location (see page 24-13), and the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

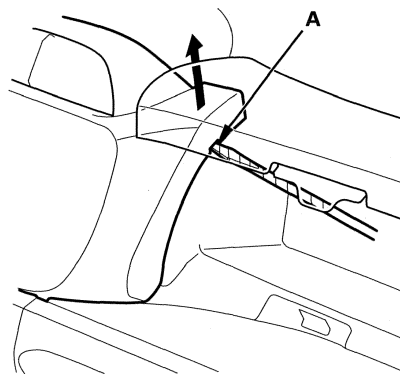
NOTE:

- Put on gloves to protect your hands.
- Take care not to scratch the dashboard and related parts.
- Lay a workshop towel under the parts when working on them to protect the face panel from scratches or other damage.
- Do not work in a dusty or dirty place.
- Discharge static electricity from your body before and during the work.
- Do not touch the circuit board(s) with your bare hands.
- Do not work with dirty hands.
- Be careful not to fold the flat plate cable.
- Eject the all the discs before removing the audio unit to prevent damaging the audio disc player's load mechanism.
- If you are replacing the audio unit, write down the audio presets (if possible), and enter them into the new audio unit.

1. Make sure you have the 4-digit anti-theft code for the audio system.
2. Remove the center lower cover (A) (see page 20-99).
3. Move the recirculation control lever to FRESH to help access the mounting bolt (B), then remove it.

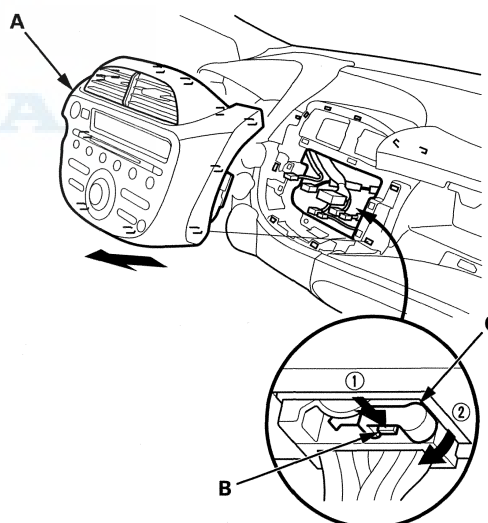


4. Open the dashboard upper tray lid. Insert a flat-tip screwdriver in the groove (A), then pull the screwdriver shaft up slightly.



5. Pull the center panel (A) out and disconnect the connectors, then remove the center panel.

NOTE: When you disconnect audio unit connector A (24P), while pushing the tab (B), pull the lever (C) up and disconnect the connector.



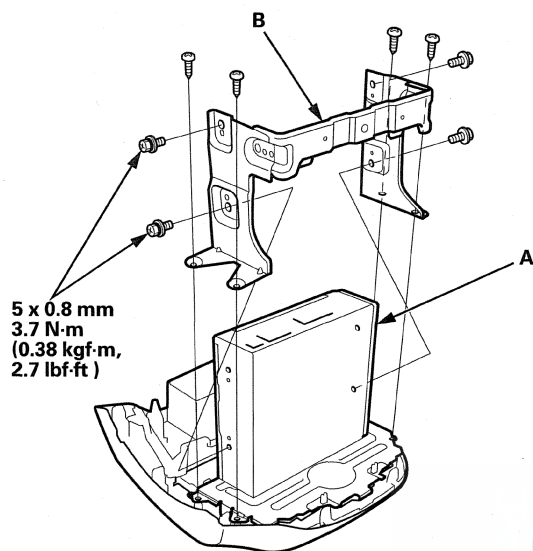
6. With USB adapter unit: Remove the USB adapter unit (see page 23-232).

(cont'd)

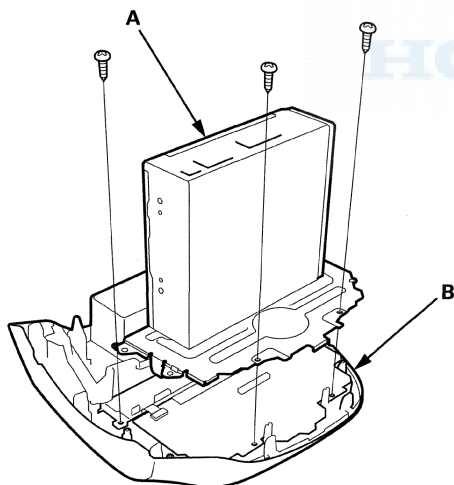
Audio System - '12 model

Audio Unit Removal/Installation (cont'd)

7. Remove the mounting screws and bolts from the audio unit (A), then remove the bracket (B).



8. Remove the screws and the audio unit (A) from the center panel (B).



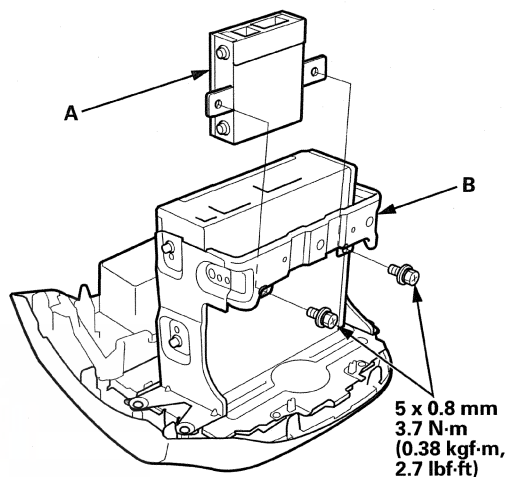
9. Install the audio unit in the reverse order of removal, and note these items:

- Make sure all connectors are secure.
- Enter the anti-theft codes for the audio system.
- Set the clock.

USB Adapter Unit Replacement

Without navigation (with USB adapter unit)

1. Remove the audio unit (see page 23-231).
2. Disconnect the connector from the USB adapter unit.
3. Remove the bolts and the USB adapter unit (A) from the bracket (B).



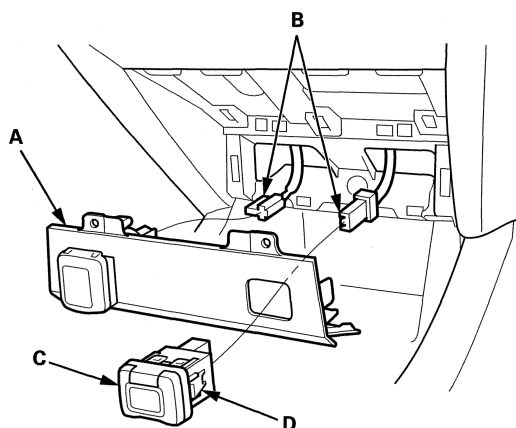
4. Install the USB adapter unit in the reverse order of removal.



Auxiliary Jack Assembly Replacement

With navigation

1. Remove the center lower trim (A) (see page 20-100).



2. Disconnect the connectors (B) from the auxiliary jack (C) and the accessory socket.
3. Push out the auxiliary jack (C) from the center lower trim, while pressing lock tabs (D).
4. Install the auxiliary jack in the reverse order of removal.

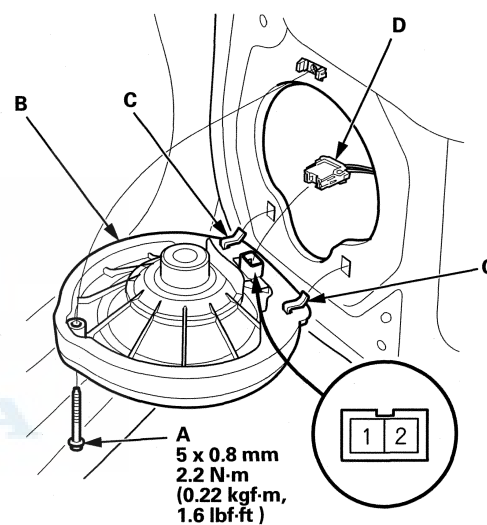
Speaker Test/Replacement

Front/Rear Door Speaker

1. Remove the door panel:
 - Front (see page 20-6)
 - Rear (see page 20-18)
2. Remove the bolt (A). Then lift the speaker (B) straight up to release the lower clips (C).

NOTICE

If you pull the speaker out too far from the door, you will damage the lower clips.



3. Disconnect the 2P connector (D), and remove the speaker.
4. Measure the resistance between terminals No. 1 and No. 2. There should be about 4 Ω .
5. If the resistance is not as specified, replace the door speaker.

(cont'd)

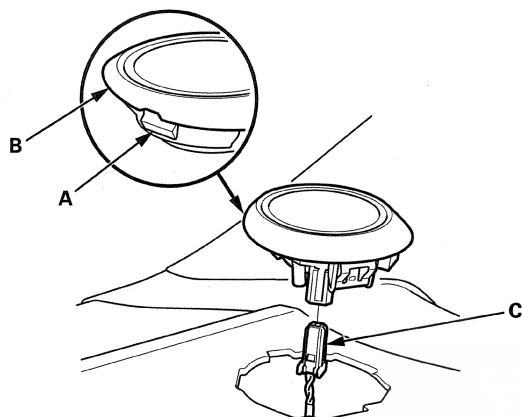
Audio System - '12 model

Speaker Test/Replacement (cont'd)

Tweeter

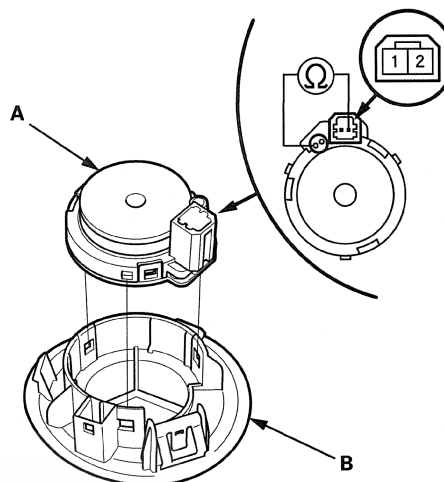
1. Insert a flat-tip screwdriver in the groove (A), and carefully pry the tweeter grille (B).

NOTE: Be careful not to damage the tweeter grille and the dashboard.



2. Disconnect the 2P connector (C) from the tweeter.
3. Check the capacitor condition. If any malfunction is found, replace the tweeter.

4. Remove the tweeter speaker (A) from the speaker grille (B).



5. Measure the resistance between the soldered joint and terminal No. 2. There should be about $4\ \Omega$.
6. If the resistance is not as specified, replace the tweeter speaker.
7. Install the tweeter speaker in the reverse order of removal.

NOTE: Align the tweeter speaker connector with the cut-out on the speaker grille.

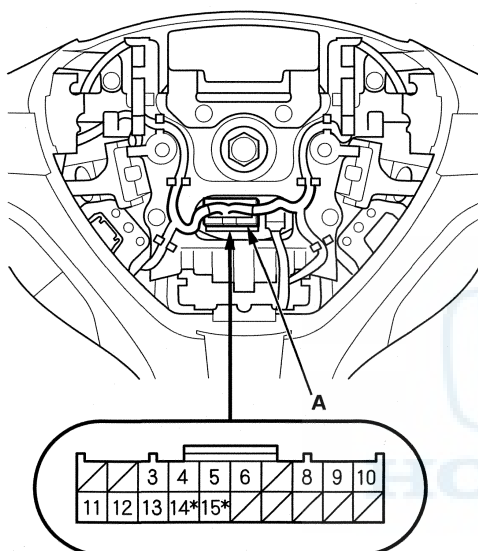


Audio Remote Switch Test

SRS components are located in this area. Review the SRS component location (see page 24-13), and the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

With navigation

1. Remove the driver's airbag assembly (see page 24-171).
2. Disconnect the cable reel 20P connector (A).



Wire side of female terminals

*: With automatic transmission

3. Measure the resistance between terminals No. 3 and No. 6 in each switch position according to the table.

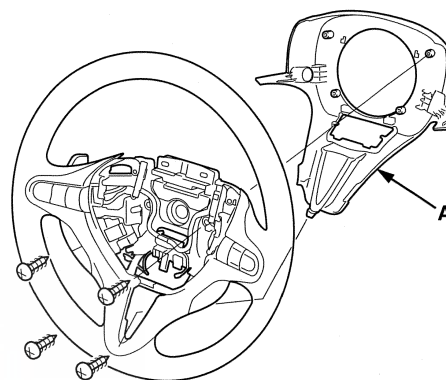
Position	Resistance
No button pressed	About 10 k Ω
MODE	About 3.7 k Ω
CH (+)	About 1.7 k Ω
CH (-)	About 775 Ω
▲ (VOL. UP)	About 357 Ω
▼ (VOL. DOWN)	About 100 Ω

4. If the resistance is not as specified, replace the audio remote switch (see page 23-235).

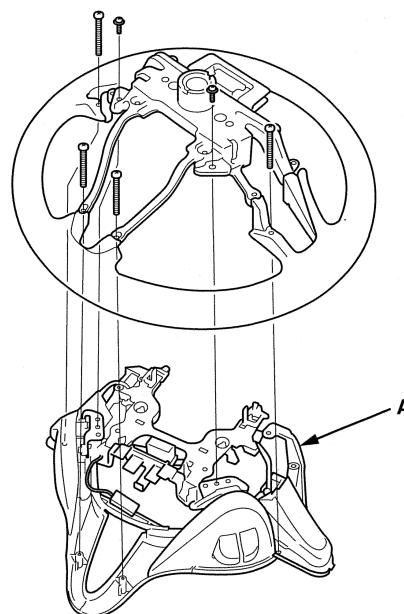
Audio Remote Switch Replacement

SRS components are located in this area. Review the SRS component location (see page 24-13), and the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

1. Remove the steering wheel (see page 17-6).
2. Remove the screws, and steering wheel rear cover (A).



3. Remove the paddle shifter + (upshift switch) (see page 14-233) and paddle shifter - (downshift switch) (see page 14-233).
4. Remove the screws and the steering wheel trim (A).

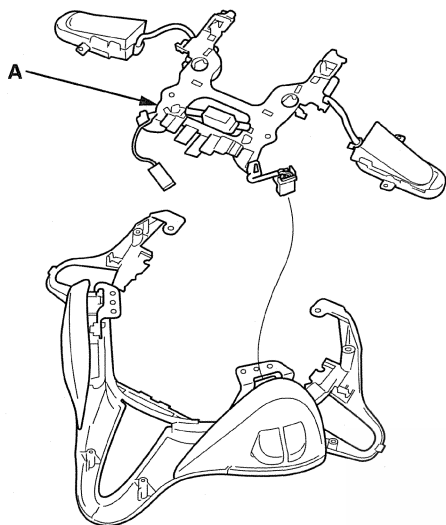


(cont'd)

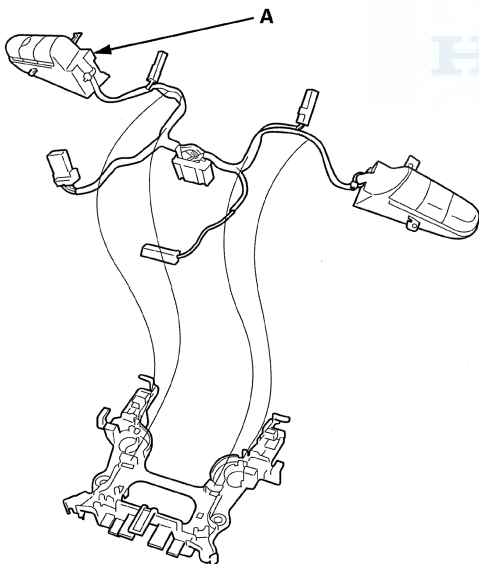
Audio System - '12 model

Audio Remote Switch Replacement (cont'd)

5. Disconnect the connectors, and remove the harness guide (A).



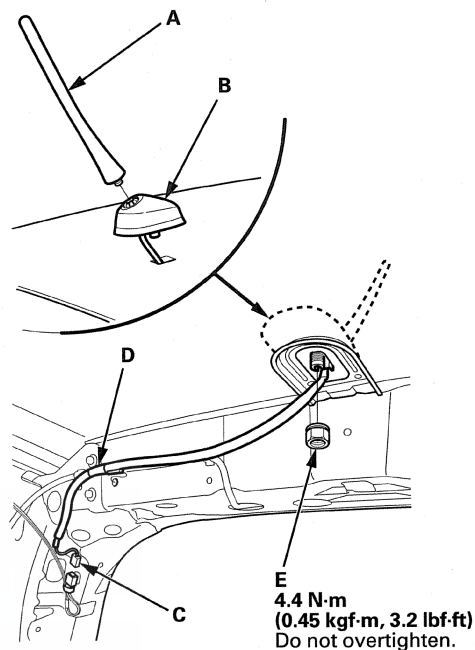
6. Remove the audio remote switch (A).



7. Install the audio remote switch in the reverse order of removal.

AM/FM Antenna Replacement

1. Remove the AM/FM antenna element (A).



2. Remove the AM/FM antenna base (B).

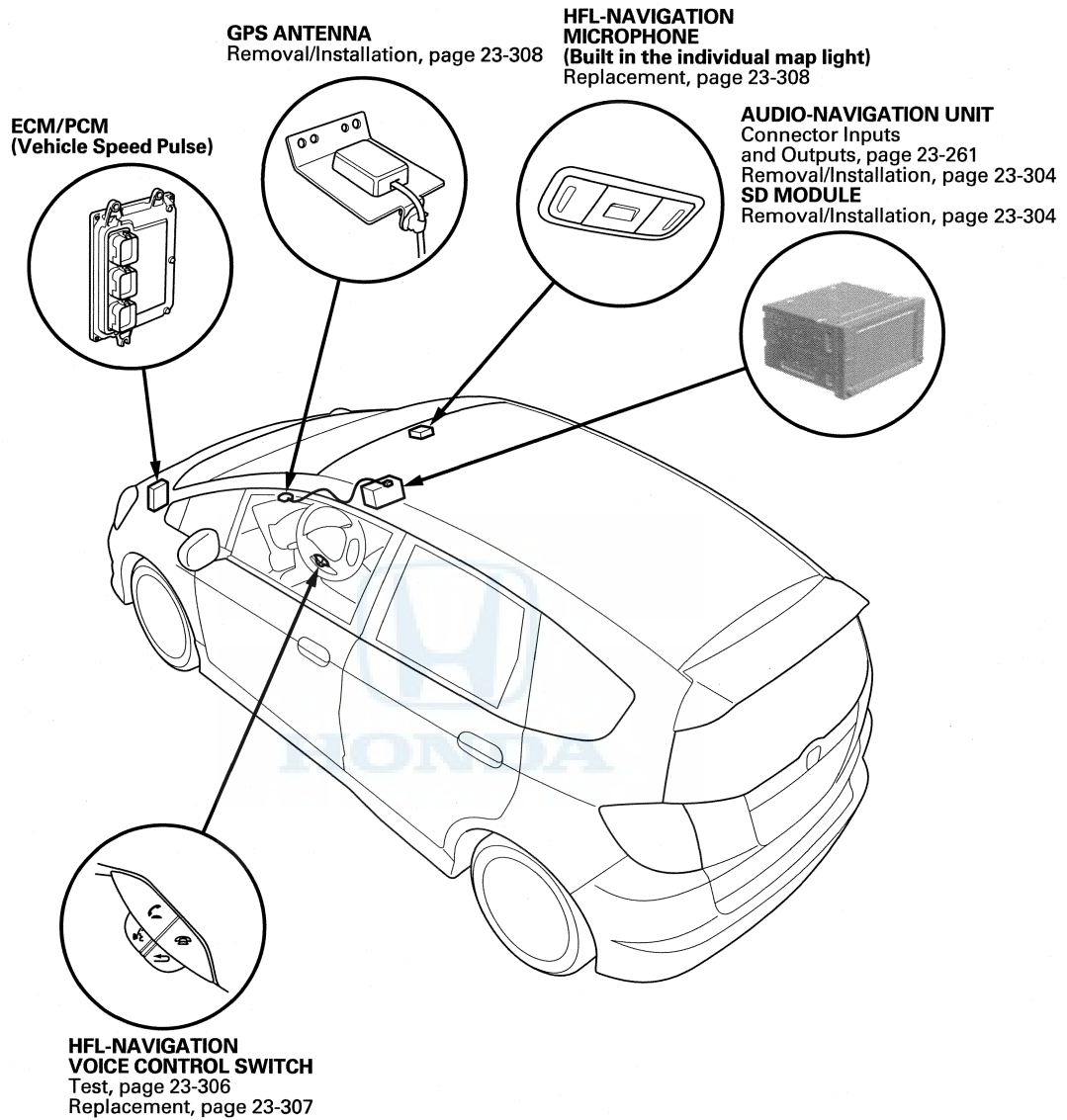
- 1. Remove the quarter pillar trim (see page 20-69), and disconnect the connector (C).
- 2. Remove the headliner (see page 20-86), and detach the clip (D).
- 3. Remove the nut (E) from the AM/FM antenna base, and remove it.

3. Install the antenna in the reverse order of removal.

Navigation System - '12 model



Component Location Index



Navigation System - '12 model

General Troubleshooting Information

General Operation

Refer to the Navigation Manual for the navigation system operating procedures.

Anti-Theft Feature

The navigation system has an auto anti-theft protection circuit. When any of these actions occur, the unit enters its anti-theft mode:

- Disconnecting the battery.
- Disconnecting the audio-navigation unit connector A (24P).
- Removing the No. 1 (100 A) fuse from the battery terminal fuse box or the No. 1 (10 A) fuse from the under-dash fuse/relay box.

After service, reconnect power to the audio-navigation unit, and turn the ignition switch to ON (II). There are two ways to exit the anti-theft mode:

- Press and hold the VOLUME/POWER (⏻) knob for at least 2 seconds. The audio-navigation unit automatically exits the anti-theft mode. If the audio-navigation unit does not exit anti-theft mode, like in cases where a known-good unit (including the SD module) was substituted for testing, enter the anti-theft code.
- Enter the 5-digit anti-theft code.

If the code is lost or unavailable, you can get the code from the iN using the audio-navigation unit serial number. The serial number can easily be obtained without removing the audio-navigation unit. To get the serial number and the code, do the following:

- Press and hold the MAP/GUIDE, the DEST, and the CANCEL buttons at the same time.
- At the select diagnosis items screen, select Detail Information & Setting, select Unit Check, then Navi ECU. The system runs a brief diagnosis, then the audio-navigation unit serial number is displayed.
- Use the anti-theft code inquiry option on the iN to look up the 5-digit anti-theft code. The iN may display more than one code for a given serial number. This is because serial numbers are not unique. You may have to try more than one 5-digit code. If no code is shown, or if the code(s) given do not work in the audio-navigation unit, contact the Automobile Warranty department.

The SD module and audio-navigation unit are mated to each other and can only be mated to a new unit. If someone tried to put a stolen SD module in another audio-navigation unit, or insert their SD module in a stolen audio-navigation unit, the two components cannot mate and a SD module read error appears on the display.

When replacing the audio-navigation unit, be sure to give the customer the new anti-theft security code.

Symptom Diagnosis

Certain circumstances and system limitations may result in occasional vehicle positioning errors. Some customers may think this indicates a problem with the navigation system when, in fact, the system is normal. Keep the following items in mind when interviewing customers about symptoms of the navigation system.

Self-Inertial Navigation Limitations

The limitations of the self-inertial portion of the navigation system (the gyro and the vehicle speed signal) can cause discrepancies between the vehicle's actual position and the indicated vehicle's position (GPS vehicle position).

The following circumstances may cause vehicle positioning errors:

- Moving the vehicle with the engine stopped and the vehicle stopped, such as by ferry or tow truck, or if the vehicle is spun on a turn table.
- Tire slippage, changes in tire rolling diameters, and some driving situations may cause discrepancies in travel distances. Examples of this include:
 - Continuous tire slippage on a slippery surface
 - Driving with snow chains mounted
 - Abnormal tire pressure
 - Incorrect tire size
 - Frequent lane changes across a wide highway
 - Very bumpy roads
- Tolerances in the system and map inaccuracies sometimes limit how precisely the vehicle's position is indicated. Examples of this include:
 - Driving on roads not shown on the map (map matching is not possible)
 - Driving on a road that winds in one direction, such as a loop bridge, an interchange, or a spiral parking garage
 - Driving on a road with a series of sharp hair-pin turns
 - Driving near a gradual highway exit or transition
 - Driving on one of two close parallel roads
 - Making many 90 degree turns



Global Positioning System (GPS) Limitations

The GPS cannot detect the vehicle's position or elevation during the following instances:

- For the first 5 to 10 minutes after reconnecting the battery (this process can take as long as 45 minutes).
- When the satellite signals are blocked by tall buildings, mountains, tunnels, large trees, inside parking structures or large trucks.
- When the GPS antenna is blocked by metallic window tinting or by an object placed above it in the vehicle. The GPS antenna requires a clear unobstructed view of the sky.
- When there is no satellite signal output (signal output is sometimes stopped for satellite servicing).
- When the satellite signals are blocked by the operation of some electronic aftermarket accessories including, but not limited to non-OEM in-dash entertainment units (amp, CD players/changers, radar detectors, theft recovery systems, etc.) and cell phones placed near the navigation system.

The accuracy of the GPS is reduced during these instances:

- Metallic window tinting above the GPS antenna.
- When only three or fewer satellite signals are received (Four satellite signals are required for accurate positioning).
- When driving near high tension power lines.
- When the satellite signals are blocked by the operation of some electronic aftermarket accessories including, but not limited to non-OEM in-dash entertainment units (amp, CD players/changers, radar detectors, theft recovery systems, etc.) and cell phones placed near the navigation system.
- When the satellite control centers are experiencing problems.

Muting Logic

Whenever the navigation system is giving guidance, outputs of all the speakers except the front speakers are decreased. When the voice control system is being used, all of the speakers are muted. If the HandsFreeLink is in use, the voice control system is unavailable.

LCD Unit Limitations

The screen is touch sensitive. Touch the display directly to select items on the screen.

- In cold temperatures, the display may stay dark for the first minute until it warms up.
- When the display is too hot because of direct summer sunlight, it remains dark until the temperature drops (you may see an error message displayed stating this fact).
- When the humidity is high and the interior temperature is low, the display may appear cloudy. The display will clear up after some use.
- Fingerprints on the screen may be noticeable. Clean the screen with a soft, damp cloth. You may use a mild cleaner intended for eye glasses or computer screens. To avoid scratching the panel, do not rub too hard or use abrasive cleaners or shop towels.

Symptom Duplication

When the symptom can be duplicated, verify that it is not a characteristic of the system. Review the Navigation Manual and compare it to a known-good vehicle (with the same software and database), under the same conditions. If the symptom is not the same as the known-good vehicle, follow the self-diagnostic procedures and the appropriate troubleshooting procedures.

When the symptom does not reappear or only reappears intermittently, ask the customer about the conditions when the symptom occurred.

- Always ask the customer to demonstrate the problem.
- Try to establish possible user error or misunderstanding of the system.
- Try to establish if outside interference may have been the cause.
- Vibration, temperature extremes, and moisture (dew, humidity) are factors that are difficult to duplicate.
- Inspect the vehicle for after-market electronic devices (vehicle locators, amps, radar detectors, etc.) that may be hidden.

NOTICE

When troubleshooting navigation system problems, make sure that the known-good vehicle is the same software version year and model as the vehicle being serviced. Mixing incompatible navigation systems or other system components can delay the troubleshooting process by creating symptoms or issues unrelated to the original problem.

(cont'd)

Navigation System - '12 model

General Troubleshooting Information (cont'd)

Audio-Navigation Unit and SD Module Service Precautions

Contrary to previous generations of DVD navigation systems, the audio-navigation unit and the SD module cannot be substituted separately for testing purposes. You can substitute a combined audio-navigation unit and SD module with a known-good combined audio-navigation unit and SD module. When the audio-navigation unit and SD module are connected to a vehicle, and powered up for the first time, the audio-navigation unit and SD module go through a mating process where the SD module writes the audio-navigation unit's serial number to its memory. The audio-navigation unit and SD module are available separately.

When you get a replacement audio-navigation unit, the unit arrives able to mate one time to a SD module. When you connect the audio-navigation unit to the SD module and power it up for the first time, the two components are mated. Once the audio-navigation unit is mated, it does not accept an SD module that is already mated to another audio-navigation unit. It does accept a new SD module.

The SD module is removable from the audio-navigation unit. If the audio-navigation unit is replaced, install the original SD module into the new audio-navigation unit. When you transfer the SD module, all the customer's settings are transferred.

The SD module is able to mate more than once, allowing you to transfer the SD module with the customer's information to a new audio-navigation unit. The SD module must mate to a new audio-navigation unit. It cannot mate to an audio-navigation unit that has been mated to another SD module.

A new audio-navigation unit is defined as a unit that has not been mated to an SD module. A new unit may be new or remanufactured.

Audio-Navigation Unit	SD Module	Result
New	New	OK
Original	New	OK
New	Original	OK
Original	An audio-navigation unit mated to a different SD module	NG
An audio-navigation unit mated to a different SD module	Original	NG

If you need to replace the SD module because it has failed, there is no way to transfer customer data to a new SD module. Explain to your customer that their personal information is not transferable. The navigation system has the Save Users Memory function available, but Honda does not recommend using it. If the SD module is OK, install it in the new audio-navigation unit, and it will automatically transfer all the customer's information and settings.

If you need to replace the SD module, you can try to back-up the navigation data (if possible) and transfer it to the new SD module. See Save Users Memory. The Save Users Memory function only copies customer settings and phone information.

- When the battery is disconnected, the internal GPS clock resets to 0:00. The clock resets to the correct time after the system finishes GPS initialization.
- Before disconnecting the battery, obtain any PGM-FI or A/T DTCs and freeze frame data (which are lost when the ECM/PCM loses power).
- After reconnecting the battery, you have to wait to get the initial signal from the satellite. It will take from 10 to 45 minutes.
- Adjust the setup clock settings (time zone and daylight savings) in the navigation system.

System Initialization

If the navigation system loses power (like the battery was disconnected), the navigation system requires initialization. Once completed, your system is ready to use.

This initialization requires the following:

- Press and hold the VOLUME/POWER knob for at least 2 seconds. The audio-navigation unit exits the anti-theft mode. Or you can enter the 5-digit anti-theft code.
- GPS initialization (may not be needed depending of the length of time the system was without power).
- Map matching aligns the GPS to a location on the map.



GPS Initialization

NOTE: You must park the vehicle outside with a clear view of the sky.

Depending on the length of time the battery was disconnected, your system may require GPS initialization. If it does, the CSF screen appears:

The navigation system lost power and is acquiring its location from the GPS satellites. This usually takes less than 10 minutes.

- * Start the engine.
- * Park the vehicle in an open area away from trees, power lines, and tall buildings.
- * Remove loose articles, cell phones, or electrical accessories located near the GPS antenna.
- * If this screen is displayed repeatedly when starting the vehicle, see your dealer.

If this procedure is not necessary, the system proceeds directly to the Disclaimer screen. During initialization, the system searches for all available GPS satellites, and obtains their orbital information. Park the vehicle out in the open with a clear view of the sky for this procedure.

If the navigation system finds the satellites properly, the CSF screen changes to the Disclaimer screen. If within 10 minutes the system fails to locate a sufficient number of satellites to locate your position, the confirmation screen appears.

Something is interfering with the system's ability to acquire its location. Check the following:

- * The vehicle must be in an open area with a clear view of the sky.
Remove sources of GPS interference like metallic window tint above antenna, or electrical items near antenna (see owner's manual for details).
- * Check GPS antenna cable connection.
- * Restart the engine and repeat the GPS acquire procedure. If the problem persists, see your dealer.

If this screen appears, turn off the engine, then restart the vehicle and move it to a different location. If the Disclaimer screen appears, the GPS initialization is complete.

NOTE:

- The average acquiring time is less than 10 minutes, but it can take as long as 45 minutes.
- If the system is still unable to acquire a signal, follow the instructions on the screen. If this screen appears again, go to GPS icon is white or not shown troubleshooting.
- Skip a CSF screen by pressing the DEST and the ZOOM OUT buttons at the same time and you can move to a System Links screen.

Map Matching

This part of the initialization matches the GPS coordinates with a road on the map screen. To do this part of the procedure, make sure that the navigation system displays a map, and drive the vehicle on a mapped road shown on the map screen. Do not enter a destination at this time. When the name of the current road you are driving on appears at the bottom of the screen, the entire procedure is complete. Your system is now ready to use.

(cont'd)

Navigation System - '12 model

General Troubleshooting Information (cont'd)

Ordering Update Navigation Software

If the customer wants a yearly navigation software update, there are two ways to purchase one. They can either call 888- 549-3798, or order on-line at www.hondanavi.com.

When customers order an update navigation software, they need:

- VIN
- Device number (found on the System/Device Information screen)
- Credit card

Update navigation software is available for purchase usually in the fall of each year. They may contain the following:

- Enhanced maps and points of interest (POI) coverage
- Fixes for minor software bugs
- Additional features

The update is loaded on a USB device which is mailed to the customer along with the password.

When the customer receives the USB device with the update, they insert the USB device into the USB port located in the passenger's dash. The customer is prompted to enter the password that is shipped with the update USB device. The navigation system automatically updates the navigation software.

NOTE: The update USB device is designed to update the vehicle with the submitted VIN. If a customer has more than one vehicle that needs updating, they need to order a separate update USB device for that vehicle.

Never promise your customer future free updates. There are no free programs for updating the navigation software. Updates are generally available for purchase each fall. The online navigation software order site provides information when an update is available.

How to Answer Customer Questions About Navigation Coverage

Some customers may ask questions regarding a city, address, or POI (point of interest) covered by the navigation system. It is better to verify a coverage question on an actual vehicle than to disappoint your customer by promising coverage that may be incomplete or missing in their area. The following suggestions can be used to answer coverage inquiries from your customer.

Is my address covered by the navigation system?

Using a current production vehicle (of the same model), and enter the customer's address (street first) to see if their area is covered. Always enter the street first, because sometimes their city may be included in a neighboring township, or under some larger metropolitan city name. If the address is shown in a later year vehicle, but not your customer's vehicle, you might recommend that your customer purchase an update.

Is my city covered by the navigation system?

For general questions about whether a city is covered, view the map coverage link on the navigation software order site. On the site, select a year, and select a model, then click on the Coverage link. You then select a state or province, and the cities are listed. This does not guarantee that the customer's road or address is in the system. Verifying on an actual production vehicle is always the best guarantee that your information is accurate.

The gas station on my corner is now a restaurant. Why is it still incorrect in the navigation system?

For POI-related customer questions, explain that businesses are constantly moving, and there can be a considerable lag in updating the millions of POIs in the system. The database is updated annually, and the best way to verify whether the POI is accurate is to verify the inquiry on a current production vehicle.

Answers to these and other questions regarding coverage can be found in these locations:

- In the Frequently Asked Questions section of the Navigation Manual.
- At the online navigation software order site, by clicking on the FAQs link.



How do I find the local address of a business that is part of a national chain (for example, Starbucks)?

There are three ways to find the local address to businesses:

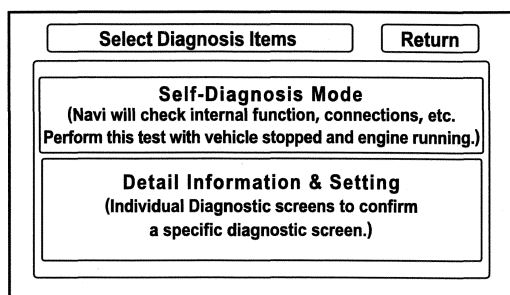
- If you know the phone number of the business, select Phone Number and enter the 10 digit phone number (area code plus seven digit number).
- Select Category, then Restaurant. Enter the keyword Star. The resulting list includes all restaurants that have the letters Star anywhere in the name.
- Select Name and enter Starbucks. For more common business names, like McDonalds, you may have to search through a list that includes other businesses like McDonalds Welding, McDonalds Automotive, etc.

How to Check Error History (Navigation DTCs)

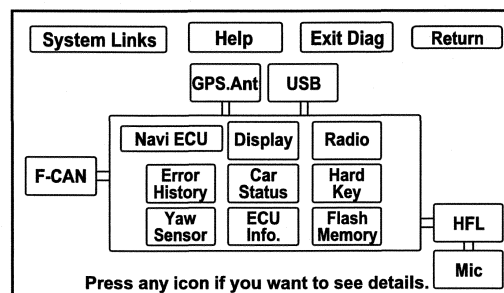
NOTE: The navigation DTCs cannot be retrieved with the HDS.

The Error History feature is to record intermittent navigation issues that occur while the customer is using the system. Sometimes the customer complaint cannot be duplicated. The error history may record the information needed to diagnose the problem. To check the error history:

1. Start the engine.
2. Press and hold the MAP/GUIDE, the DEST, and the CANCEL buttons for 3 seconds.
3. When the Select Diagnosis Items menu appears, select the Self-Diagnosis Mode.

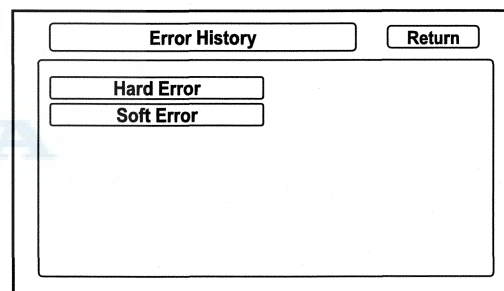


4. When the audio-navigation unit has hard error codes, the Error History icon appears yellow when the Self-Diagnosis Mode (System Links) screen is displayed. When no hard error codes are stored, the icon appears gray. To view the errors with their navigation DTC, select the Error History icon.



5. Select Hard Error in the Error History menu.

NOTE: Soft Error is for factory use only.



(cont'd)

Navigation System - '12 model

General Troubleshooting Information (cont'd)

6. The Hard Error screen displays the following information for each error:

- The navigation DTC for the error.
- A brief description of the navigation DTC.
- The date and time when the error occurred.

NOTE: The Save feature is for factory use only.

Hard Error Return

1.	2010:09.02	10:16:32
	2707 Mic Diag	
2.	2010:09.02	10:16:32
	2705 HFL Diag	
3.	2010:09.02	10:15:53
	2707 Mic Diag	
4.	2010:09.02	10:15:53
	2705 HFL Diag	

Clear Save 1/ 13 ▲ ▼

7. Use the navigation DTC Troubleshooting table to troubleshoot the error. Select Return to exit the Error History main menu.

How to Clear Error History

1. Turn the ignition switch to ON (II).
2. Press and hold the MAP/GUIDE, the DEST, and the CANCEL buttons for 3 seconds.
3. When the Select Diagnosis Items menu appears, select the Detail Information and Setting.

Select Diagnosis Items Return

Self-Diagnosis Mode
(Navi will check internal function, connections, etc.
Perform this test with vehicle stopped and engine running.)

Detail Information & Setting
(Individual Diagnostic screens to confirm
a specific diagnostic screen.)

4. Select the Error History under the Detail Information and Setting menu.

Detail Information & Setting Return

Monitor Check	GPS Information
Unit Check	Yaw Sensor
Car Status	Error History
Version	Functional Setup
F-CAN	B-CAN
Log Data	

5. Select Hard Error in the Error History menu.

NOTE: Soft Error is for factory use only.

Error History Return

Hard Error
Soft Error



6. Select Clear in the Hard Error.

NOTE:

- By selecting Clear, all hardware errors stored in history are erased at the same time.
- The Save feature is for factory use only.
- Write down the navigation DTCs before deleting.

Hard Error Return

1. 2010:09.02 10:16:32
2707 Mic Diag
2. 2010:09.02 10:16:32
2705 HFL Diag
3. 2010:09.02 10:15:53
2707 Mic Diag
4. 2010:09.02 10:15:53
2705 HFL Diag

Clear Save 1/ 13 ▲ ▼

7. The confirmation screen appears, then selects YES.
All Hard Error history codes are cleared. The system returns to the Error History menu automatically.

Hard Error Return

Clear Error History?

Yes No

Clear Save 1/ 13 ▲ ▼

Navigation System - '12 model

DTC Troubleshooting Index

DTC	Description	Circuit	Failure Detection	Page	Also Check for
1002	SD Read Error	SD module	SD module internal data error.	DTC Troubleshooting (see page 23-284)	Low or weak battery
1101	Media Bus Send Error	Media condition monitoring	Audio-navigation unit internal media error.	DTC Troubleshooting (see page 23-284)	Low or weak battery
1102	USB Diag	USB	Audio-navigation unit internal USB malfunction.	DTC Troubleshooting (see page 23-285)	Low or weak battery
1301	GPS Antenna Error	GPS Antenna	GPS antenna circuit malfunction.	DTC Troubleshooting (see page 23-285)	Low or weak battery
1302	GPS Receiver Error 1	GPS Receiver	GPS antenna circuit malfunction. Audio-navigation unit internal GPS receiver malfunction.	DTC Troubleshooting (see page 23-286)	Low or weak battery
1303	GPS Receiver Error 2	GPS Receiver	Audio-navigation unit internal GPS receiver malfunction.	DTC Troubleshooting (see page 23-286)	Low or weak battery
1304	Gyro Error 1	Gyro	Audio-navigation unit internal gyro malfunction.	DTC Troubleshooting (see page 23-287)	Low or weak battery
1305	Gyro Error 2: ECU Temp XX °C	Gyro	Audio-navigation unit internal gyro malfunction.	DTC Troubleshooting (see page 23-287)	Low or weak battery
1306	Vehicle Speed Pulse	Vehicle Speed Pulse	VPS circuit malfunction.	DTC Troubleshooting (see page 23-288)	F-CAN DTCs
1402	Audio Error 2	CD	Mechanical malfunction in the CD-DVD player (audio unit)	DTC Troubleshooting (see page 23-289)	Low or weak battery
2610	DRAM Diag	ECU DRAM	Audio-navigation unit internal DRAM malfunction.	DTC Troubleshooting (see page 23-290)	
2701	GPS Diag: Antenna	GPS	GPS antenna malfunction.	DTC Troubleshooting (see page 23-290)	
2702	GPS Diag: Receiver in Navi ECU	GPS	GPS antenna malfunction.	DTC Troubleshooting (see page 23-291)	
2705	HFL Diag	HFL	HandsFreeLink control unit malfunction.	DTC Troubleshooting (see page 23-291)	
2706	Gyro Diag: ECU Temp XX °C	Gyro	Audio-navigation unit internal malfunction.	DTC Troubleshooting (see page 23-292)	
2707	Mic Diag	Mic	Mic circuit malfunction open/short.	DTC Troubleshooting (see page 23-292)	



Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
No picture is displayed	<ul style="list-style-type: none"> • Symptom troubleshooting (see page 23-293) • See Error Messages (see page 23-283) 	<ul style="list-style-type: none"> • Navigation screen settings • Software not up to date • Check any official Honda service website for more information about the navigation system
Address cannot be found or system gives poor routing	See How to Answer Customer Questions about Navigation Coverage (see page 23-242)	<ul style="list-style-type: none"> • Verify proper operation and system limitations using the Navigation Manual • Refer to Database limitation in the Navigation Manual to report database errors • Refer to the FAQs in the Navigation Manual • Check any official Honda service website for more information about the navigation system
Navigation display stays on with ignition switch in LOCK (0)	Symptom Troubleshooting (see page 23-302)	<ul style="list-style-type: none"> • Short jumper harness • Check any official Honda service website for more information about the navigation system
Error messages are displayed	See Error Messages (see page 23-283)	Check any official Honda service website for more information about the navigation system
Vehicle position icon constantly leaves road, moves erratically, or is displayed very far from actual vehicle position	<ul style="list-style-type: none"> • Symptom troubleshooting (see page 23-295) • See Global Positioning System (GPS) Limitations (see page 23-239) 	<ul style="list-style-type: none"> • Software not up to date • ECM/PCM (vehicle speed pulse) • Check any official Honda service website for more information about the navigation system
GPS icon is white or not shown	<ul style="list-style-type: none"> • Symptom troubleshooting (see page 23-297) • See Global Positioning System (GPS) Limitations (see page 23-239) 	Check any official Honda service website for more information about the navigation system
Vehicle position icon wanders across the map when driving (does not follow a displayed road) or map vehicle ICON spins	<ul style="list-style-type: none"> • Symptom Troubleshooting (see page 23-301) • See Global Positioning System (GPS) Limitations (see page 23-239) 	<ul style="list-style-type: none"> • Software not up to date • ECM/PCM (vehicle speed pulse) • Check any official Honda service website for more information about the navigation system
Picture has lines/rolls/other issues or is an odd color	Symptom Troubleshooting (see page 23-296)	<ul style="list-style-type: none"> • Characteristic of the system • Navigation screen settings • Check any official Honda service website for more information about the navigation system
Display day/night mode does not work or does not work properly	Symptom troubleshooting (see page 23-300)	<ul style="list-style-type: none"> • The instrument (gauge) brightness setting is set to High in day or night mode • Gauge control module • Check any official Honda service website for more information about the navigation system
System locks up or freezes constantly	<ul style="list-style-type: none"> • Symptom troubleshooting (see page 23-300) • See Error Messages (see page 23-283) 	<ul style="list-style-type: none"> • Correct audio-navigation unit is installed for this model • Check any official Honda service website for more information about the navigation system

(cont'd)

Navigation System - '12 model

Symptom Troubleshooting Index (cont'd)

Symptom	Diagnostic procedure	Also check for
Voice guidance cannot be heard, is broken up, or there is static	Symptom troubleshooting (see page 23-298)	<ul style="list-style-type: none"> • Volume or voice feedback setting (see Navigation Manual) • Check any official Honda service website for more information about the navigation system
Voice control does not work/respond	Symptom troubleshooting (see page 23-299)	<ul style="list-style-type: none"> • Software not up to date • Check any official Honda service website for more information about the navigation system
Navigation display buttons do not work or respond properly	<ul style="list-style-type: none"> • Symptom troubleshooting (see page 23-297) • See LCD Unit Limitations (see page 23-239) 	Check any official Honda service website for more information about the navigation system
Navigation frequently needs GPS initialization	<ul style="list-style-type: none"> • Symptom troubleshooting (see page 23-303) • See Error Messages (see page 23-283) • See GPS Initialization (see page 23-241) 	Check any official Honda service website for more information about the navigation system
Navigation screen is darker than normal or takes time to brighten when it is cold	See LCD Unit Limitations (see page 23-239)	
The navigation clock is off by 1 to 3 hours after replacing the audio-navigation unit	See Service Precautions (see page 23-240)	
A POI cannot be found	See How to Answer Customer Questions about Navigation Coverage (see page 23-242)	
An In Line Diag screen appears every time vehicle is started	See Factory Diagnostic Screen In Line Diag (see page 23-270)	



System Description

Overview

The navigation system is a highly-sophisticated, hybrid locating system that uses satellites and a map database to show you where you are and to help guide you to a desired destination.

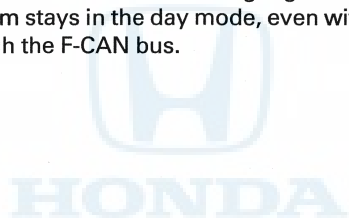
The navigation system receives signals from the global positioning system (GPS), a network of 24 satellites in orbit around the earth. By receiving signals from several of these satellites, the navigation system can determine the latitude, longitude, and elevation of the vehicle. In addition, signals from the system's yaw rate sensor and the ECM/PCM (vehicle speed pulse) enable the system to keep track of the vehicle's direction and speed of travel.

This hybrid system has advantages over a system that is either entirely self-contained or one that relies totally on the GPS. For example, the self-contained portion of the system can keep track of vehicle position even when satellite signals cannot be received like when you are driving through a tunnel. When the navigation system is on, the GPS can keep track of the vehicle position even when the vehicle is transported by ferry.

The navigation system applies all location, direction, and speed information to maps and calculates a route to the destination entered. As you drive to that destination, the system provides both visual and audio guidance.

This navigation system also has voice recognition that allows voice control of most of the navigation functions. The Navigation TALK and Navigation BACK buttons on the steering wheel activate the voice control. The voice control also allows control of the audio and climate functions.

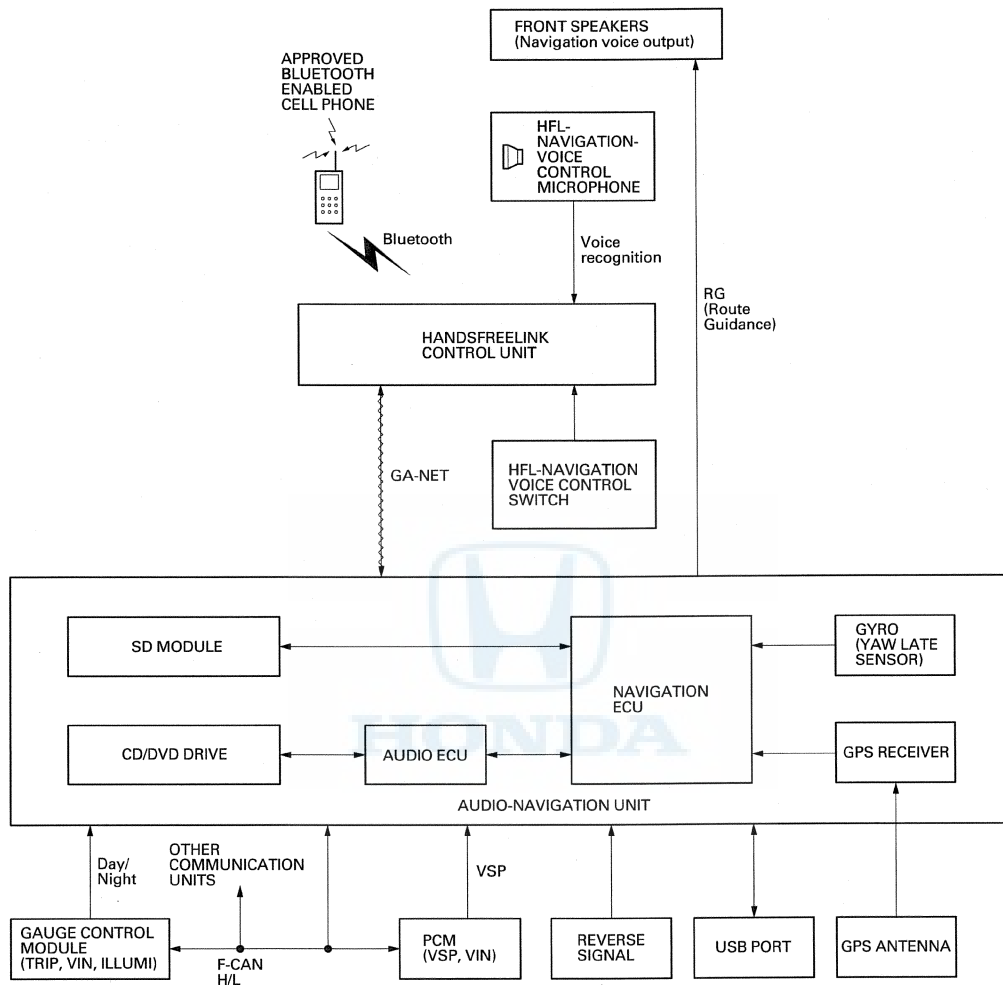
The illumination signal (dashboard brightness setting) is used by the audio-navigation unit to automatically switch the display between Night and Day brightness modes. When the gauge control module brightness control is set to max brightness, the audio-navigation system stays in the day mode, even with the headlights on. The max brightness signal is passed to the navigation unit through the F-CAN bus.



(cont'd)

Navigation System - '12 model

System Description (cont'd)



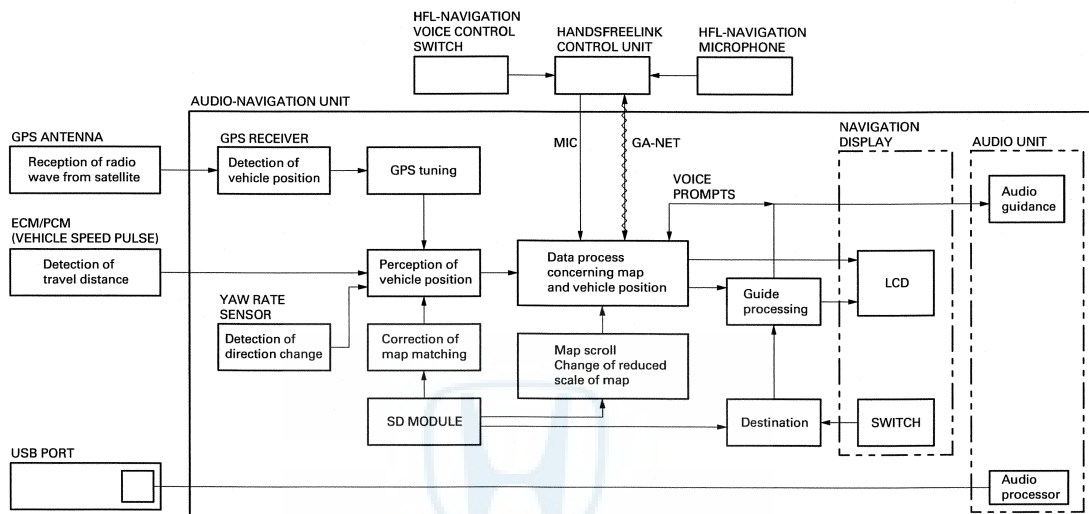


Navigation Function

The navigation system is composed of the audio-navigation unit, the ECM/PCM (vehicle speed signal), the GPS antenna, the microphone, and the voice control switch.

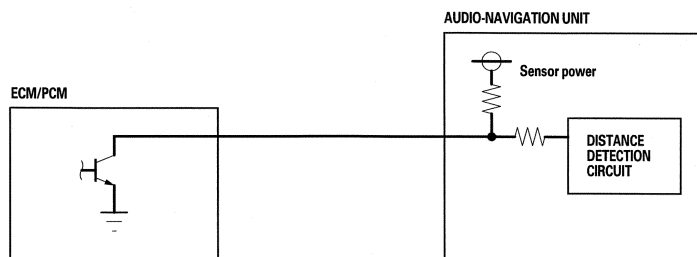
The HandsFreeLink control unit communicates with the audio-navigation unit on the GA-Net.

Function Diagram



Vehicle Speed Pulse

The vehicle speed pulse is sent by the ECM/PCM. The ECM/PCM receives a signal from the countershaft speed sensor, then it processes the signal and transmits it to the speedometer and other systems.



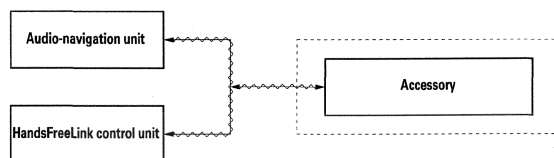
(cont'd)

Navigation System - '12 model

System Description (cont'd)

GA-Net Bus Configuration

The GA-Net bus passes audio and navigation commands throughout the navigation and audio components. These commands include navigation touch screen and hard button signals. Because the entire bus is daisy chained between components (see diagram), any open or short in the GA-Net bus harness will cause any or all of these functions to become inoperative. The addition of any factory audio accessory must maintain the continuity of the GA-Net bus by installing the Y cable included with the accessory kit.





Yaw Rate-Lateral Acceleration Sensor

The yaw rate-lateral acceleration sensor (located in the audio-navigation unit) detects the direction change (angular speed) of the vehicle. The sensor is an oscillation gyro built into the audio-navigation unit.

Sensor Element Structure

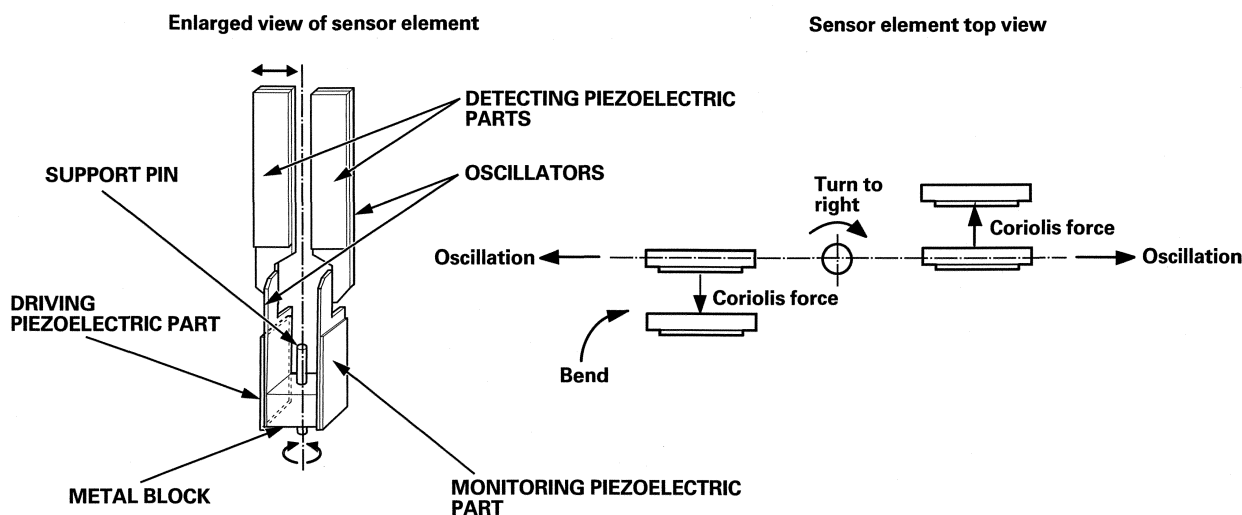
The sensor element is shaped like a tuning fork, and it consists of the piezoelectric parts, the metal block, and the support pin. There are four piezoelectric parts: one to drive the oscillators, one to monitor and maintain the oscillation at a regular frequency, and two to detect angular velocity. The two oscillators, which have a 90-degree twist in the center, are connected at the bottom by the metal block and supported by the support pin. A detection piezoelectric part is attached to the top of each oscillator. The driving piezoelectric part is attached to the bottom of one oscillator, and the monitoring piezoelectric part is attached to the bottom of the other oscillator.

Oscillation Gyro Principles

The piezoelectric parts have electric/mechanical transfer characteristics. They bend vertically when voltage is applied to both sides of the parts, and voltage is generated between both sides of the piezoelectric parts when they are bent by an external force. The oscillation gyro functions by utilizing this characteristic of the piezoelectric parts and Coriolis force. (Coriolis force deflects moving objects as a result of the earth's rotation.) In the oscillation gyro, this force moves the sensor element when angular velocity is applied.

Operation

1. The driving piezoelectric part oscillates the oscillator by repeatedly bending and returning when an AC voltage of 6 kHz is applied to the part. The monitoring-side oscillator resonates because it is connected to the driving-side oscillator by the metal block.
2. The monitoring piezoelectric part bends in proportion to the oscillation and outputs voltage (the monitor signal). The audio-navigation unit control circuit controls the drive signal to stabilize the monitor signal.
3. When the vehicle is stopped, the detecting piezoelectric parts oscillate right and left with the oscillators, but no signal is output because the parts are not bent (no angular force).
4. When the vehicle turns to the right, the sensor element moves in a circular motion with the right oscillator bending forward and the left oscillator bending rearward. The amount of forward/rearward bend varies according to the angular velocity of the vehicle.
5. The detecting piezoelectric parts output voltage (the yaw rate signal) according to the amount of bend. The amount of vehicle direction change is determined by measuring this voltage.



(cont'd)

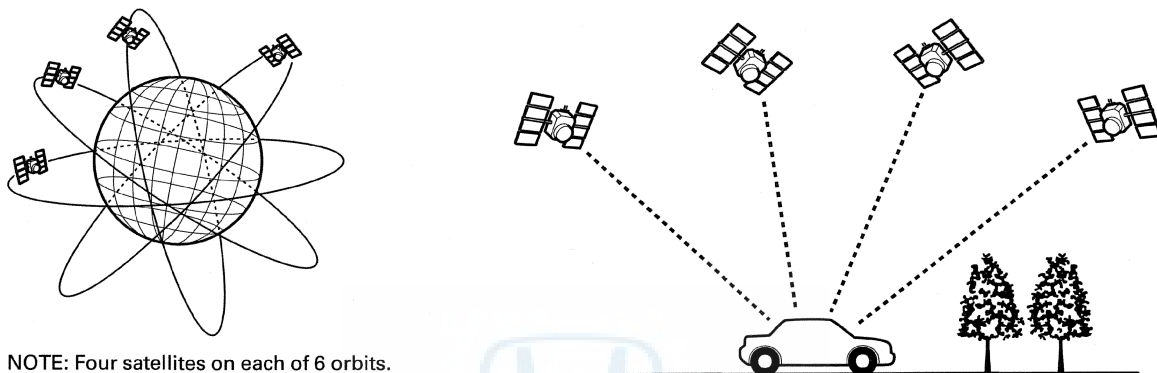
Navigation System - '12 model

System Description (cont'd)

Global Positioning System (GPS)

The global positioning system (GPS) enables the navigation system to determine the current position of the vehicle by using the signals transmitted from the satellites in orbit around the earth. The satellites transmit the satellite identification signal, orbit information, transmission time signal, and other information. When the GPS receiver receives a signal from four or more satellites simultaneously, it calculates the current position of the vehicle based on the distance to each satellite and the satellite's position in its respective orbit.

Position detection Image with GPS satellite



Precision of GPS

The precision of the GPS varies according to the number of satellites from which signals are received and the view of the sky. The accuracy is indicated by the color of the GPS icon shown on the display.

GPS ICON COLOR	NUMBER OF SATELLITES	CONDITION	DESCRIPTION
No GPS icon	None	Faulty reception	The GPS can't be utilized due to a faulty GPS receiver, open in the wire, or other fault or interference.
	2 or less	Impossible to detect vehicle position	GPS function is normal. The satellite signals received by the GPS are too few to detect the vehicle position.
White GPS icon	3	Vehicle position detectable in 2 dimensions	The longitude and latitude of the vehicle position can be detected. (Less precise than detection in three dimensions)
Green GPS icon	4 or more	Vehicle position detectable in 3 dimensions (elevation displayed)	The longitude, latitude and the altitude of the vehicle position can be detected. (More precise than detection in two dimensions)

GPS Antenna

The GPS antenna amplifies and transmits the signals received from the satellites to the GPS receiver.

GPS Receiver and Clock

The GPS receiver is built into the audio-navigation unit. It calculates the vehicle position by receiving the signal from the GPS antenna. The current time, vehicle position and signal reception condition is transmitted from the GPS receiver to the navigation control unit to adjust vehicle position.



Audio-Navigation Unit

The audio-navigation unit calculates the vehicle position and guides you to the destination. The unit performs map matching correction, GPS correction, and distance tuning. It also controls the menu functions and the SD module, and interprets voice commands. With control of all these items, the audio-navigation unit makes the navigation picture signal, then it transmits the signal to the display panel and audio driving instructions to the audio section of the audio-navigation unit.

Calculation of Vehicle Position

The audio-navigation unit calculates the vehicle position (the driving direction and the current position) by receiving the directional change signals from the yaw rate sensor and the travel distance signals from vehicle speed pulse (VSP) signal of the ECM/PCM.

Map Matching Tuning

The map matching tuning is accomplished by indicating the vehicle position on the roads on the map. The map data transmitted from the SD module is checked against the vehicle position data, and the vehicle position is indicated on the nearest road. Map matching tuning does not occur when the vehicle travels on a road not shown on the map, or when the vehicle position is far away from a road on the map.

GPS Tuning

The GPS tuning is accomplished by indicating the vehicle position as the GPS's vehicle position. The audio-navigation unit compares its calculated vehicle position data with the GPS vehicle position data. If there is large difference between the two, the indicated vehicle position is adjusted to the GPS vehicle position.

Distance Tuning

The distance tuning reduces the difference between the travel distance signal from the VSP and the distance data on the map. The audio-navigation unit compares its calculated vehicle position data with the GPS vehicle position data. The audio-navigation unit then decreases the tuning value when the vehicle position is always ahead of the GPS vehicle position, and it increases the tuning value when the vehicle position is always behind the GPS vehicle position.

SD module

The map data (including all scale rates) is stored in the SD module. The map data includes:

- Road distances, road widths, speed limits, traffic regulations, passing time at junction, distances to junctions, and the driving instructions for audio guidance.
- Latitude and longitude GPS.

Route Guidance

The audio-navigation unit can calculate different routes to a selected destination. You have five options:

- Direct Route—Calculate a route that is the most direct.
- Easy Route—Calculate a route that minimizes the number of turns needed.
- Minimize Freeways—Calculate a route that avoids freeway travel. If that is not possible, keep the amount of freeway travel to a minimum. This is not selectable (button grayed out) for trips greater than 100 miles.
- Minimize Toll Roads—Calculate a route that avoids, or minimizes travel on toll roads. This is not selectable (button grayed out) for trips greater than 100 miles.
- Maximize Freeways—Calculate a route that uses freeways as much as possible.

Audio Guidance

The audio-navigation unit transmits audio driving instructions before entering an intersection or passing a junction. The audio instructions come through the audio unit to the front speakers.

NOTE: The front speakers are muted whenever the navigation system is giving guidance commands, and all of the speakers when the voice control system is being used.

Off Road Tracking (bread-crumbs)

Off road tracking dots that can be followed on the map retrace your route back to a mapped (digitized) road.

Clock and Time Zone

The clock setup allows you to set daylight savings time, auto time zone and time adjustment.

(cont'd)

Navigation System - '12 model

System Description (cont'd)

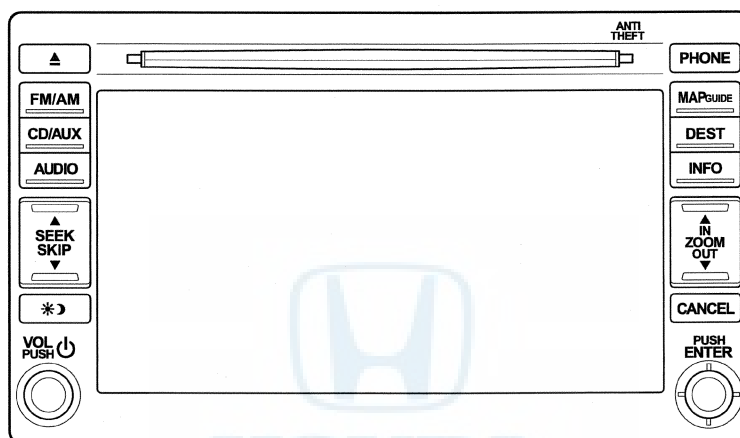
Audio Unit (Built in the audio-navigation unit)

The audio unit receives the audio driving instructions from the audio-navigation unit, and transmits the instructions through the front speakers even when the audio system is in use.

NOTE: If the navigation volume and/or voice feed back is turned OFF, this feature is disabled.

Navigation Display

The navigation display uses a liquid crystal display (LCD). The LCD is a 6.5-inch-diagonal, thin film transistor (TFT), stripe type with 65,536 colors. The color film and fluorescent light are laid out on the back of the liquid crystal film. The touch sensor on the front of the LCD consists of a touch sensitive resistive membrane with many possible touch locations.



Microphone (Mic)

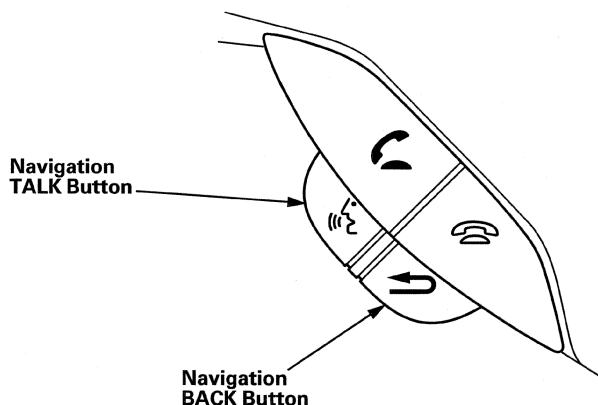
The microphone (on the ceiling, near the front map light) receives voice commands and transmits them to the audio-navigation unit for interpretation.

Navigation TALK Button

Activates the voice control system in the audio-navigation unit to accept voice commands.

Navigation BACK Button

Returns the display to the previous screen (similar function as the CANCEL button).





Glossary

The following is a glossary of terms pertaining to the voice recognition navigation system. All items may not apply to this vehicle. See the navigation system manual for more information.

Item	Definition
ANC (Active Noise Cancellation)	See audio section.
B-CAN	Body CAN Bus (see CAN)
Bread-crumbs (White dots)	Off road tracking dots that can be followed on the map to retrace your route back to a mapped (digitized) road. This function can be turned on/off in Setup screen 1.
CAN	Controller Area Network. This communication network allows processors in the vehicle to send/receive information. The fuel pulses used by the MID trip computer are received from the ECM/PCM using the F-CAN (Fast Controller Area Network) bus.
CPU	Central Processing Unit. The main device within the audio-navigation unit that coordinates the rest of the electronic functions.
CSS	Countershaft (Output) Speed Sensor. This sensor reads the output shaft speed at the transmission and provides a speed pulse to the ECM/PCM.
Database	This consists of the Map data, and the POI (Points Of Interest) data stored on the DVD.
DBW	Drive By Wire. Allows electrical control of the throttle without the need of a mechanical linkage.
DCA	Detailed Coverage Area. Main metropolitan areas in the Lower 48 states, and Canada are mapped to this level. See the navigation system manual for a list of these areas.
DTC	Diagnostic Trouble Codes. Use the PGM Tester, or HDS tablet to obtain, and troubleshoot the cause of these codes.
Dead Reckoning	The use of the speed signal, and yaw rate sensor to position the vehicle on the map even when tall buildings, or driving in a tunnel obscures the GPS signal.
Digitized Road	A road that appears on the navigation screen. The road name will appear at the bottom of the navigation screen. If the user drives off road the navigation system displays "Not on a digitized road", and after 1/2 mile, the bread-crumbs appear.
Disclaimer Screen	Screen containing cautionary information. It is meant to be read carefully, and acknowledged by the customer when using the navigation system.
DVD or DVD-ROM	Digital Versatile Disc. The navigation program and database resides on this disc. See the navigation system manual for information on how to order a replacement or an update DVD.
Dynamic Route Guidance	Uses real-time traffic to change your driving route to help avoid extended traffic delays and incidents. Requires a data package subscription.
ECM	Engine Control Module. Typically referred to as the ECM.
FAQ	Frequently Asked Questions. See the navigation system manual for a list of the customer FAQs, and troubleshooting information.
F-CAN	Fast CAN Bus (see CAN)
GA-Net	The GA-Net allows the audio unit to communicate with all the audio and navigation components in a vehicle. If there is an open in the GA-Net, components or the entire audio and navigation system may appear inoperative.
GPS	Global Positioning System. A network of 24 satellites in orbit around the earth. The navigation system can simultaneously receive signals from up to 12 satellites to accurately position the vehicle on the map.
HDD	Hard disc drive. Some navigation systems use an HDD navigation system that does not use a navigation DVD, but uses a hard drive to contain the navigation software. Can be updated with a CD, DVD, or USB. See the Navigation System Manual for more information.
HDS	Honda Diagnostic System. A hand held tablet PC used for in diagnosing vehicle problems. This device can be used to obtain DTC codes for diagnosis of the navigation system and CAN related problems.
H/U	Head Unit. The navigation system display assembly in the dash.

(cont'd)

Navigation System - '12 model

System Description (cont'd)

Item	Definition
Initialization	This refers to the period needed to re-acquire the GPS satellite orbital information whenever the navigation system power has been disconnected. This can take from 10 to 45 minutes.
Interface Dial	This control device consists of a rotating knob and the buttons surrounding it. This device allows control of the navigation, audio, and climate functions displayed on the screen.
Jog Dial	See interface dial.
LCD	Liquid Crystal Display (the navigation screen)
Map Matching	The received GPS information allows the navigation system to position the vehicle on the map. Map matching has occurred if the map screen displays the current street name in the bottom-shaded area.
Mic	Abbreviation for the microphone used for receiving voice commands. The ANC unit may also use it to check its tuning (if equipped). It is located near the map light in the ceiling.
MID	Multi-Information Display
MW	Maneuver Window. While on-route to a destination, this window displays information about the next maneuver.
Navi	Abbreviation for the Navigation System.
Off-Road Tracking	See Bread-crumbs
Off Route	This occurs when the user leaves mapped roads. Off road tracking dots (bread-crumbs) are displayed if the option is enabled in the setup menu. The user can use them to return to a mapped road. The bottom of the navigation screen displays "Not on a digitized road"
Outlying Areas	These are rural areas that typically have only their main roads mapped. All other roads are shown in light brown for reference only, since they have not been verified.
PC Card Slot	The PC Card (PCMCIA, type II) slot is for factory use only on some models. Make sure that the sliding door is closed at all items, if opened, an error message is displayed on the screen (if equipped). On other models, the PC card slot allows the audio unit to play MP3 or WMA formatted files.
PCM	Powertrain Control Module. This unit supplies the navigation system speed signal, and charge signal via the F-CAN network. Also referred to as ECM.
PCMCIA	A computer industry defined term referring to the PC Card slot standard.
PIN	Personal Identification Number, a random 4 digit number created by the customer to protect personal information.
POI	Point Of Interest. These are the businesses, schools, etc. found under the places option on the main menu.
Polygon	Colored areas on the map screen denoting parks, schools, etc. Refer to the navigation system manual "Driving to Your Destination" for a list of the assigned colors.
QWERTY	Keyboard layout resembling the typewriter keys. The keyboard layout can be changed to an alphabetical layout in the Setup mode.
SD Module	The navigation program and database resides on this module. See the navigation system manual for information on how to order a replacement or an update for the SD module.
Security Code	Code needed to activate the navigation system. You can get the security code from the iN by entering the audio-navigation unit serial number. You can find the serial number on the diagnostic screens (Unit Check, Navi ECU) or on the underside of the audio-navigation unit.
Touch Screen Buttons or Touch Sensor	The display panel has two layers of clear film on the screen panel. If you touch the screen panel, the film layers engage and the navigation display detects the touch point.
Tuning	A continual update of internal navigation system scaling factors. See the individual sensor tuning discussions under either System Description, or System Diagnostic Mode (see page 23-268) in this manual.



Item	Definition
Unverified Streets	These streets have not been verified for turn restrictions, one-way, etc. They appear light brown on the map. You can enter address destinations in these areas, but depending on your Unverified Routing choice in setup, voice guidance may end at the last verified street closest to your destination.
USB jack	See USB port.
USB port	Allows the customer to play data such as input audio recording from portable audio devices (such as i-pod) or data from USB flash memory.
Verified Streets	These streets consist of the detailed metropolitan coverage areas, and all other inter-town connection roads. These roads are shown in black on the map.
VP	Vehicle Position. When in map mode, this circular icon shows the vehicle position on the map. Touch this icon to show the latitude, longitude, and elevation of your current position.
VR	Voice Recognition. This allows voice control of many of the navigation functions. The hardware consists of the microphone, voice control switch (navigation TALK/BACK buttons), and the front speakers. See the overview for more information.
VSP	Vehicle Speed Pulse. This pulse signal coming from the ECM/PCM (via the CSS) is used to update the vehicle position on the map. These pulses do not indicate direction (forward or backward). When in reverse, the navigation receives a signal and directs the VP to move backwards on the map.
Yaw Sensor	This device is located in the audio-navigation unit and senses the side-to-side twisting force generated when the vehicle turns. See a detailed description of how this sensor works in this manual.



(cont'd)

Navigation System - '12 model

System Description (cont'd)

Diagnostic System Diagram

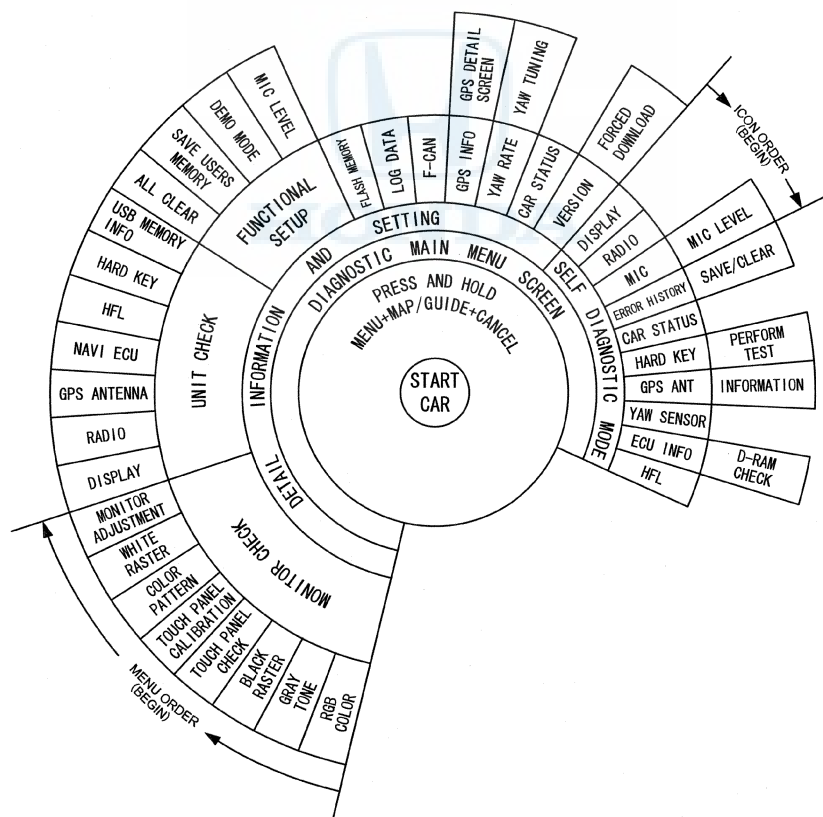
This diagram below shows all of the navigation diagnostic features available for system troubleshooting. The diagram starts at the center, and works outward in layers.

Access to the diagnostic features begins by starting the vehicle. This is necessary so the system can check the other systems connected by various busses. After starting the vehicle you can enter the diagnostic mode either by pressing and holding **MENU + MAP/GUIDE + CANCEL**.

The main menu screen allows two checking modes - one automatic, and one manual:

- The automatic diagnostic check starts when you select **SELF DIAGNOSTIC MODE**. The system runs for several seconds, and reports any issues with Red icons. Use the joystick or touchscreen and select the icon you wish to obtain the problem details.
- The manual diagnostic check is selected from the main menu by selecting **DETAIL INFORMATION AND SETTING**. The traditional diagnostic menu is displayed. This allows you to obtain additional details as instructed in the troubleshooting procedures.

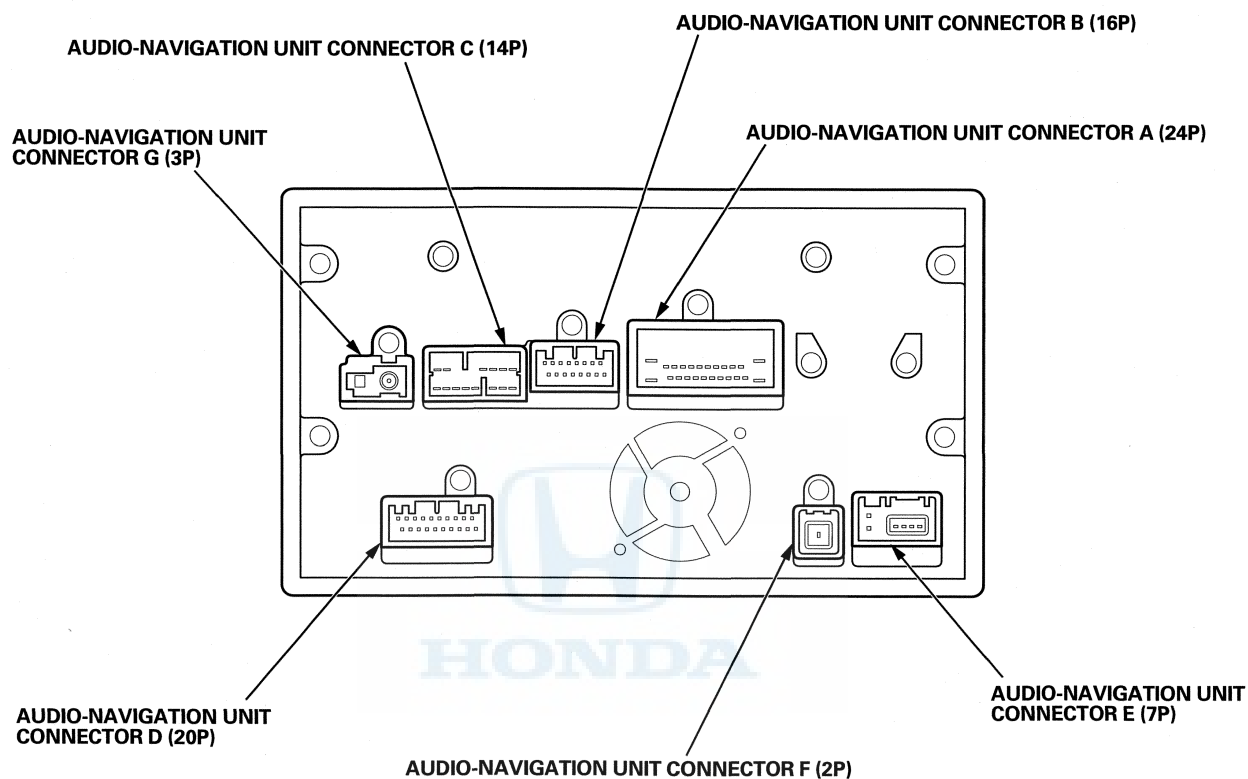
NOTE: Do not clear or change settings unless specified by either the Service Manual troubleshooting procedures or by the factory. Otherwise, you may accidentally delete customer information, or remove the latest flash software version installed by the factory.





Navigation System Connector Location

NOTE: Refer to the audio section for the connector B, C, and G input and outputs (see page 23-171).

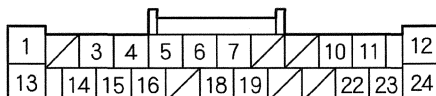


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Navigation System - '12 model

System Description (cont'd)

Audio-navigation Unit Inputs and Outputs for Connector A (24P)



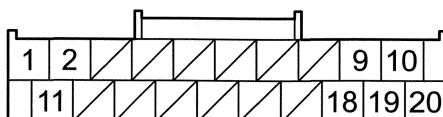
Wire side of female terminals

Audio-navigation Unit Connector A (24P)

Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	RED	ILL (—)	Ground for illumination light	With full dash lights brightness, 0 V	If open: When brightness = Auto, night mode for the display is inoperative when lights on. If short to ground: No change to display.
12	BLK	RADIO GND (Ground)	Ground for display unit	0 V	If open: When brightness = Auto, night mode for the display is inoperative when lights on. If short to ground: No change to display.
13	GRY	ILL (+) (Illumination positive)	Parking light on signal from dash and console lights, under-dash fuse/relay box	Light on = battery voltage, Lights off = 0 V	If open: When brightness = Auto, night mode for the display is inoperative when lights on. If short to ground: Blows fuse No. 29 (10 A) in under-dash fuse/relay box.
14	ORN	ACC (Accessory)	Power source for accessories	Battery voltage at ACCESSORY (I)	If open: Display picture goes out (display back light still on). If short to ground: Blows fuse No. 14 (7.5 A) in the under-dash fuse/relay box.
15	BLU	VSP (Vehicle speed pulse)	Vehicle speed pulse signal from ECM/PCM	Pulses: 0—5 V: Average 2.5 V, when moving	If open: No vehicle speed pulses. Diagnostic screen Car Status, VSP Navi = 0. If short to ground: No vehicle speed pulses. Diagnostic screen Car Status, VSP Navi = 0.
24	PNK	+B (+B power source)	Continuous power source	Battery voltage	If open: Screen completely off (no backlight visible). If short to ground: Blows fuse No. 1 (10 A) in the under-dash fuse/relay box.



Audio-navigation Unit Inputs and Outputs for Connector D (20P)



Wire side of female terminals

Audio-navigation Unit Connector D (20P)

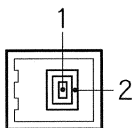
Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	PNK	+B	Continuous power source	Battery voltage	If open: Display picture goes out (display back light still on). NOTE: System will reboot to enter code screen. If short to ground: Blows fuse No. 1 (10 A) in the under-dash fuse/relay box.
2	GRN	BACK LT—	Reverse signal of select lever (A/T) or shift lever (M/T) from multiplex integrated control unit	In reverse, battery voltage: Otherwise 0 V	If open: Navigation never sees the reverse signal when in reverse. Diagnostic screen Car Status, Back = 0. If short to ground: Blows fuse No. 1 (10 A) in the under-dash fuse/relay box.
11	BLK	GND	Ground for audio-navigation unit	0 V	If open: No effect on system. If short to ground: No effect on system.
18	GRY	HFT-NAVI MIC SH	Shield for terminals No. 19 and No. 20	0 V	If open: No effect on voice control. If short to ground: No effect on voice control.
19	GRN	HFT-NAVI MIC -	Inputs sound signal for microphone	0 V	If open/short: Mic icon shown as red in System Links.
20	YEL	HFT-NAVI MIC +	Inputs sound signal for microphone	4-6 V (Navigation TALK button pressed)	If open: Mic icon shown as red in System Links. If short to ground: No effect on voice control.

(cont'd)

Navigation System - '12 model

System Description (cont'd)

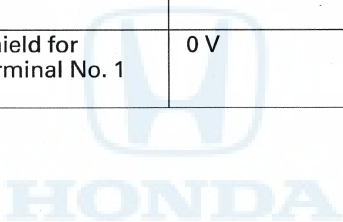
Audio-navigation Unit Inputs and Outputs for Connector F (2P)



Terminal side of female terminals

Audio-navigation Unit Connector F (2P)

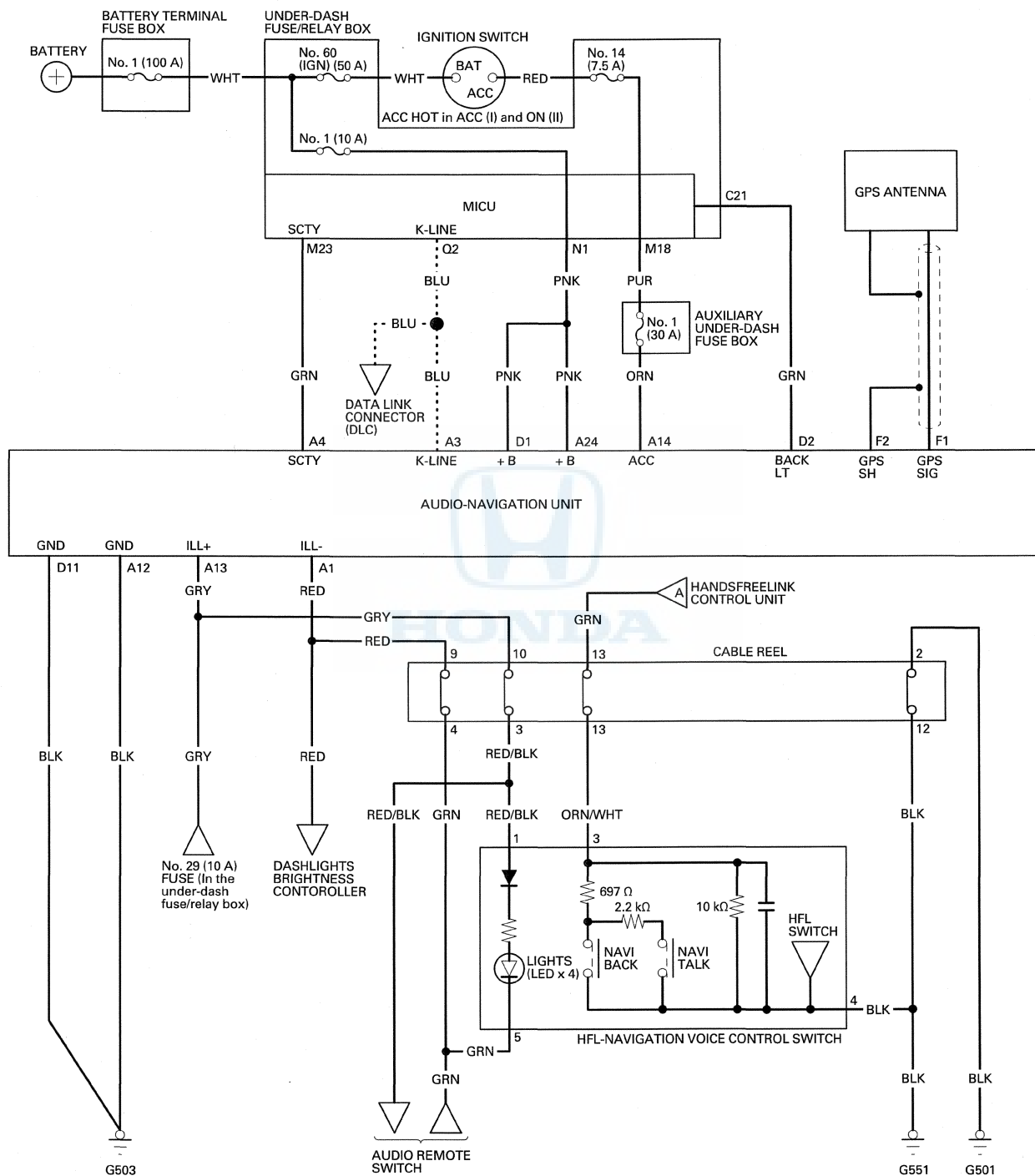
Terminal Number	Wire Color	Terminal Name	Description	Voltage (about)	Symptom
1	—	GPS	GPS signal (5 V in, GPS signal out)	5 V	If open: GPS icon on screen is white, system links screen ANT shows NG. If short to ground: GPS icon on screen is white, system links screen ANT shows NG.
2	—	GPS SH	Shield for terminal No. 1	0 V	If open: GPS icon on screen is white, system links screen ANT shows NG. If short to ground: No effect on system.





Navigation System - '12 model

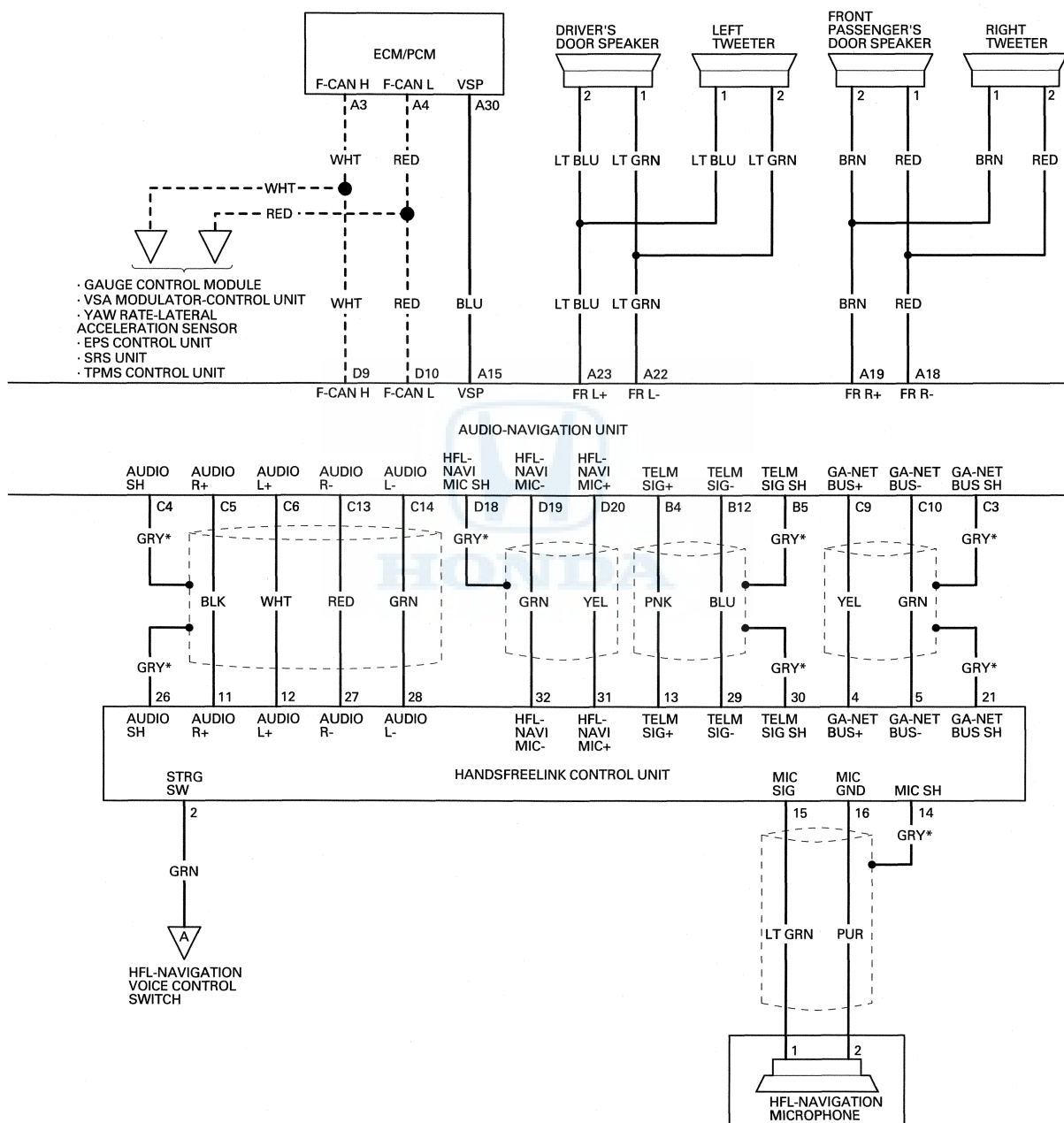
Circuit Diagram





* : The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire shown on the circuit diagram.

----- : CAN line
 : Other communication line
 - - - - - : Shielding



Navigation System - '12 model

System Diagnostic Mode

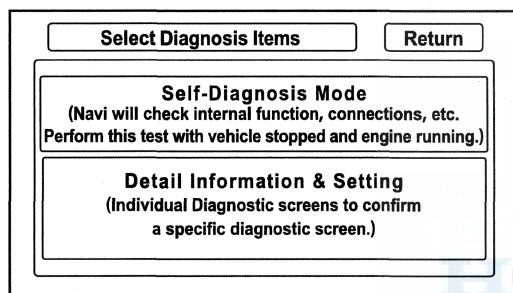
Start-up Procedure and Diagnostic Menu

NOTE: Check the vehicle battery condition first (see page 22-68).

1. Start the engine.
2. At the disclaimer screen use the audio-navigation unit hard buttons:

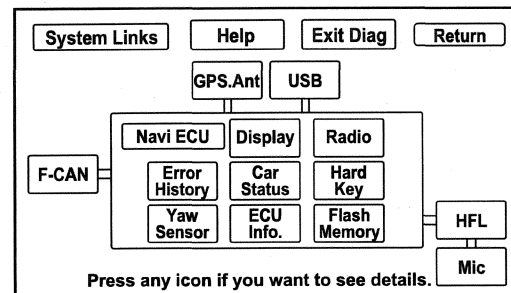
Press and hold the MAP/GUIDE, the DEST, and the CANCEL buttons for 3 seconds. The display screen goes directly to the Select Diagnosis Items menu shown.

- Self-Diagnosis Mode (runs the automatic diagnosis of the navigation system)
- Detail Information & Setting (allows you to manually diagnose the navigation system)



System Links

1. Select the Self-Diagnosis Mode from the Select Diagnosis Items menu. The message at the bottom of the screen flashes indicating the diagnosis is running.



2. Select the icon you want to diagnose to see the details of that diagnostic function.

The System Links function runs automatically and displays a flashing message at the bottom of the screen reminding you to have the engine running for the test. The diagnosis tests the following:

- Most of the wires connecting the external navigation components shown in the block diagram.
- The results from the various components shown in the block diagram.
- The microphone is tested by listening to the bong sound produced by the audio-navigation unit from the speakers when the diagnosis is started. This requires that the audio system be operating normally.



3. When the diagnosis finishes, the icons turn different colors based on their test status. Each icon color is explained in the table.

Icon Colors	Description
Green	The system ran a diagnosis and the results are OK.
Red	Errors that require replacement of hardware or harness. Examples are connection error or memory diagnosis errors. Troubleshoot for navigation DTCs.
Yellow	Errors that do not require hardware replacement, such as leaving the vehicle in ACCESSORY (I), or because of a missing accessory.
White	The diagnosis is running. The screen functions are locked out while the diagnosis runs.
Gray	The system cannot automatically check this function. You have to select the diagnosis item and manually do additional testing, like checking the navigation buttons in the Hard Key test. When you complete the Hard Key test and return to the System Links screen, the gray icon turns green.

NOTE: By selecting the HELP icon, you can see a description for each color.

4. The indication on the screen may not change until you exit and reenter the Self-Diagnosis Mode. In some cases, you may have to restart the engine for the indication to change. After you repair the affected component or harness, repeat this diagnosis.

USB

This diagnosis displays directly from the System Links screen by selecting the USB icon.

This diagnosis checks the connection of the USB harness.

If Connection shows NG, check for open in the wire between audio-navigation unit connector E (7P) terminals No. 6 (USB DET) and No. 7 (DET GND).

USB		Return
Connection	OK	

Flash Memory

This diagnosis displays directly from the System Links screen by selecting the Flash Memory icon.

This diagnosis checks the SD module status.

- Insert: Displays the result of the insert status about the SD module (OK; Inserted, NG; Not Inserted).
- Access: Displays the result of the access to the SD module (OK/NG). If NG, replace the SD module (see page 23-304), and recheck.

Flash Memory		Return
Insert	OK	
Access	OK	

(cont'd)

Navigation System - '12 model

System Diagnostic Mode (cont'd)

Factory Diagnostic Screen In Line Diag

NOTE: If the vehicle left the factory in the factory diagnostic mode, you will see this screen every time you turn on the ignition. Sometimes this screen also appears after you replace the audio-navigation unit with a new or remanufactured unit.

When an audio-navigation unit is powered up for the first time at the factory, the factory diagnosis screen (In Line Diag) appears. Normally the factory does the steps necessary to verify proper operation and terminate the factory diagnosis.

Until the proper confirmation sequence is done, the screen appears every time you turn on the ignition.

In Line Diag

Continue Diag Exit Diag

Navi ECU

GPS Antenna

USB

HFL Mic

F-CAN

OK

VIN OK.

1 2 3

4 5 6

7 8 9

Delete 0 OK

KA

Follow the steps to prevent the screen from showing up in the future:

1. Press and hold the MAP/GUIDE, the DEST, and the CANCEL buttons for about 3 seconds. The Select Diagnosis Items screen appears.
2. Press and hold the MAP/GUIDE button until the In Line Diag CSF Setting screen appears.

In Line Diag CSF Setting Return

In Line Diag Setting Incomplete Complete

CSF Setting OFF ON

3. Set the In Diag Setting to Complete, and make sure the CSF setting is ON, then select Return twice to exit the diagnostic mode. The In Line Diag should not appear again.

Detail Information & Setting

This section allows you to run a specific diagnosis and allows additional setting choices for some screens that are not shown when selecting an icon from the System Links screen.

Select the item you want to check, and the test begins. To return to the previous screen, select Return.

- Monitor Check
- Unit Check
- Car Status
- Version
- F-CAN
- Log Data
- GPS Information
- Yaw Sensor
- Error History
- Functional Setup
- B-CAN (Not available in this model (grayed out))

Detail Information & Setting Return

Monitor Check GPS Information

Unit Check Yaw Sensor

Car Status Error History

Version Functional Setup

F-CAN B-CAN

Log Data

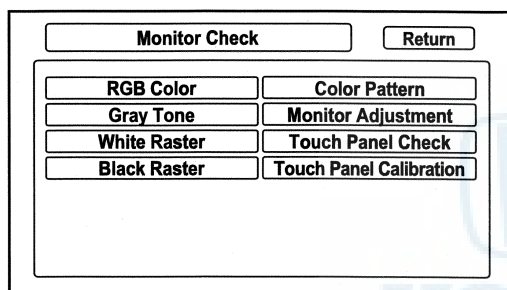


Monitor Check

Overview of navigation display

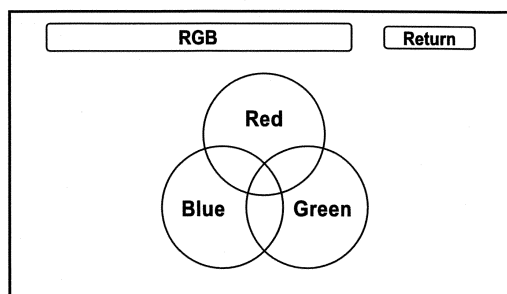
These screens allow you to troubleshoot the navigation display. Select the item you want to troubleshoot, and follow the diagnostic instructions.

- RGB Color
- Gray Tone
- White Raster
- Black Raster
- Color Pattern
- Monitor Adjustment
- Touch Panel Check
- Touch Panel Calibration



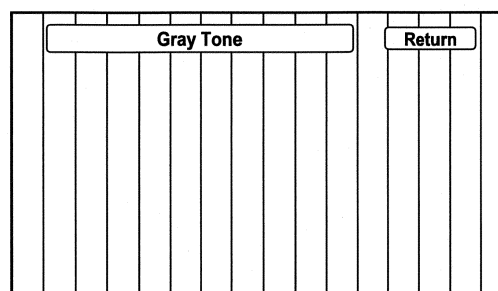
RGB Color

This screen verifies that the navigation display is receiving the video (R, G, B, and Composite sync) signals properly. The three primary colors should all appear without distortion. The combination of all three should produce a central white section. If the picture has lines in it, or scrolls horizontally or vertically, and any of the colors are missing, or scrolls horizontally troubleshoot for the color signal and composite sync problem.



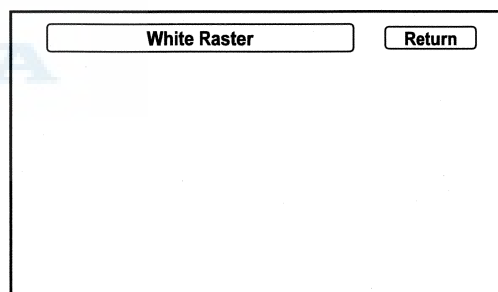
Gray Tone

This screen checks problems with contrast. You should be able to see the changes from bar to bar across the scale. It is normal for the two bars on either side to appear the same. If you cannot see changes from bar to bar, replace the audio-navigation unit (see page 23-304).



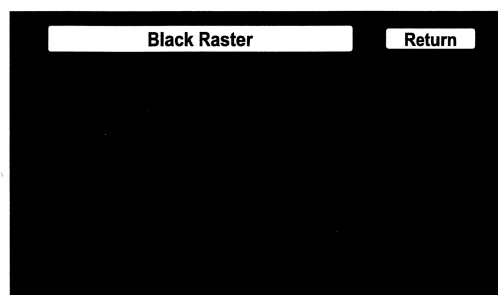
White Raster

This screen checks for pixels that may be dead (off). The entire display must be white. If there are dead pixels, replace the audio-navigation unit (see page 23-304).



Black Raster

This screen checks for pixels that may be stuck on. The entire display must be black. If pixels are stuck on, replace the audio-navigation unit (see page 23-304).



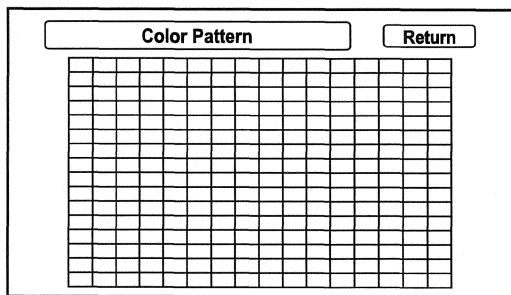
(cont'd)

Navigation System - '12 model

System Diagnostic Mode (cont'd)

Color Pattern

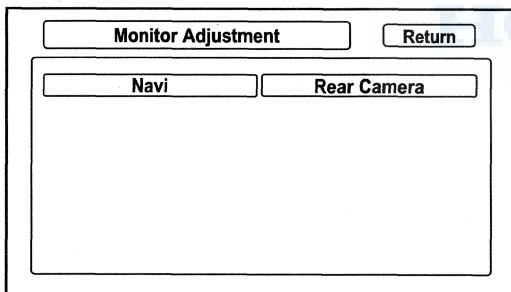
The screen shows the colors being used for the map and menu screens. This is for factory use only. To check the color signal, use the RGB Color diagnosis.



Monitor Adjustment

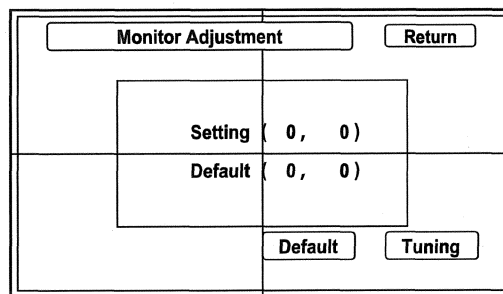
This screen allows you to adjust the navigation display. Select the item you want to adjust.

- Navi: This allows you to center the navigation display.
- Rear Camera: This allows you to adjust the rearview camera guide lines. This option is not activated in this model (grayed out).



Navi

If you selected the Navi, use the joystick to move the picture up/down or left/right, then select the Set to save the selection. Do not adjust the monitor position unless directed by a service bulletin. The Default resets the display position to factory specifications.

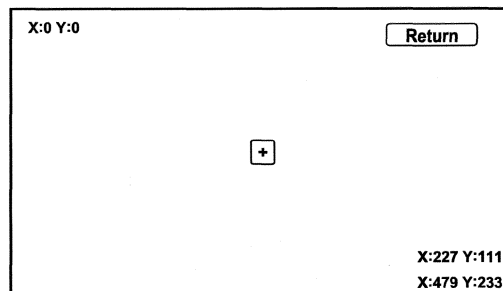


Touch Panel Check

The panel touch sensing system consists of a touch sensitive resistive membrane covering the display. The screen has to be physically touched to make it work. The display has the capability of 479 touch locations (left to right), and 233 touch locations (top to bottom). The upper left hand corner is position (0, 0) and the lower right hand corner is (479, 233) as displayed. Touching anywhere on the screen displays the coordinate of the location, and displays a + icon. If any area of the screen either does not respond, or responds at some other location when touched, replace the audio-navigation unit (see page 23-304).

NOTE:

- Unlike earlier screens that used infrared sensors, direct sunlight does not affect this test.
- A box appears after you touch the screen.



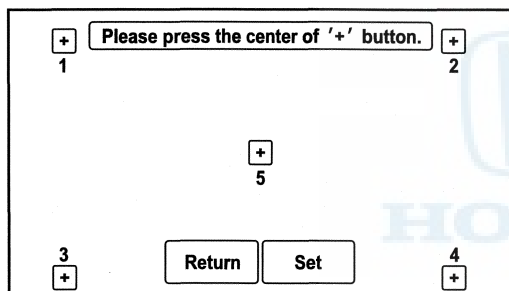


Touch Panel Calibration

The display screen uses a touch sensitive membrane. This means that every location of the entire surface of the display is touch sensitive. This diagnosis allows alignment of these touch locations with the location of the buttons images on the screen.

This should never need adjustment, and is used only by the factory to adjust the touch locations for parallax (the touch locations appear different when viewed at an angle). If you are directed to make an adjustment by the factory or other service information, follow this procedure:

- The screen consists of the + icons. Touch the center of the five + icons on order 1—5.
NOTE: Touch the center of the + icon correctly.
- To store any changes you make, touch the Set button.
- Select Return to exit the diagnosis.

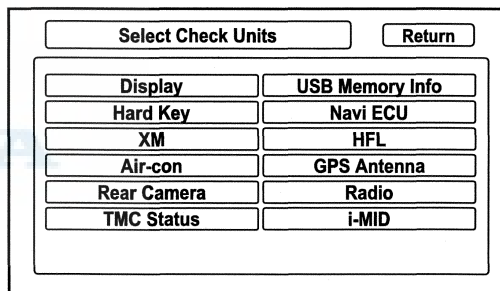


Unit Check (Quick Check)

Some of the tests and screens that are displayed under the Unit Check are different from the more detailed checks listed under other menu options.

To start the test, select the item you want to check.

- Display
- Hard Key
- XM (Not available in this model (grayed out))
- Air-con (Not available in this model (grayed out))
- Rear Camera (Not available in this model (grayed out))
- TMC (Traffic) Status (Not available in this model (grayed out))
- USB Memory Info
- Navi ECU
- HFL
- GPS Antenna
- Radio
- i-MID (Not available in this model (grayed out))



(cont'd)

Navigation System - '12 model

System Diagnostic Mode (cont'd)

Display

This diagnosis does additional checks on the communication bus between the navigation ECU and the navigation display. In addition, this test checks the internal electronic functions.

- If Connection shows NG, replace the audio-navigation unit (see page 23-304).
- Version represents the software version for the display.

Display

Return

Connection

OK

Version

H14F00 60.89.24

Hard Key

This diagnosis tests the navigation hard buttons surrounding the navigation display, the HFL-voice control switch, and the audio remote switch.

- To complete the test, press each button, and move the joystic to each indicated position. As each function is tested, the corresponding button on the display should highlight.
- To exit, press and hold the ENTER.

Hard Key

Return

Navi Key

Audio Key

Steering Key

Select Navi Key

Navi Key

Return

Keep Pushing to Return.

MAP/GUIDE

PHONE

CANCEL

DAY/NIGHT

DEST

INFO

ZOOM IN

ZOOM OUT

Select Steering Key

Steering Key

Return

MODE

CH +

CH -

VOL +

VOL -

⏮

⏪

⏩



Select Audio Key

Audio Key				Return
AUDIO	VOL +	VOL -	VOL PUSH	
AM/FM	CD/XM	SEEK UP	SEEK DOWN	
EJECT				
Please turn on AUDIO Power before testing.				

USB Memory Info

This diagnosis displays the USB device status that is connected to the audio-navigation unit.

If the USB memory device is connected to the USB port located under the passenger's dash, the screen displays the USB memory size, the Product ID, Vender ID, and connection status (Inserted/Not Inserted).

USB Memory Information		Return
USB Memory:	Inserted	
Memory size:	488MB	
Product ID:	6533	
Vender ID:	0930	
Files		

When you select Files, the USB device file information is displayed.

USB Memory Information		Return
/Snapshot000.bmp		
Information		

Navi ECU

This diagnosis looks for problems in the navigation ECU. When you start this diagnosis, the audio-navigation unit may freeze or delay up to a minute while the diagnosis runs.

- Displays the result of the access to the DRAM (OK/NG). If DRAM shows NG, replace the audio-navigation unit (see page 23-304).
- Program Version: Displays the version of the navigation software.
- Model: For this model, the field should begin with TR0.
- Serial No. : Displays the audio-navigation unit serial number. That should be the same as the serial number found on the upperside of the audio-navigation unit.
- Flash: Displays the result of the access to the flash memory (OK/NG). If it is NG, replace the audio-navigation unit (see page 23-304).

Navi ECU		Return
D-RAM	OK	
Program Version	1.AB.20	
Model	TK6A KA 4ch	
Serial No.	906B0017	
Flash	OK	

HFL

This diagnosis checks first whether the HandsFreeLink control unit is connected to the audio-navigation unit via the GA-Net. If the HFL and GA-NET shows NG, go to HandsFreeLink control unit Input Test (see page 23-361). Then checking the HandsFreeLink control unit status. If the HFL shows B1792, go to HFL DTC B1792 troubleshooting (see page 23-350).

HFL		Return
HFL	OK	
GA-NET	OK	
Part Number	39770-TK6-AA01-3M	
S/W Version	01.01.000	

(cont'd)

Navigation System - '12 model

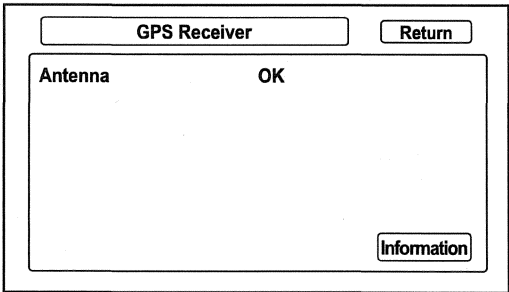
System Diagnostic Mode (cont'd)

GPS Antenna

This diagnosis tests the GPS antenna connection.

If Antenna shows NG, the GPS antenna may be faulty. Check for the navigation DTCs (see page 23-243).

Select Information to see the GPS satellite details.

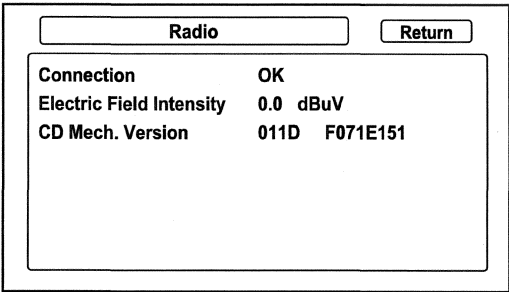


Radio

This diagnosis displays the internal radio tuner and the CD player status.

If Connection shows NG, replace the audio-navigation unit (see page 23-304).

- Electric Field Intensity: Displays radio reception sensitivity (dBuV).
- CD Mech. Version: Displays the version of the internal CD player.



Car Status

Use this screen to confirm that the audio-navigation unit is properly receiving input signals. Signals equal to (0) are OFF, and signals equal to (1) are ON. If the value on the display does not match the actual vehicle status, then check the wire carrying the signal.

- VSP-Vehicle Speed Pulse from the ECM/PCM (audio-navigation unit connector A (24P) terminal No. 15)

The VSP comes from the ECM/PCM as a dedicated signal. Internally, the audio-navigation unit compares the actual VP on the map against street data to adjust the pulse to speed scaling factor.

- a. OFF (0) when the vehicle is not moving
- b. ON (1) when the vehicle is moving

- BACK-Reverse indication from reverse relay (audio-navigation unit connector D (20P) terminal No. 2)

The BACK signal is used by the audio-navigation unit to allow the map screen to show the VP moving backwards when the vehicle is in R. This signal is needed because the VSP has no direction indication.

- a. OFF (0) when the shift lever is in any position other than R
- b. ON (1) when the shift lever is in R

- ILL-Illumination Indication

The illumination indication comes from the gauge control module to the audio-navigation unit via the B-CAN bus.

The navigation uses the signal to determine whether to put the navigation screen into the Day or Night brightness mode (Setup screen 1).

- a. OFF (0) when parking lights, or headlights are off
- b. ON (1) when parking lights, or headlights are on



- **ILL CANCEL**

The illumination cancel indication comes from the gauge control module to the audio-navigation unit via the B-CAN bus.

This item detects whether the illumination cancel function is in use.

- OFF (0) when the dashlights brightness control knob is less than 90 % brightness with the headlights turned on
- ON (1) when the dashlights brightness control knob is more than 90 % brightness with the headlights turned on

Car Status				Return
VSP	[0]	ILL	[0]	
BACK	[0]	ILL CANCEL	[1]	

Version

This screen displays the current version information for the navigation system. DBOOT (NOR-FLROM) and System u-Com are all for factory use.

- Navi Application (DRAM): Displays the version of the navigation software.
- Map Data: Displays the version of the map data.

Version		Return
Navi Application(DRAM)	1. A8.20	
DBOOT(NOR-FLROM)	BLD-NR_240UH 3.01	
System uCom	H14F00 60.89.24	
Map Data	0.90A031	

F-CAN

F-CAN (Fast Controller Area Network) passes information between processors on the network. For example, the F-CAN network passes trip computer information between the gauge and the audio-navigation unit for the trip computer function.

The F-CAN network uses a communication protocol that transmits data at 500 Kbps.

- This diagnosis must have the engine running.
- If F-CAN shows ERROR ACTIVE, an error is not detected between F-CAN bus and the audio-navigation unit. If any error is detected, check for diagnostic trouble codes (DTCs) for the F-CAN with the HDS (Honda Diagnostic System). The data displayed in the ID boxes is for factory use only.

F-CAN System Link							Return
F-CAN ERROR ACTIVE							
UNIT	ID	ID	ID	ID	ID	ID	
ENG	40C	454					
METER	374	377	378	386	42D		
Must have engine running for this test							

Log Data

This screen allows the factory to collect log data to troubleshoot navigation system issues.

Log Data			Return
No	1	2010/09/02 16:41:45	△
Date	2010/09/02	2010/08/18 22:39:39	△
Time	16:41:45	2010/08/18 22:29:00	△
Detail Info	Exception Reset	2010/08/05 02:44:28	△
		2010/01/05 01:00:02	△
		2010/01/01 18:17:19	△
		Clear	▽

(cont'd)

Navigation System - '12 model

System Diagnostic Mode (cont'd)

GPS Information

This screen shows the current status of GPS reception. The circular diagram shows the current location of the GPS satellites (yellow numbers) as they would appear in the sky. The outer circle represents the horizon (0 degrees elevation). The middle and inner circles represents 30 and 60 degrees respectively. The very center of the diagram (90 degrees elevation) is directly overhead. Nearby obstructions, like tall buildings will block satellites in that direction. That is why it is necessary to be in an open area to effectively troubleshoot GPS reception issues. The satellite numbers shown on the diagram correspond to the PRN number in the GPS Details screen. There are always at least 24 active GPS satellites in orbit. Because satellites fail, and have to be removed from service, spares are always parked in orbit, ready to be activated. This is why the PRN (satellite ID number) can be greater than 24.

NOTE: When you use this screen for troubleshooting, park the vehicle outside, away from buildings, tall trees, and high tension wires for at least 10 minutes with the engine running.

- The Number of Satellites box shows the number of acquired satellites (maximum of 12). It should contain three or more icons.
- The Current Position shows latitude, longitude, and elevation (in feet). If there are less than four satellites, the elevation can be grossly inaccurate.
- The date/time field shows the current date, and also a time that includes daylight savings and other offsets entered by the customer in Setup screen 2 Adjust Time Zone/Clock.

GPS Detail

By pressing and holding the DEST button for 2 seconds, a GPS Detail screen appears. This screen displays real time incoming satellite positional data when the vehicle is outside in the open. The information shown on this screen is for factory use.

NOTE: The data shown is an example only.

- The box TS/AS and HDop (horizontal dilution of precision)/VDop (vertical dilution of precision) is for factory use.
- The Speed and Direction information is updated in real time when driving.
- The Date/Time Information is the same as in Setup screen 2 Adjust Time Zone/Clock.
- If the 3D icon is shown above the yellow dots, this implies that at least four satellites are available for map positioning, and the GPS indicator on the map screen will be green.
- If the row of data in the table below begins with a yellow dot, the AZI and EL fields can be used to locate each satellite on the circular GPS diagram (see prior screen).



Column	Description	Problem Indication
3D	Active satellites (Yellow Dot)	If 3D or 2D is missing when the vehicle is parked outside, go to GPS icon is white or not shown (see page 23-297).
PRN	The satellite ID number	
ST	The status: 0 = Cannot view or searching 1 = Searching 2 = Tracking 4 = Acquiring (It is not being used for positioning) 8 = Acquiring (It is being used for positioning)	If all 0, go to GPS icon is white or not shown (see page 23-297).
AZI	Azimuth, the angle (0–360) clockwise from north	
EL	Elevation from the horizon (90 deg is overhead)	
C/N	Receiver sensitivity	Normal signal: 49-52 No signal: 27-33
ACC	Satellite accuracy	
△ 1/2 or 2/2 ▽	Shows view of all satellites in two screen views 1/2 or 2/2	

GPS Detail

Return

TS:xx
AS:xx

HDop:xx.x
VDop:xx.x

Speed:x.xMi/h
Direction: x°

Date:2010.09.02
Time:0:09:08

3D	PRN	ST	AZI	EL	C/N	ACC
○	xx	xx	xxx	xx	xxx	xx
○	xx	xx	xxx	xx	xxx	xx
○	xx	xx	xxx	xx	xxx	xx
○	xx	xx	xxx	xx	xxx	xx
○	xx	xx	xxx	xx	xxx	xx
○	xx	xx	xxx	xx	xxx	xx

△

1/2

▽

Yaw Sensor

This diagnosis checks the gyro in the audio-navigation unit. This device detects when the vehicle turns, and repositions the vehicle position icon on the map screen.

- **Sensor:** Indicates the voltage output from the gyro. It should indicate about 2.300 V–2.700 V when the vehicle is stopped.
- **Offset:** Indicates the reference voltage or standard within the gyro. It also should indicate about 2.300 V–2.700 V when the vehicle is stopped.
- A sensor output voltage **HIGHER** than the Offset voltage indicates that the vehicle is turning to the right.
- A sensor output voltage **LOWER** than the Offset voltage indicates that the vehicle is turning to the left.
- The Offset and Sensor should both indicate about 2.300 V–2.700 V when the vehicle is stopped. If either reads below 2.300 V, or above 2.700 V, replace the audio-navigation unit.
- The Offset and Sensor should be within ± 0.01 V of each other when the vehicle is stopped. The Sensor value should change relative to the Offset as the vehicle turns while driving. If not, replace the audio-navigation unit (see page 23-304).
- **Auto Tuning:** For factory use only. This setting should be ON.
- **Learning Level:** Displays the status of the internal tuning function. At initialization, this value starts at 0 and increases to 10 as the internal correction values become more accurate.
- **CCW Factor, CW Factor:** For factory use only.
- **GyroAD:** Displays the result of the AD value (OK/NG). If NG, check for the Navigation DTCs (see page 23-243).
- **GyroZero:** Displays the result of the zero point output voltage (OK/NG). If NG, check for the Navigation DTCs (see page 23-243).

Yaw Rate

Return

Sensor

2.487V

Offset

2.487V

Auto Tuning

ON

ON

OFF

Learning Level

Level 1

CCW Factor

0.0%

CW Factor

–1.7%

GyroAD

OK

GyroZero

OK

Reset

(cont'd)

Navigation System - '12 model

System Diagnostic Mode (cont'd)

Error History

Refer to How to Check for Error History to use this diagnosis (see page 23-243).

Error History

Return

Hard Error

Soft Error

Functional Setup

Select the item you want to check.

- Mic Level
- Demo Mode
- Save Users Memory
- All Clear

Functional Setup

Return

Mic Level

Demo Mode

Save Users Memory

All Clear





Mic Level

This diagnosis allows you to independently test the microphone and the HFL-voice control switch. The TALK button is used to activate the voice control system. The microphone is located near the map light in the roof console. The microphones can now isolate the driver's voice even when there is noise or other conversations in the vehicle. To properly check the microphone, make sure you are sitting in the driver's seat.

This diagnosis checks whether the microphone and the HFL-voice control switch are connecting to the HandsFreeLink control unit. If Mic and/or STRG SW shows HFL DTCs (B1775, B1776, B1779, and/or B1780), go to indicated HFL DTC troubleshooting.

- Press the TALK button, wait until you hear a beep, and in a normal voice say "testing". The TALK indicator on the screen should momentarily turn green, and the text Now Recording... should appear in yellow. If the talk indicator shown on the screen does not briefly turn green when you press the TALK button, do the voice control switch test. If there is no Mic Level movement when you speak, then you should check the wires running from the microphone in the roof console to the HandsFreeLink control unit and the audio-navigation unit. If the wires are OK, the microphone must be faulty, replace the microphone located in the roof console (see page 23-308).
- Press the Pick-up, Hang-up/Back buttons. This should cause the each indicator on the screen to momentarily turn green. If it does not briefly turn green, do the voice control switch test (see page 23-306).

MIC / STRG SW		Return
MIC	OK	
STRG SW	OK	
Mic Level		
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>		

Demo Mode

This screen is for factory use only, and should always be set to OFF. Occasionally DEMO setting is turned ON when vehicles are being used at auto shows or similar events. Turning this feature on, allows the navigation system to automatically follow a route to a destination when the vehicle is stationary. Speed changes the speed of the demo mode.

Demo Mode		Return
Demo	OFF	<div>ON</div> <div>OFF</div>
Speed	12.5mph	<div>▽</div> <div>△</div>
Mode	One Time	<div>One Time</div> <div>repeat</div>

Save Users Memory

NOTE: If the audio-navigation unit SD module is OK, transfer the SD module to the new audio-navigation unit. Do this procedure only when replacing the SD module (if possible). If the SD module is NG, it is unlikely you will be able to recover any information.

When replacing the audio-navigation unit, this function allows the technician to transfer the customer's personal data to the new audio-navigation unit. The transferred information includes their setup settings and personal addresses. The dealer inserts a USB device into the USB port, and then selects the Save Users Memory function. The two functions in this diagnostic screen are Export and Import. Export saves the customer's data to the USB device, and Import moves the USB device files to the new audio-navigation unit.

Save Users Memory		Return
<div>EXPORT</div> <div>IMPORT</div>		

(cont'd)

Navigation System - '12 model

System Diagnostic Mode (cont'd)

This function does not start (the Export and Import buttons are grayed out) until you connect a USB device to the USB port located under the passenger's dash.

Select Export button to move the customer's data from the original audio-navigation unit to the USB device. Select YES on the Export User Data Confirmation screen. The process takes only a couple of seconds. The system stores .DAT files on the USB device.

NOTE: If the Export button is grayed out, check the USB port.

The screen displays a title bar with 'Save Users Memory' and 'Return' buttons. The main text area contains the question 'Export User Data?'. Below this, there are two buttons: 'Yes' and 'No'. At the bottom, there is a single-line text input field.

After replacing the new audio-navigation unit, allow the system to boot up. Insert the USB device into the USB port and enter the Save Users Memory in the navigation system diagnostic mode.

Select the Import button to move the two files stored by the Export process from the USB device to the new audio-navigation unit. Select YES on the Import User Data Confirmation screen. When the transfer is finished (a few seconds) the system automatically reboots. After the system reboots, remove the USB device from the USB port.

NOTE: If the Import button is grayed out, check if the Model and the Program Version shown on the Navi ECU screen are the same.

The screen displays a title bar with 'Save Users Memory' and 'Return' buttons. The main text area contains the question 'Import User Data?'. Below this, there are two buttons: 'Yes' and 'No'. At the bottom, there is a single-line text input field.

All Clear

The all clear function deletes the all the customer information and the previous destinations from the audio-navigation unit SD module.

If you select All Clear, a confirmation screen appears.

When YES is selected, a second confirmation screen appears.

The screen displays a title bar with 'Functional Setup' and 'Return' buttons. The main text area contains the question 'Clear All?'. Below this, there are two buttons: 'Yes' and 'No'. At the bottom, there is a single-line text input field.

When YES is selected, the system restarts after performing the All Clear process. After the restart, a normal start-up process occurs and the audio-navigation unit then needs GPS initialization.

The screen displays a title bar with 'Functional Setup' and 'Return' buttons. The main text area contains the message 'The deleted data cannot be recovered!' followed by the question 'Would you like to continue?'. Below this, there are two buttons: 'Yes' and 'No'. At the bottom, there is a single-line text input field.



Error Message Table

Screen Error Message	Solution
The navigation system is unable to start due to excessive heat. The system will start after the system cools.	This message appears briefly when the navigation ECU temperature is too high, and then turn the ignition switch to LOCK (0) until the temperature cools down. The system turns back on when the audio-navigation unit cools down.
The display temperature is too high for protection. The display will shut down.	This message appears briefly when the display temperature is too high, and then the display turns off until the temperature cools down. The system turns back on when the display cools down.
The navigation system cannot access the memory module. Please turn the ignition off, then turn it back on. If the problem continues, visit your dealer when convenient.	This message appears when the system detects the SD module is not connected or there is an SD module connecting error. Check any official Honda service website for more service information about the navigation system.
The navigation system cannot access the memory module because it is not authorized to work with this system. Please insert the correct memory module or visit your dealer when convenient.	This message appears when the system detects a SD module that is not approved. Make sure the SD module is a genuine part. If the audio-navigation unit was replaced, make sure the SD module was transferred to the new unit. The SD module may be damaged or was not properly mated to the audio-navigation unit. Check any official Honda service website for more service information about the navigation system.



Navigation System - '12 model

DTC Troubleshooting

DTC 1002: SD Read Error

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This navigation DTC sets when there is a problem with the SD module after updating the map data.
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).
- Check any official Honda service website for more service information about the navigation system.

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-243).

Is DTC 1002 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time.■

4. Turn the ignition switch to LOCK (0).
5. Do the map data update procedure.
6. Clear the hard error codes (see page 23-244).
7. Turn the ignition switch to LOCK (0), and then back to ON (II).
8. Check for the hard error code (see page 23-243).

Is DTC 1002 indicated?

YES—Replace the SD module (see page 23-304).

NO—Intermittent failure, the system is OK at this time.■

DTC 1101: Media Bus Send Error

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This navigation DTC sets when there is an internal error in BUS sending.
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).
- Check any official Honda service website for more service information about the navigation system.

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0), and then back to ON (II), and wait at least 1 minute.
3. Check for the hard error code (see page 23-243).

Is DTC 1101 indicated?

YES—Replace the audio-navigation unit (see page 23-304).■

NO—Intermittent failure, the system is OK at this time.■



DTC 1102: USB Diag

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This navigation DTC sets when a problem is detected with the USB device that is connected to the USB port located in the passenger's dash.
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0).
3. Connect the USB device to the USB port located in the passenger's dash.
4. Check for the hard error code (see page 23-243).

Is DTC 1102 indicated?

YES—The failure is duplicated, go to step 5.

NO—Intermittent failure, the system is OK at this time. If the vehicle repeatedly comes back with the navigation DTC, try a known-good USB device, and recheck.■

5. Clear the hard error code (see page 23-244).
6. Turn the ignition switch to LOCK (0).
7. Disconnect the USB device, then connect a known-good USB device to the USB port located in the passenger's dash.
8. Check for the hard error code (see page 23-243).

Is DTC 1102 indicated?

YES—Replace the audio-navigation unit (see page 23-304).■

NO—Original USB device is faulty.■

DTC 1301: GPS Antenna Error

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This navigation DTC sets when there is poor connectors or loose terminals at the GPS antenna connector or an open in GPS antenna lead.
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).
- Check any official Honda service website for more service information about the navigation system.

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-243).

Is DTC 1301 indicated?

YES—The failure is duplicated, go to step 4.

NO—Intermittent failure, the system is OK at this time.■

4. Turn the ignition switch to LOCK (0).
5. Substitute a known-good GPS antenna (see page 23-308).
6. Clear the hard error code (see page 23-244).
7. Turn the ignition switch to LOCK (0), and then back to ON (II).
8. Check for the hard error code (see page 23-243).

Is DTC 1301 indicated?

YES—Replace the audio-navigation unit (see page 23-304).■

NO—Replace the original GPS antenna (see page 23-308).■

(cont'd)

Navigation System - '12 model

DTC Troubleshooting (cont'd)

DTC 1302: GPS Receiver Error 1

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).
- This navigation DTC sets when there is an internal GPS receiver problem.
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.
- Aftermarket metallic window tint or electronic devices located near the audio-navigation unit or GPS antenna can potentially interfere with the operation of the navigation system.

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-243).

Is DTC 1302 indicated?

YES—The failure is duplicated, go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Turn the ignition switch to LOCK (0).
5. Substitute a known-good GPS antenna (see page 23-308).
6. Clear the hard error code (see page 23-244).
7. Turn the ignition switch to LOCK (0), and then back to ON (II).
8. Check for the hard error code (see page 23-243).

Is DTC 1302 indicated?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—Replace the original GPS antenna (see page 23-308). ■

DTC 1303: GPS Receiver Error 2

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).
- This navigation DTC sets when there is an internal GPS receiver problem, or an open in GPS antenna lead.
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.
- Aftermarket metallic window tint or electronic devices located near the audio-navigation unit or GPS antenna can potentially interfere with the operation of the navigation system.

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-243).

Is DTC 1303 indicated?

YES—The failure is duplicated, go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Turn the ignition switch to LOCK (0).
5. Substitute a known-good GPS antenna (see page 23-308).
6. Clear the hard error code (see page 23-244).
7. Turn the ignition switch to LOCK (0), and then back to ON (II).
8. Check for the hard error code (see page 23-243).

Is DTC 1303 indicated?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—Replace the original GPS antenna (see page 23-308). ■



DTC 1304: Gyro Error 1

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This navigation DTC sets when there is a problem with the internal gyro.
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).
- Check any official Honda service website for more service information about the navigation system.

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0) and then back to ON (II), and wait at least 1 minute.
3. Check for the hard error code (see page 23-243).

Is DTC 1304 indicated?

YES—Replace the audio-navigation unit (see page 23-304).■

NO—Intermittent failure, the system is OK at this time.■

DTC 1305: Gyro Error 2: ECU Temp XX °C

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).
- This navigation DTC sets when there is a problem with the internal gyro, and indicates the navigation ECU temperature when the DTC is detected.
- Check any official Honda service website for more service information about the navigation system.

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-243).

Is DTC 1305 indicated?

YES—Replace the audio-navigation unit (see page 23-304).■

NO—Intermittent failure, the system is OK at this time.■

(cont'd)

Navigation System - '12 model

DTC Troubleshooting (cont'd)

DTC 1306: Vehicle Speed Pulse

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This navigation DTC sets when there is a problem with the VSP circuit.
- Check for aftermarket accessories that may interfere with the navigation system.
- Check the GPS reception in an open area.
- Aftermarket metallic window tint or electronic devices located near the audio-navigation unit or GPS antenna can potentially interfere with the operation of the navigation system.
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).

1. Clear the hard error code (see page 23-244).
2. Test-drive the vehicle at steady speed more than 12 mph (20 km/h) for about 1 minute.
3. Check for the hard error code (see page 23-243).

Is DTC 1306 indicated?

YES—The failure is duplicated, go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Go into the System Diagnostic Mode, and select the Car Status in the System Links to check the vehicle speed pulse (see page 23-276).

5. Drive the vehicle, and watch the VSP signal.

Does the VSP signal change from [0] when stopped to [1] when the vehicle is moving?

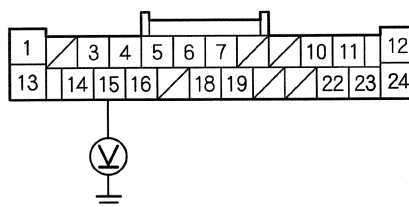
YES—Replace the audio-navigation unit (see page 23-304). ■

NO—Go to step 6.

6. Raise the vehicle on a lift.
7. Turn the ignition switch to LOCK (0).
8. Disconnect audio-navigation unit connector A (24P).
9. Turn the ignition switch to LOCK (II).

10. Measure the voltage between audio-navigation unit connector A (24P) terminal No. 15 and body ground while an assistant rotates the front wheel.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

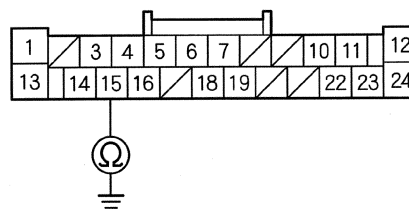
Does the voltage pulse between 0 V and 5 V (for example 0-5-0-5 V) as you rotate the wheels?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—Go to step 11.

11. Turn the ignition switch to LOCK (0).
12. Jump the SCS line with the HDS.
13. Disconnect ECM/PCM connector A (49P).
14. Check for continuity between audio-navigation unit connector A (24P) terminal No. 15 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there continuity?

YES—Repair a short to body ground in the wire between the audio-navigation unit and the ECM/PCM. ■

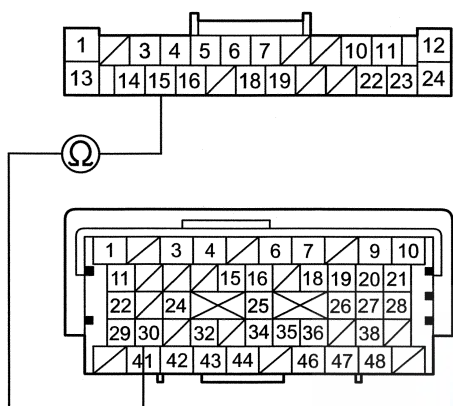
NO—Go to step 15.



15. Check for continuity between audio-navigation unit connector A (24P) terminal No. 15 and ECM/PCM connector A (49P) terminal No. 30.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)

Wire side of female terminals



ECM/PCM CONNECTOR A (24P)

Terminal side of female terminals

Is there continuity?

YES—Update the ECM/PCM if it does not have the latest software (see page 11-213), or substitute a known-good ECM/ PCM (see page 11-215), and recheck. ■

NO—Repair an open in the wire between the audio-navigation unit and the ECM/PCM. ■

DTC 1402: Audio Error 2

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This navigation DTC sets when a problem with the internal CD drive is detected.
- Check any official Honda service website for more service information about the navigation system.
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-243).

Is DTC 1402 indicated?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—Intermittent failure, the system is OK at this time. ■

(cont'd)

Navigation System - '12 model

DTC Troubleshooting (cont'd)

DTC 2610: DRAM Diag

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This navigation DTC sets when a problem with the internal DRAM is detected (the ECU info icon is red in the System Links).
- Check any official Honda service website for more service information about the navigation system.
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-243).

Is DTC 2610 indicated?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—Intermittent failure, the system is OK at this time. ■

DTC 2701: GPS Diag: Antenna

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).
- This navigation DTC sets when a problem is detected in the GPS antenna (the GPS Ant icon is red in the System Links).
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-243).

Is DTC 2701 indicated?

YES—The failure is duplicated, go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Turn the ignition switch to LOCK (0).
5. Substitute a known-good GPS antenna (see page 23-308).
6. Clear the hard error code (see page 23-244).
7. Turn the ignition switch to LOCK (0), and then back to ON (II).
8. Check for the hard error code (see page 23-243).

Is DTC 2701 indicated?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—Replace the original GPS antenna (see page 23-308). ■



DTC 2702: GPS Diag: Receiver in Navi ECU

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).
- This navigation DTC sets when a problem is detected in the internal GPS receiver.
- Check any official Honda service website for more service information about the navigation system.

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-243).

Is DTC 2702 indicated?

YES—Replace the audio-navigation unit (see page 23-304).■

NO—Intermittent failure, the system is OK at this time.■

DTC 2705: HFL Diag

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This navigation DTC sets when NG is indicated in the HFL diagnosis (the HFL icon is red in the System Links).
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0) and then back to ON (II), and wait at least 1 minute.
3. Check for the hard error code (see page 23-243).

Is DTC 2705 indicated?

YES—The failure is duplicated, go to step 4.

NO—Intermittent failure, the system is OK at this time.■

4. Select the HFL in the System Links, and check for HFL DTCs (see page 23-312).

Is DTC B1792 indicated?

YES—Go to the DTC B1792 troubleshooting (see page 23-351).■

NO—Replace the audio-navigation unit (see page 23-304).■

(cont'd)

Navigation System - '12 model

DTC Troubleshooting (cont'd)

DTC 2706: Gyro Diag: ECU Temp XX °C

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This navigation DTC sets when there is a problem with the internal gyro (the Yaw Sensor icon is red in the System Links), and indicates the navigation ECU temperature when the DTC is detected.
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).
- Check any official Honda service website for more service information about the navigation system.

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0), and then back ON (II).
3. Check for the hard error code (see page 23-243).

Is DTC 2706 indicated?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—Intermittent failure, the system is OK at this time. ■

DTC 2707: Mic Diag

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This navigation DTC sets when a problem is detected in the microphone circuit (the Mic icon is red in the System Links).
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.
- Before you troubleshoot, make sure to follow the general troubleshooting information (see page 23-238).

1. Clear the hard error code (see page 23-244).
2. Turn the ignition switch to LOCK (0), and then back to ON (II).
3. Check for the hard error code (see page 23-243).

Is DTC 2707 indicated?

YES—The failure is duplicated, go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Select the HFL in the System Links, and check for HFL DTCs (see page 23-312).

Is DTC B1792 indicated?

YES—Go to the DTC B1792 troubleshooting (see page 23-350). ■

NO—Go to step 5.

5. Select the MIC/STRG SW in the Functional Setup menu, and check for HFL DTCs (see page 23-312).

Are any HFL DTCs indicated?

YES—Go to indicated HFL DTC troubleshooting (see page 23-325). ■

NO—Replace the audio-navigation unit (see page 23-304). ■



Symptom Troubleshooting

No picture is displayed

Diagnostic Test: Self-Diagnosis Mode

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check if the Day/Night button has been pressed, and turned off the display (see the Navigation Manual for more information).
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).

2. Check if the navigation display indicates any error message.

Is an error message displayed?

YES—Refer to the Error Messages (see page 23-283).

NO—The failure is duplicated, go to step 3.

3. Turn the ignition switch to LOCK (0).

4. Check the No. 1 (10 A) and the No. 14 (7.5 A) fuses in the under-dash fuse/relay box, and the No. 1 (30 A) fuse in the auxiliary under-dash fuse box.

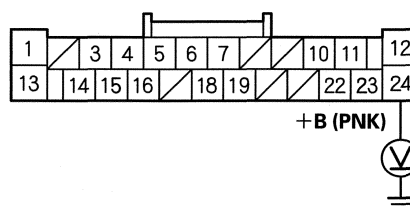
Are the fuses OK?

YES—Refer to the Error Messages (see page 23-283).

NO—Replace the fuse(s), and recheck. If the fuse(s) blows again, check for a short in the No. 1 (10 A) and/or the No. 14 (7.5 A) fuses in the under-dash fuse/relay box, and/or the No. 1 (30 A) fuse in the auxiliary under-dash fuse box circuits. ■

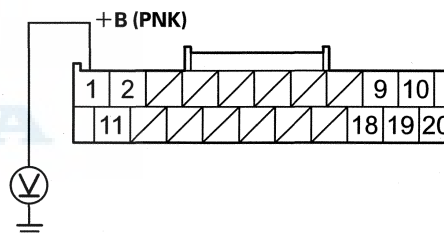
5. Measure the voltage between audio-navigation unit connector A (24P) terminal No. 24 and body ground, and audio-navigation unit connector D (20P) terminal No. 1 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR D (20P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 6.

NO—Repair an open in the wire(s) between the No. 1 (10 A) fuse in the under-dash fuse/relay box and the audio-navigation unit. ■

6. Turn the ignition switch to ON (II).

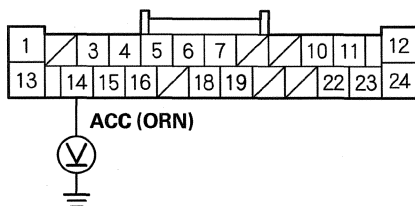
(cont'd)

Navigation System - '12 model

Symptom Troubleshooting (cont'd)

7. Measure the voltage between audio-navigation unit connector A (24P) terminal No. 14 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

Is there battery voltage?

YES—Go to step 8.

NO—Repair an open in the wire(s) between the No. 14 (7.5 A) fuse in the under-dash fuse/relay box and the audio-navigation unit.■

8. Check the No. 1 (10 A) and the No. 14 (7.5 A) fuses in the under-dash fuse/relay box, and the No. 1 (30 A) fuse in the auxiliary under-dash fuse box.

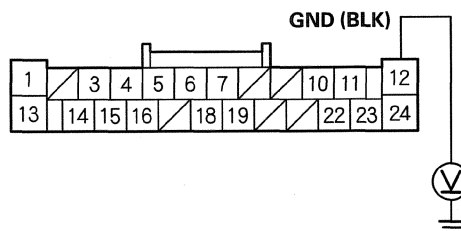
Are the fuses OK?

YES—Refer to the Error Messages (see page 23-283).

NO—Replace the fuse(s), and recheck. If the fuse(s) blows again, check for a short in the No. 1 (10 A) and/or the No. 14 (7.5 A) fuses in the under-dash fuse/relay box, and/or the No. 1 (30 A) fuse in the auxiliary under-dash fuse box circuits.■

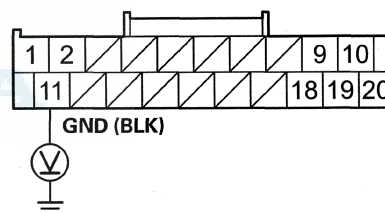
9. Measure the voltage between audio-navigation unit connector A (24P) terminals No. 12 and body ground, and audio-navigation unit connector D (20P) terminal No. 11 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR D (20P)



Wire side of female terminals

Is there less than 0.2 V?

YES—Replace the audio-navigation unit (see page 23-304).■

NO—Repair an open or high resistance in the wire between the audio-navigation unit and body ground (G503).■



Vehicle position icon constantly leaves road, moves erratically, or is displayed very far from actual vehicle position

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This is not the same condition as when driving off-road (or on a fire or logging road). This condition is caused by a loss of map matching from a bad sensor input. Check for aftermarket metallic window tinting or other objects that can block the GPS signal. Always do the Map matching (see page 23-241) before proceeding with the troubleshooting.
- Make sure that the latest navigation software is installed.
- Check any official Honda service website for more service information about the navigation system.
- Check the GPS signal reception in an open area.

1. Park the vehicle in an open area.

2. Turn the ignition switch to ON (II).

3. Check if the vehicle position icon displays the actual vehicle position.

Does the vehicle position icon display the actual vehicle position?

YES—Intermittent failure, the system is OK at this time.■

NO—The failure is duplicated, go to step 4.

4. Check the GPS icon on the navigation screen.

Is the GPS icon white or missing?

YES—Go to GPS icon is white or not shown (see page 23-297).■

NO—Go to step 5.

5. Check for the hard error code (see page 23-243).

Are there any navigation DTCs indicated?

YES—Go to indicated DTC's troubleshooting (see page 23-246).■

NO—Go to step 6.

6. Turn the ignition switch to LOCK (0).

7. Substitute a known-good audio-navigation unit (see page 23-304), and check to see if the problem occurs in the same place.

Does the problem occur in the same location each time?

YES—Try to replicate the problem in a known-good vehicle. If the problem can be duplicated, the problem is in the map database. Report the problem according to the Navigation Manual under Reporting Errors.■

NO—Replace the original audio-navigation unit (see page 23-304).■

(cont'd)

Navigation System - '12 model

Symptom Troubleshooting (cont'd)

Picture has lines/rolls/other issues or is an odd color

Diagnostic Test: Monitor Check

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Always compare the screen image to a known-good vehicle. If the screen looks the same, inform the customer that it is a characteristic of the system.
- Check any official Honda service website for more service information about the navigation system.
- Check the navigation screen settings for brightness, contrast, and black level, and check the color screen for map color and menu color.

1. Check for any electronic aftermarket accessories (possibly hidden) mounted near the audio-navigation unit.

Are there any electronic accessories?

YES—Remove the accessories, and recheck.■

NO—Go to step 2.

2. Turn the ignition switch to ON (II).

3. Start up the navigation screen, and check it.

Is the picture scrolling horizontally (left to right or right to left), have lines across the screen, or is blurry?

YES—Go to step 6.

NO—Go to step 4.

4. Check the navigation screen.

Is the picture an odd color?

YES—The failure is duplicated, go to step 5.

NO—Intermittent failure, the system is OK at this time.■

5. Go into the System Diagnostic Mode, and use the RGB Color diagnosis under the Monitor Check menu (see page 23-271).

Are the red, green, and blue colored circle shown?

YES—Intermittent failure, the system is OK at this time.■

NO—Replace the audio-navigation unit (see page 23-304).■

6. Turn the ignition switch to LOCK (0), and then back to ON (II).

7. Observe the navigation picture.

Did the image improve?

YES—Check for sources of electrical noise, such as charging system or ignition system.■

NO—Replace the audio-navigation unit (see page 23-304).■



Navigation display buttons do not work or respond properly

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Verify that the correct audio-navigation unit is installed for this model. Go into the System Diagnostic Mode, and use Navi ECU (see page 23-273).
- Check any official Honda service website for more service information about the navigation system.

1. Turn the ignition switch to ON (II).
2. Check if the navigation system operate properly by touching the display.

Does the system operate properly?

YES—Intermittent failure, the system is OK at this time. ■

NO—The failure is duplicated, go to step 3.

3. Go into the System Diagnostic Mode, and use the Touch Panel Calibration under the Monitor Check menu (see page 23-271).

Does the symptom go away?

YES—Troubleshooting is complete. ■

NO—Replace the audio-navigation unit (see page 23-304). ■

GPS icon is white or not shown

Diagnostic Test: Self-Diagnosis Mode

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the GPS signal reception in an open area. With good reception, the icon is normally green.
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.
- Refer to GPS Information (see page 23-278) for real-time satellite reception display.

1. Park the vehicle in an open area.
2. Turn the ignition switch to ON (II).
3. Check the GPS icon on the map screen.

Is the GPS icon missing?

YES—The failure is duplicated, go to step 4.

NO—Intermittent failure, the system is OK at this time. ■

4. Turn the ignition switch to LOCK (0).
5. Check for aftermarket metallic window tint on the front window and electronic aftermarket accessories (possibly hidden) mounted near the GPS antenna or the audio-navigation unit.

Is there aftermarket metallic window tint or electronic accessories?

YES—Remove tint or the accessories, and recheck. ■

NO—Go to step 6.

6. Turn the ignition switch to ON (II).
7. Go into the System Diagnosis Mode, and use the GPS Information diagnosis to check the GPS reception (see page 23-278).

Are there 4 or more GPS satellite icon displayed?

YES—Go to step 8.

NO—Change the place (an open area away from buildings, power lines, other vehicles, and any other sources of strong magnetic fields), and recheck. ■

(cont'd)

Navigation System - '12 model

Symptom Troubleshooting (cont'd)

8. Check for the hard error code (see page 23-243).

Are there any navigation DTCs indicated?

YES—Go to indicated DTC's troubleshooting.■

NO—Go to step 9.

9. Turn the ignition switch to LOCK (0).

10. Substitute a known-good GPS antenna (see page 23-308), and recheck.

Does the symptom go away?

YES—Replace the original GPS antenna (see page 23-308).■

NO—Replace the audio-navigation unit (see page 23-304).■

Voice guidance cannot be heard, is broken up, or there is static

Diagnostic Test: Self-Diagnosis Mode

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).

2. Check the volume and voice feedback setting for the navigation system in setup.

Is either set to OFF?

YES—Set the voice feedback to ON, and select an audible level for the volume.■

NO—Go to step 3.

3. Check that the audio system is operating normally, from different audio sources (AM/FM and CD) and the speaker sound levels are normal.

Does the audio system work normally, and is the audio output from the speaker normal when playing various audio sources?

YES—Replace the audio-navigation unit (see page 23-304).■

NO—Refer to the audio system Symptom Troubleshooting (see page 23-163).■



Voice control does not work/respond

Diagnostic Test: Mic Level

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Make sure that the latest navigation software is installed.
- Check any official Honda service website for more service information about the navigation system.
- Before assuming that a voice complaint is hardware related, ensure that the voice control system is being operated correctly.
 - Make sure you are on the correct screen when trying to issue a voice command. For instance, the command "Find the nearest Italian Restaurant" only works on Map screen. (See the navigation system manual for a complete list of allowed voice commands for the information being displayed.)
 - Close the windows and sunroof.
 - Set the fan speed to low (1 or 2).
 - Adjust the air flow from the air conditioning vents so that they do not blow against the microphone on the ceiling.
 - Pause after pressing the navigation TALK button then give a voice command clearly in a natural speaking voice. If the system cannot recognize your command, speak louder.
 - If you speak a command with something in your mouth, or your voice is too husky, or high pitched, the system may misunderstand your command.
- Check the connectors for poor connections or loose terminals.
- Determine if the problem only happens to one person, or everyone who uses the system.
- If the system only has a problem with one person's voice, this should be considered a system limitation.

1. Turn the ignition switch to ON (II).

2. Pressing the TALK button, then give a voice command "Audio" clearly in a natural speaking voice.

Does the audio system turn on by the voice command?

YES—Intermittent failure, the system is OK at this time.■

NO—The failure is duplicated, go to step 3.

3. Clear the hard error code (see page 23-244).

4. Turn the ignition switch to LOCK (0), and then back to ON (II).

5. Check for the hard error code (see page 23-243).

Are there any navigation DTCs indicated?

YES—Go to indicated DTC's troubleshooting (see page 23-246).■

NO—Go to step 6

6. Turn the ignition switch to LOCK (0).

7. Do the voice control switch Test (see page 23-306).

Is the switch OK?

YES—Replace the audio-navigation unit (see page 23-304).■

NO—Replace the HFL-navigation voice control switch (see page 23-307).■

(cont'd)

Navigation System - '12 model

Symptom Troubleshooting (cont'd)

Display day/night mode does not work or does not work properly

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Full brightness on the dashlights brightness control with the head lights turned on causes the system to stay in the day mode, even when the lights are on.
- Turn the headlight on, and check that the dash brightness setting is not set to high.
- Check the connectors for poor connections or loose terminals.
- Always check for and resolve all CAN DTCs before troubleshooting the navigation system.
- Verify that the correct audio-navigation unit is installed for this model. Go into the Diagnostic mode and use Version (see page 23-277).
- Check any official Honda service website for more service information about the navigation system.

1. Turn the ignition switch to ON (II).

2. Make sure the instrument panel brightness control is not on full brightness. Turn the headlights on, and adjust the dash brightness to the middle range.

3. Change the day/night mode under Setup to Auto and recheck.

Does the display change to day and night modes when turning the headlights on and off?

YES—The system is OK at this time. ■

NO—Go to step 4.

4. Go into the System Diagnostic Mode, and use the Car Status test to check for an ILL signal (see page 23-276).

Is the ILL signal OK?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—Check the ILL + circuit between the navigation unit and No. 29 (10 A) fuse in the under-dash fuse/relay box. ■

System locks up or freezes constantly

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Verify that the correct audio-navigation unit is installed for this model. Go into the System Diagnostic Mode, and use Navi ECU (see page 23-273).
- Check any official Honda service website for more service information about the navigation system.

1. Turn the ignition switch to LOCK (0) and then back to ON (II).

Does the system reboot, lock up, or freeze?

YES—The failure is duplicated, go to step 2.

NO—Intermittent failure, the system is OK at this time. ■

2. Check if the navigation display indicates any error message.

Is an error message displayed?

YES—Refer to the Error Messages (see page 23-283). ■

NO—Replace the audio-navigation unit (see page 23-304). ■



Vehicle position icon wanders across the map when driving (does not follow a displayed road) or map vehicle ICON spins

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- This is not the same condition as when driving off-road (or on a fire or logging road).
- This condition is caused by a loss of map matching from a bad sensor input. Check for aftermarket or other objects that can block the GPS signal. Always perform Map matching (see page 23-241) before proceeding with the troubleshooting.
- Aftermarket metallic window tint or electronic devices located near the audio-navigation unit or GPS antenna can potentially interfere with the operation of the navigation system.
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.

1. Test-drive the vehicle in an open area, and check if the vehicle position icon displays the actual vehicle position.

Does the vehicle position icon wanders across the map?

YES—The failure is duplicated, go to step 2.

NO—Intermittent failure, the system is OK at this time.■

2. Check for the hard error code (see page 23-243).

Are there any navigation DTCs indicated?

YES—Go to indicated DTC's troubleshooting (see page 23-246).■

NO—Go to step 3.

3. Go into the System Diagnostic Mode, and use the Car Status diagnosis to check the BACK signal (see page 23-276).

Does the BACK signal [1] when the shift lever position is P or N?

YES—Go to step 5.

NO—Go to step 4.

4. Go into the System Diagnostic Mode, and use the Car Status diagnosis to check the BACK signal (see page 23-276), then move the select lever (A/T) or the shift lever (M/T) to R.

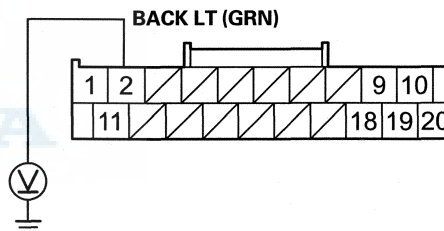
Does the BACK signal change from [0] to [1] when the shift lever position is changed from P or N to R?

YES—Replace the audio-navigation unit (see page 23-304).■

NO—Go to step 9.

5. Turn the ignition switch to LOCK (0).
6. Disconnect audio-navigation unit connector D (20P).
7. Turn the ignition switch to ON (II).
8. Measure the voltage between audio-navigation unit connector D (20P) terminal No. 2 and body ground while select lever (A/T) or shift lever (M/T) in R.

AUDIO-NAVIGATION UNIT CONNECTOR D (20P)



Wire side of female terminals

Is there battery voltage?

YES—Repair a short to power in the wire between the under-dash fuse/relay box and the audio-navigation unit.■

NO—Replace the audio-navigation unit (see page 23-304).■

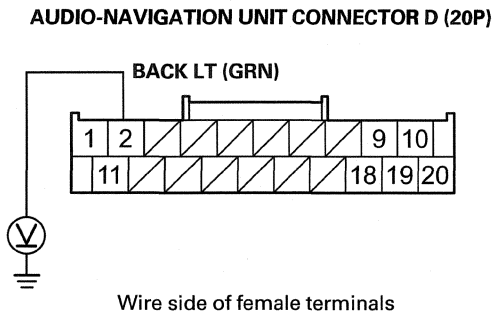
9. Move the select lever (A/T) to P or N, or the shift lever (M/T) to N.
10. Turn the ignition switch to LOCK (0).
11. Disconnect audio-navigation unit connector D (20P).
12. Turn the ignition switch to ON (II).
13. Move the select lever (A/T) or the shift lever (M/T) to R.

(cont'd)

Navigation System - '12 model

Symptom Troubleshooting (cont'd)

14. Measure the voltage between audio-navigation unit connector D (20P) terminal No. 2 and body ground while select lever (A/T) or shift lever (M/T) in R.



Is there battery voltage?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—Repair an open in the wire between the audio-navigation unit and the under-dash fuse/relay box. ■

Navigation display stays on with ignition switch in LOCK (0)

NOTE:

- Check for aftermarket accessories that may interfere with the navigation system.
- The vehicle may have been used for a show event. Check for a short jumper harness in-line with the audio-navigation unit connector A (24P). If a jumper harness is present, remove it, and return it to Tech Line.
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.

1. Remove the key from the ignition.

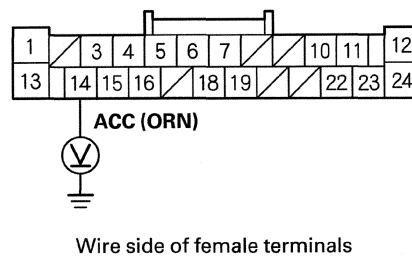
Does the navigation screen stay on?

YES—The failure is duplicated, go to step 2.

NO—Intermittent failure, the system is OK at this time. ■

2. Disconnect audio-navigation unit connector A (24P).
3. Measure the voltage between audio-navigation unit connector A (24P) terminal No. 24 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Is there battery voltage?

YES—Repair a short to power in the wire between the No. 14 (7.5 A) fuse in the under-dash fuse/relay box and the audio-navigation unit. ■

NO—Replace the audio-navigation unit (see page 23-304). ■



Navigation frequently needs GPS initialization

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check any official Honda service website for more service information about the navigation system.
- Check the connectors for poor connections or loose terminals.

1. Check if the CSF (GPS Initialization) screen is displayed every time the ignition switch is turned to ON (II).

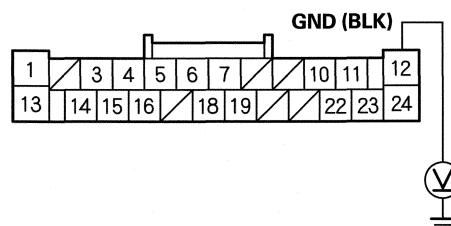
Is CSF screen displayed every time?

YES—The failure is duplicated, go to step 2.

NO—Intermittent failure, the system is OK at this time. ■

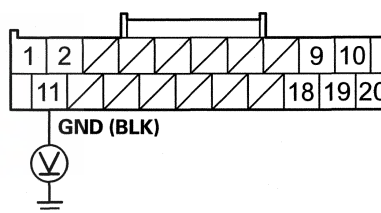
2. Measure the voltage between audio-navigation unit connector A (24P) terminal No. 12 and body ground, and audio-navigation connector D (20P) terminal No. 11 and body ground.

AUDIO-NAVIGATION UNIT CONNECTOR A (24P)



Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR D (20P)



Wire side of female terminals

Is there less than 0.2 V on all terminals?

YES—Go to step 3.

NO—Repair an open or high resistance in the wire between the audio-navigation unit and body ground (G503). ■

3. Check for the hard error code (see page 23-243).

Are there any navigation DTCs indicated?

YES—Go to indicated DTC's troubleshooting (see page 23-246). ■

NO—Replace the audio-navigation unit (see page 23-304). ■

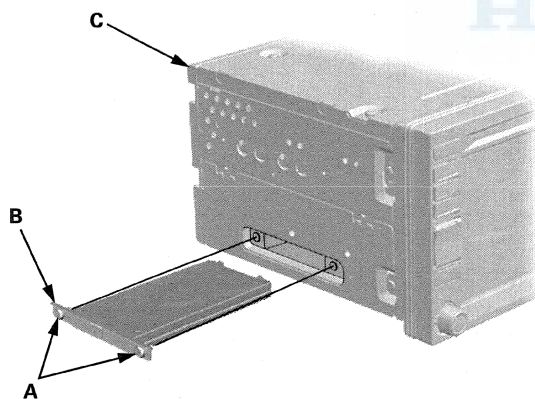
Navigation System - '12 model

SD Module Removal/Installation

NOTE:

- Lay a workshop towel under the parts when working on them to protect the face panel from scratches or other damage.
- Do not work in a dusty or dirty place.
- Discharge static electricity from your body before and during the work.
- Do not touch the circuit board(s) with your bare hands.
- Do not work with dirty hands.
- Do not touch the terminal connector of the flat plate cable with your bare hands (If you have touched it, wipe it off thoroughly.).
- Eject the discs before removing the audio-navigation unit to prevent damaging the CD/DVD player's load mechanism.
- If you are replacing the audio-navigation unit, write down the audio presets (if possible), then enter them into the new audio-navigation unit.
- If the audio-navigation unit is replaced or disconnected, a Map Matching must be done (see page 23-241).

1. Remove the audio-navigation unit (see page 23-304).
2. Loosen the screws (A), then put out the SD module (B) with the screws from the audio-navigation unit (C).



3. Install the SD module reverse order of removal.

NOTE: Make sure the SD module is properly aligned when installing the SD module.

4. Install the audio-navigation unit (see page 23-304).

Audio-Navigation Unit Removal/Installation

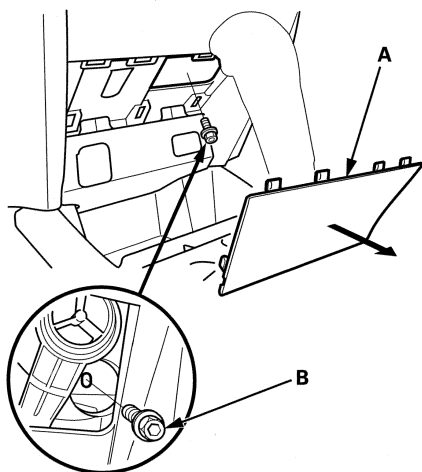
SRS components are located in this area. Review the SRS component location (see page 24-13), and the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

NOTE:

- Before replacing the audio-navigation unit, back-up the customer data using system diagnostic mode Save Users Memory under the functional setup (see page 23-280).
 - If the audio-navigation unit is replaced or disconnected, Map Matching must be done (see page 23-241).
 - Put on gloves to protect your hands.
 - Take care not to scratch the dashboard and related parts.
 - Lay a workshop towel under the parts when working on them to protect the face panel from scratches or other damage.
 - Do not work in a dusty or dirty place.
 - Discharge static electricity from your body before and during the work.
 - Do not work with dirty hands.
 - Do not touch the terminal connector of the flat plate cable with your bare hands. (If you have touched it, wipe it off thoroughly.)
 - Eject the disc before removing the audio-navigation unit to prevent damaging the CD/DVD player's load mechanism.
 - If you are replacing the audio-navigation unit, write down the audio presets (if possible), then enter them into the new audio-navigation unit.
1. Make sure you have the 4-digit anti-theft code for the navigation system.

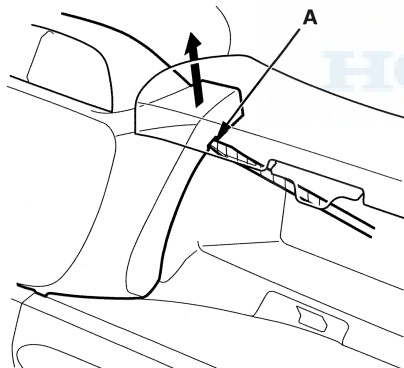


2. Remove the center lower cover (A).



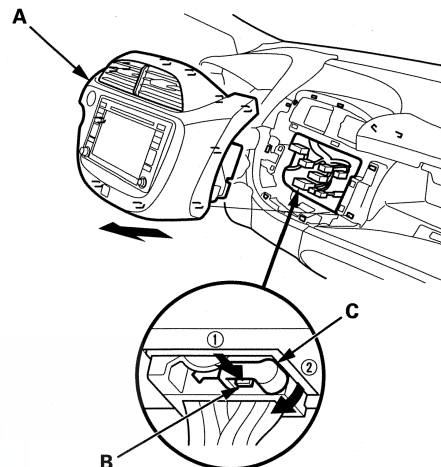
3. Move the recirculation control lever to FRESH to ease access, then remove the mounting bolt (B).

4. Open the dashboard upper tray lid. Insert a flat-tip screwdriver in the groove (A), then pull the screwdriver shaft up slightly.



5. Pull the center panel (A) out and disconnect the connectors, then remove the center panel/audio-navigation unit assembly.

NOTE: When you disconnect audio-navigation unit connector A, while pushing the tab (B), pull the lever (C) up and disconnect the connector.



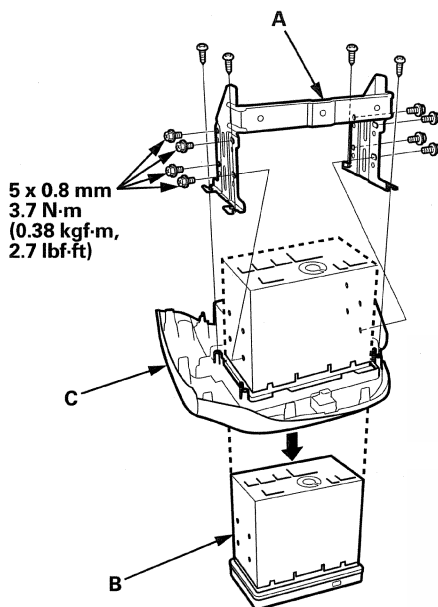
(cont'd)

Navigation System - '12 model

Audio-Navigation Unit Removal/Installation (cont'd)

6. Remove the screws, brackets (A), and the audio-navigation unit (B) from the center panel (C).

NOTE: If you are replacing the audio-navigation unit, remove the SD module from the audio-navigation unit and install it into the replacement audio-navigation unit (see page 23-304).

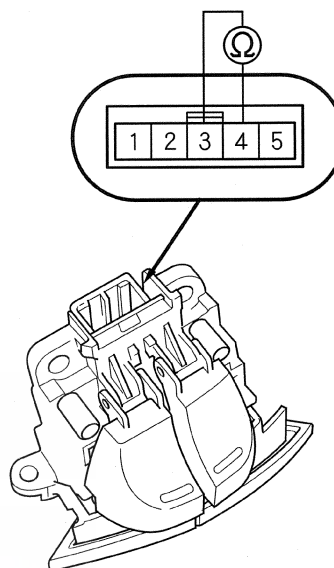


7. Install the audio-navigation unit in the reverse order of removal, and make sure all connectors are secure.
8. Check any official Honda service website for more service information about the navigation system.
9. Enter the new navigation anti-theft code, then enter the radio presets.
10. Park the vehicle outside, and do the GPS initialization (see page 23-241).
11. Give the new navigation anti-theft code to the customer.

Voice Control Switch Test

SRS components are located in this area. Review the SRS component location (see page 24-13), and the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

1. Remove the voice control switch (see page 23-307).



2. Measure the resistance between terminals No. 3 and No. 4 in each switch position according to the table.

Position	Resistance
No button pressed	About 10 k Ω
Navigation TALK	About 2.2 k Ω
Navigation BACK	About 650 Ω

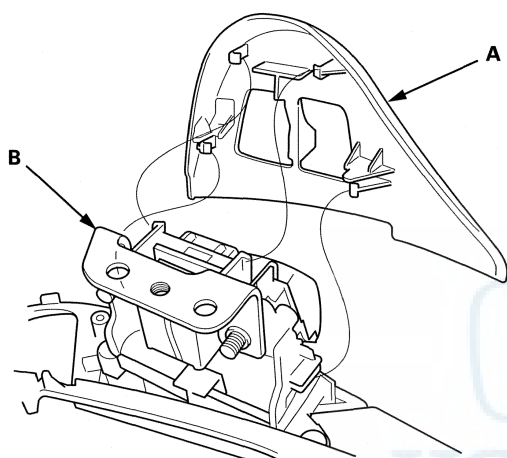
3. If the resistance is not as specified, replace the voice control switch (see page 23-307).



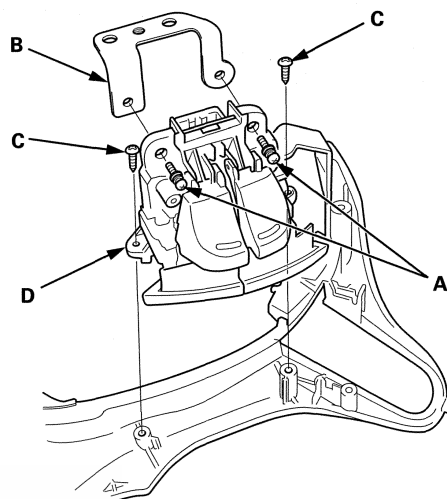
Voice Control Switch Replacement

SRS components are located in this area. Review the SRS component location (see page 24-13), and the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

1. Remove the steering wheel (see page 17-6).
2. Remove the audio remote switch (see page 23-235).
3. Remove the switch cover (A) from the HFL-navigation voice control switch (B).



4. Remove the screws (A), and remove the set plate (B).

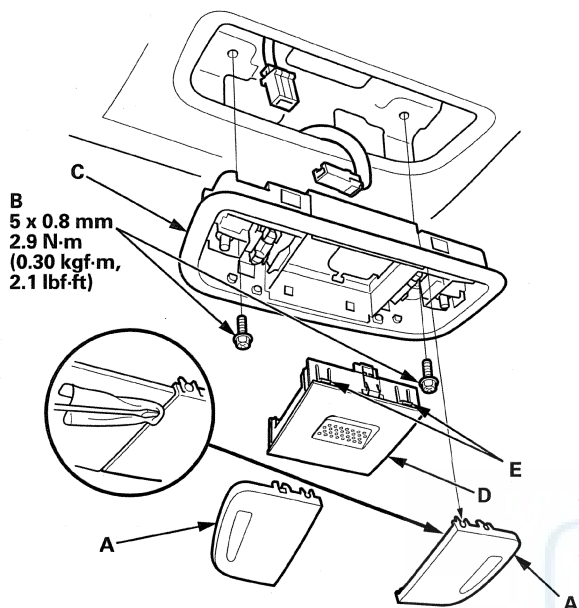


5. Remove the screws (C), and remove the HFL-navigation voice control switch (D).
6. Install the voice control switch in the reverse order of removal.

Navigation System - '12 model

HFT-Navigation Microphone Removal/Installation

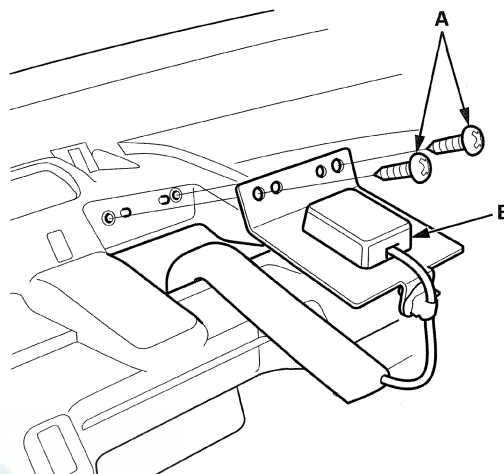
1. Remove the front individual map light lens (A) using a flat-tip screwdriver.



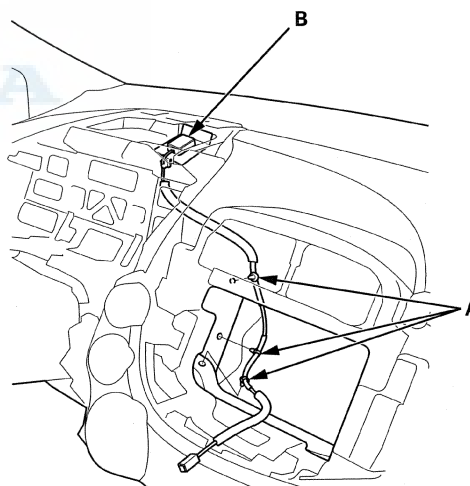
2. Remove the bolts (B), then disconnect the connectors, and remove the map light housing (C).
3. Carefully pry off the microphone housing (D) from the map light housing while pressing the retaining tabs (E).
4. Install the microphone in the reverse order removal.

GPS Antenna Removal/Installation

1. Remove the audio-navigation unit (see page 23-304).
2. Remove the gauge control module (see page 22-294).
3. Remove the screws (A) from the GPS antenna (B).



4. Remove the wire harness clips (A), the screws, and the GPS antenna (B).



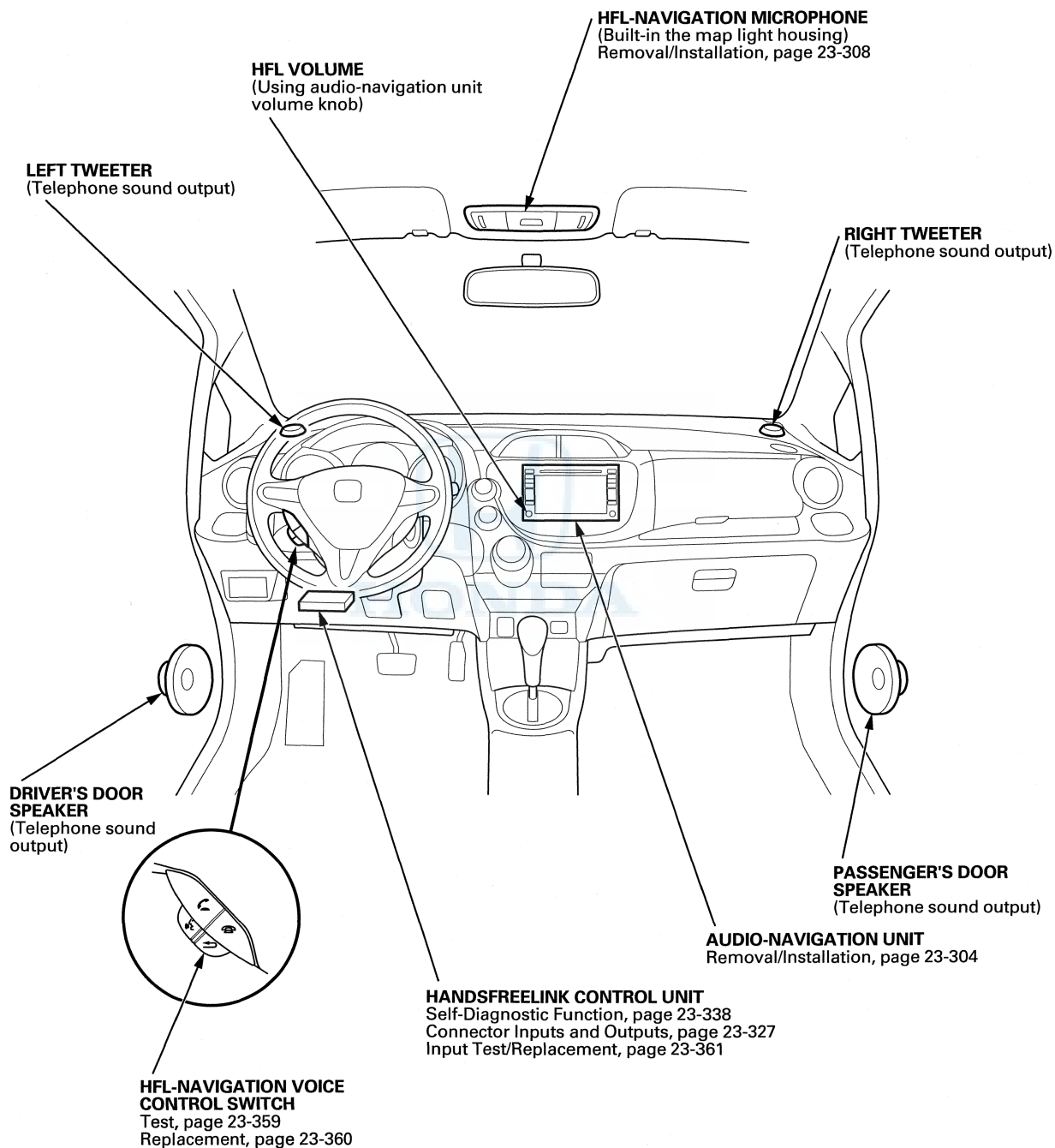
5. Install the GPS antenna in the reverse order of removal.

HandsFreeLink System - '12 model



Component Location Index

With navigation

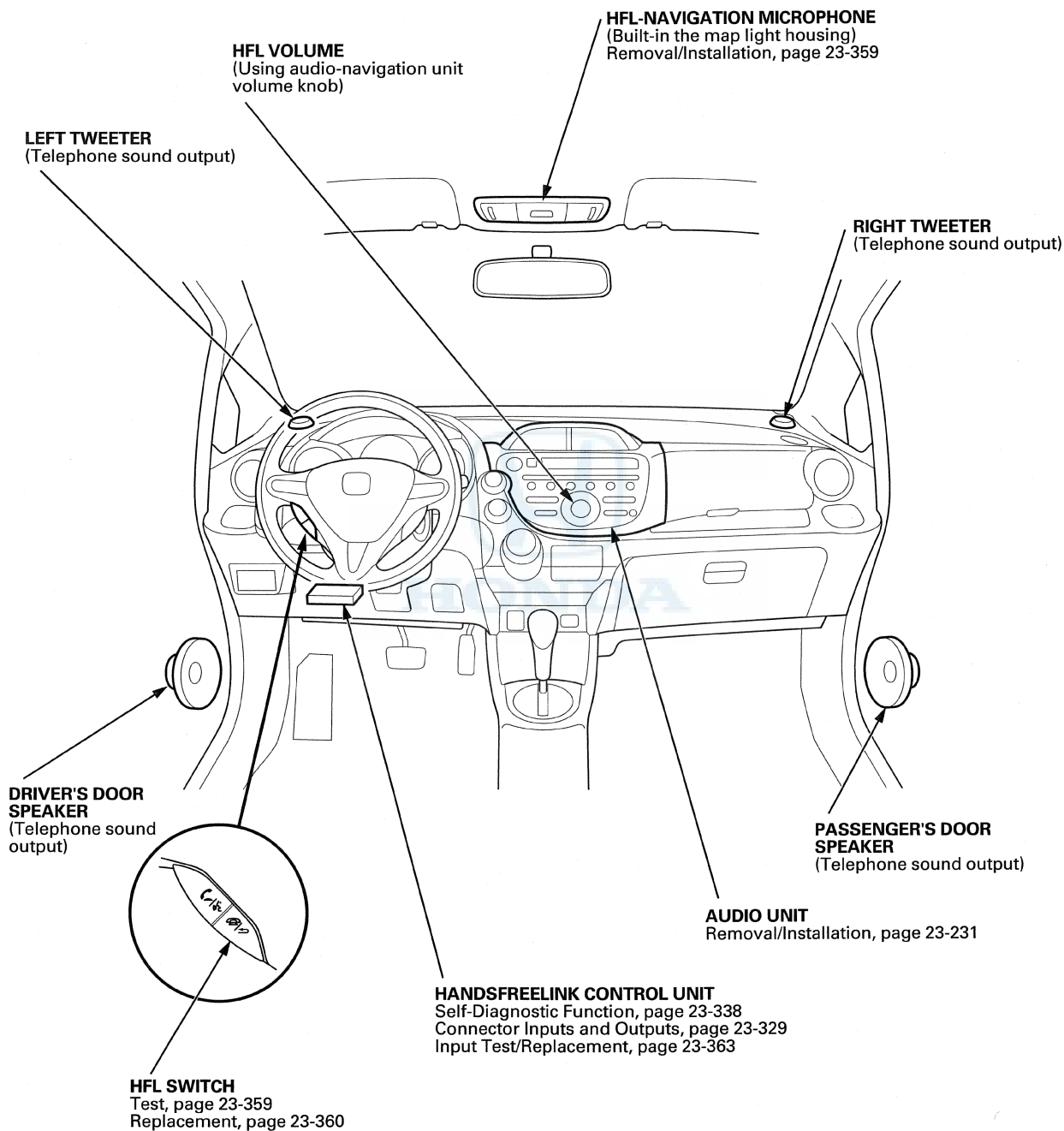


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HandsFreeLink System - '12 model

Component Location Index (cont'd)

Without navigation



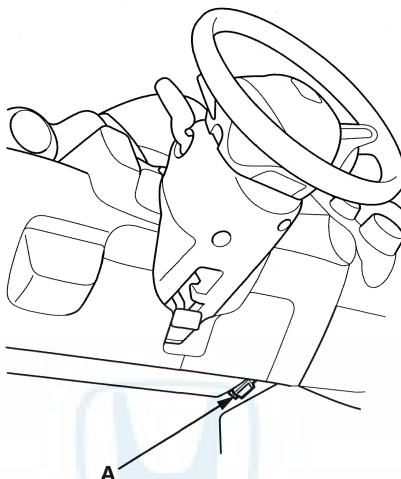


General Troubleshooting Information

How to Check for DTCs with the HDS (without navigation)

NOTE: Check the vehicle battery condition first (see page 22-68).

1. Make sure the ignition switch is turned to LOCK (0).
2. Connect the HDS to the data link connector (DLC) (A) located under the driver's side of the dashboard.



3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the HandsFreeLink control unit. If it does not, troubleshoot the DLC circuit (see page 11-193).
5. Select HandsFreeLink in the BODY ELECTRICAL menu.
6. Select DTCs in the HandsFreeLink menu.
7. Check for DTCs. If any DTCs are indicated, write down the DTCs, then go to the indicated DTC troubleshooting (see page 23-325). If no DTCs are indicated, refer to symptom troubleshooting (see page 23-326).

NOTE:

- After troubleshooting, clear the DTCs with the HDS.
- For specific operations, refer to the HDS user's manual.

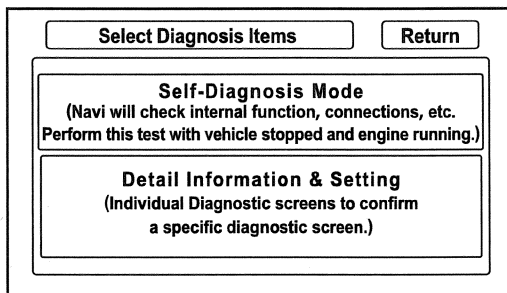
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HandsFreeLink System - '12 model

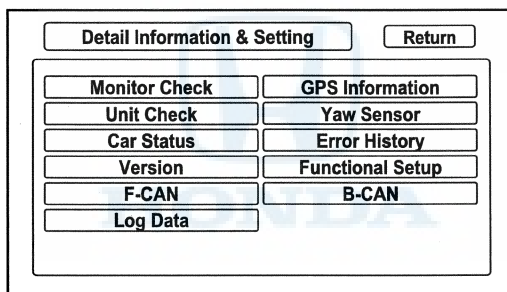
General Troubleshooting Information (cont'd)

How to Check the HFL DTC's (with navigation)

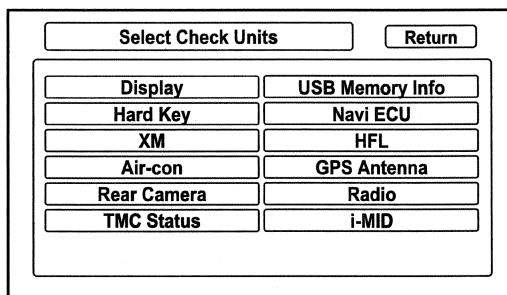
1. Turn the ignition switch to ON (II).
2. Press and hold the MAP/GUIDE, the DEST, and the CANCEL buttons for 3 seconds or more, and the self-diagnosis begins. Select the Detail Information & Setting.



3. Select the Unit Check from the Detail Information & Setting menu.



4. Select the HFL from the Unit Check menu.





5. Check the GA-NET status:

- If OK, go to step 6.
- If NG, do the HandsFreeLink control unit Input Test (see page 23-361).

HFL		Return
HFL	OK	
GA-NET	OK	
Part Number	39770-TK6-AA01-3M	
S/W Version	01.01.000	

6. Check the HFL status:

- If OK, go to step 7.
- If B1792 is displayed, go to DTC B1792 troubleshooting (see page 23-350).

7. Return to the Detail Information & Setting menu, and select the Functional Setup.

8. Select the Mic Level from the Functional Setup menu.

Functional Setup		Return
Mic Level	All Clear	
Demo Mode		
Save Users Memory		

9. Check the MIC and the STRG SW status:

- If OK, there was an intermittent failure, the system is OK at this time.
- If any DTC(s) are displayed, troubleshoot the indicated DTC(s).

MIC / STRG SW		Return
MIC	OK	
STRG SW	OK	
Mic Level		
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>		

10. To end the self-diagnostic function, select the Return, or turn the ignition switch to LOCK (0).

(cont'd)

HandsFreeLink System - '12 model

General Troubleshooting Information (cont'd)

Introduction

The HFL system works only with Honda approved Bluetooth®-enabled cell phones with a hands-free profile. If you are not sure if a particular cell phone is compatible with the HFL system, Honda has a dedicated call center at 888-528-7876 and website handsfreelink.honda.com to answer your questions. You can also contact the call center for information about phone software versions and settings.

The HFL system allows you to make and receive hands-free calls. It cannot control the phone's performance (call quality and signal strength). For more information about performance and performance problems, refer to Dropped Calls.

Always call the HFL call center first, not Tech Line, because the HFL call center has the latest information about cell phone software versions, settings, and other issues.

Most HFL complaints are due to pairing, configuration, or compatibility issues. Contact the Honda call center after verifying the problem, or before replacing the HandsFreeLink control unit.

The call center is open Monday thru Friday from 6:00 a.m. to 6:00 p.m. CST; Saturday from 7:00 a.m. to 6:00 p.m. CST; and Sunday from 8:00 a.m. to 6:00 p.m. CST.

Checking Cell Phone Compatibility

The most important step in troubleshooting HFL issues is to identify the customer's phone model, software version, and the cellular carrier that experiences the HFL problem. Not all phones with the Bluetooth feature and a hands-free profile are compatible with the Honda HFL system. Also make sure to check the compatible functions. Some functions of approved phones are not compatible with the HFL system.

Go to handsfreelink.honda.com, and check if the customer's phone is approved to work with the Honda HFL system.

NOTE:

- The lists of approved and currently testing phone model lists change, so make sure you view them frequently.
- Phones are added as they are approved.
- Phones can be removed from the approved list if a software bug is discovered that makes the phone incompatible. These phones can be added back to the approved list if the phone manufacturer corrects the bug.
- If the software bug is corrected, a new software version is created and may be listed in the Supported Features section of the phone. If you have trouble finding the phone's software version, you can call the HFL call center at 888-528-7876.
- The Honda web site now includes the software versions that are tested and approved. When software versions are listed, you need to know which version is loaded on the phone to help you troubleshoot the customer's complaint. If you cannot access the Honda website, call the HFL call center at 888-528-7876 for further assistance.



Voice Control Tips and Improving Voice Recognition

To give a voice command to the HFL system, press and release the HFL TALK button. Always wait for the beep, then give your command in a clear, natural voice. The HFL microphone is on the ceiling by the map lights.

If the HFL system doesn't recognize your voice command, you'll hear "Pardon? Press the TALK button and say a command. For a list of commands, say handsfreehelp." If your command isn't recognized a second time, you'll hear "Bluetooth handsfreelink main menu. Available calling options are call, dial, redial, and transfer. Available setup options are phone setup, phone book, and system setup. For more detailed help, say handsfreehelp." If your command isn't recognized a third time, the HFL system sends you to its Help menu.

To hear a list of available options at any time, press the HFL TALK button and say "Hands-free help."

The HFL system may have problems recognizing some voices. To improve voice recognition:

- Close the windows.
- Set the fan speed to low (1 or 2) or off.
- Adjust the airflow from the center vents down, so that it's not blowing against the microphone on the ceiling.
- Speak in a clear and natural voice. If the system cannot recognize your command, try speaking louder, in a deeper tone.
- If the background noise is too loud, you may need to speak louder.
- If you speak with something in your mouth, or your voice is too high, the system may not interpret your command correctly.
- Find out if the problem is with one person or with everyone who uses the system. If the system has a problem with only one person's voice, this is a system limitation.

Many issues result from the customer not using the system properly. Make sure the customer is using the HFL buttons and not the navigation TALK/navigation BACK buttons. When the HFL TALK button is pressed, the customer hears one audible tone. When the HFL BACK button is pressed, the customer hears two audible tones. Make sure to press the HFL BACK button to exit the HFL main menu after completing a call and before giving any navigation commands.

The HFL system may experience a number recognition issue, such as when a customer says a set of numbers in a group unrecognized by the system. The HFL system understands phone numbers in specific blocks of 1, 3, 4, 7, and 10 numbers. For example, the system understands:

1234567890
123-456-7890
1-2-3-4-5-6-7-8-9-0

The system may become confused if numbers are stated in other blocks, as following:

1234-567-890
12-34-56-78-90
12345-67890
123-4567-890

(cont'd)

HandsFreeLink System - '12 model

General Troubleshooting Information (cont'd)

Navigating Through HFL Menus

To skip a voice prompt, press and release the HFL TALK button while the HFL system is speaking. The system begins listening for your next voice command.

To go back a step in a voice command sequence, press and release the HFL BACK button, or press the HFL TALK button and say "Go back." If you don't say anything while the HFL system is listening for your voice command, it times out and stops voice recognition. The next time you press and release the HFL TALK button, the HFL system begins listening from the point it timed out.

If you've finished or want to stop a voice command sequence at any time, press and release the HFL BACK button, or press and release the HFL TALK button, wait for the beep, and say "Cancel." The next time you press and release the HFL TALK button, the HFL system begins from its main menu. To avoid keeping the audio system muted, press and release the HFL BACK button when you are finished.

NOTE: You can say multiple commands in one sequence, like "Phone setup-pair" after pressing the HFL TALK button.

Pairing a Cell Phone

You must pair an approved Bluetooth-compatible phone to the HFL system before you can make and receive calls. For a current list of approved phones and specific phone pairing instructions for each phone, see Checking Cell Phone Compatibility, go to handsfreelink.honda.com, or call 888-528-7876.

The following procedure works for most approved phones. If you cannot pair a phone to the HFL system with this procedure, refer to the phone's operating manual, the vehicle's owner's manual, visit handsfreelink.honda.com, or call 888-528-7876.

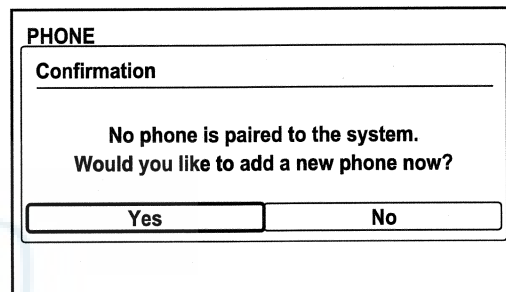
NOTE:

- You cannot pair a phone while the vehicle is moving.
- Your phone must be in Discovery Mode.
- A maximum of six Bluetooth-compatible phones can be paired to the system.
- Some non-approved phones may pair to the HFL system, but some features may not work, or the phone may cause the HFL system to malfunction.

With navigation

Pairing a phone when there are no other phones paired:

1. Turn the ignition switch to ACCESSORY (I) or ON (II), and make sure the phone you are pairing is on and in its discovery mode.
2. Select OK on the navigation Confirmation screen.
3. Press the PHONE button on the audio-navigation unit. A phone Confirmation screen appears on the display, select YES to add a new phone.



4. Confirm the phone is in its discovery mode, then select OK.



- Once the phone is discovered by the HFL, select the phone on the screen.

NOTE: If the HFL doesn't find the phone, select Find Another Phone, then, when prompted, enter the PIN into the phone.

Phone name is displayed

- When the 4-digit pairing code appears on the navigation display, enter this code into the phone.
- Once the phone is successfully paired, the screen displays "(phone name) PHONE" has been added.

Pairing additional phones:

- Turn the ignition switch to ACCESSORY (I) or ON (II), and make sure the phone you are pairing is on and in its discovery mode.
- Select OK on the navigation Confirmation screen.
- Press the PHONE button on the audio-navigation unit, then select Phone Setup from the PHONE menu. If none of the previously paired phones are in the vehicle, a phone confirmation screen appears stating there is no phone connected. Select NO to go to the phone menu. Select Phone Setup, then go to step 4.

- Select Add/Select a phone from the Phone Setup menu.

- Select Search from the Bluetooth Setup menu.

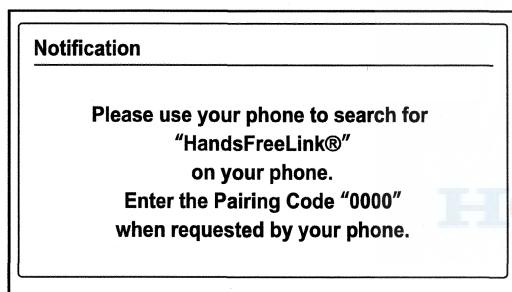
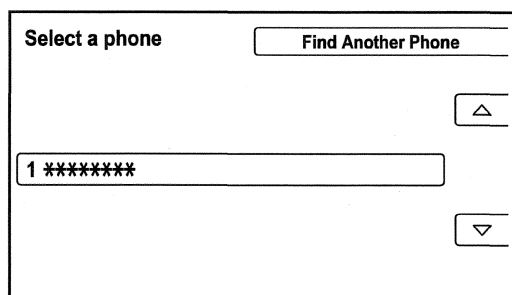
(cont'd)

HandsFreeLink System - '12 model

General Troubleshooting Information (cont'd)

6. Make sure the phone is in its discovery mode, and once the phone is discovered by the HFL, select the phone from the displayed list.

NOTE: If the HFL doesn't find the phone, select Find Another Phone, then, when prompted, enter the PIN into the phone.



7. When the 4-digit pairing code appears on the navigation display, enter this code into the phone.
8. Once the phone is successfully paired, the screen displays "(phone name) PHONE" has been added.

Without navigation

1. Turn the ignition switch to ACCESSORY (I) or ON (II), and make sure the phone you are pairing is on and in its discovery mode, press and release the HFL TALK button. After the beep, say "Phone setup." The HFL responds, "Phone setup options are pair, edit, delete, list, status, next phone, set pairing code."

2. Press and release the HFL TALK button. After the beep, say "Pair." The HFL responds, "The pairing process requires operation of your mobile phone. For safety, only perform this function while the vehicle is stopped. For proper system function a compatible bluetooth phone is required. Please visit handsfreelink.honda.com for a list of approved phones and other system information. Handsfreelink is waiting to pair with a bluetooth phone. From your phone, search for bluetooth devices, and select handsfreelink. When prompted by your mobile phone enter the pairing code XXXX." The HFL system gives you a 4-digit pairing code.

3. When prompted by your mobile phone, enter the pairing code. Refer to your cell phone user guide for more information about searching for a Bluetooth device.
4. Once the phone is recognized by the HFL system, it responds, "Handsfreelink has connected to a new phone. A name is needed to identify this phone. Press the TALK button and say a name. For example, John's phone."

5. Press and release the HFL TALK button. After the beep, say the name you want to use. For example, say "Tom's phone." The HFL responds, "Tom's phone has been successfully paired. Returning to the main menu."

NOTE: If no phones are paired to the system when you press the TALK button, the system asks if you want to pair a phone. Press the TALK button and say "Yes." The system then proceeds to step 2.



Pairing Troubleshooting

Many pairing issues are resolved by altering the customer's phone settings. Call the HFL call center at 888-528-7876 after you have duplicated the problem.

Bluetooth feature settings must be turned on. Phone manufacturers set the default to disable Bluetooth features to conserve battery life. Cell phones may provide procedures to Temporary Power On Bluetooth, or Power On Bluetooth. Turn the Bluetooth feature on, pair the phone to the vehicle, and confirm the phone is linked. Do this by turning the phone off and back on. Make or receive a call to confirm that the cell phone is successfully paired.

When the phone's Bluetooth feature is on, other handsfree accessories such as earpieces or headsets may automatically reconnect to the phone when you turn on the accessory or move it within range of the cell phone. This results in the phone not connecting to the HFL system when the customer enters the vehicle. You must unlink the hands-free accessory from the phone before the HFL system can reconnect.

Some phones have an Auto Answer setting that functions with a headset. This setting must be turned off or the HFL system cannot accept any incoming calls. When this setting is on, it blocks the HFL system from answering the call, and the call goes to voice mail. This can cause the customer to think that the cell phone is not paired properly.

The HFL system can pair a maximum of six phones. Some vehicles will tell you that the HFL system has reached its maximum while other vehicles will not. To check how many phones are paired, press and release the HFL TALK button. After the beep, say "Phone setup list." The HFL system lists every assigned phone name paired with it, then finishes by saying "The entire list has been read. Returning to the main menu." Count the number of phones listed. If there are six, you must delete one phone before adding a new one.

Pairing Checks

For more information about pairing, refer to the cell phone Owner's Manual, or go to handsfreelink.honda.com.

1. Is the cell phone compatible with the Honda HFL system?
2. Is the Bluetooth feature turned on?
3. With navigation: Is the customer using the HFL buttons, not the navigation TALK/navigation BACK buttons, when pairing?
4. Is the cell phone battery fully charged, and is there good signal strength when pairing?
5. Do a soft reset on the cell phone (see cell phone manual).
6. If the customer is trying to pair a Blackberry® or Palm Treo™ device, make sure the customer uses the shift key when entering the pass code. If the shift key is not pressed, the customer may be entering letters. The HFL does not recognize letters.

Dropped Calls

Customers may perceive dropped calls as being an HFL system fault, but most dropped calls are from cell phone and cell phone carrier issues. The HFL system does not directly handle the cell phone signal. It allows the cell phone to transmit the cell phone audio over the vehicle's audio system.

Before troubleshooting for dropped calls, confirm the cell phone settings:

- Disable Audio Answer. If Auto Answer is enabled, incoming calls are routed to voice mail.
- Disable Always Ask/Trust, Authorize Device, or similar setting. If these settings are enabled, each time the HFL system attempts to link to the phone, the phone will ask if you want to connect. If you do not allow the connection, the HFL will not operate. The phone must be set to Never Ask, Authorize Device, etc. (based on the phone manufacturer and carrier) for permission. Refer to the cell phone owner's manual for more information.
- Disable Flip Open to Answer. If this setting is enabled, the phone must remain open in the vehicle. If it is closed, the incoming calls are routed to voice mail.

(cont'd)

HandsFreeLink System - '12 model

General Troubleshooting Information (cont'd)

Always confirm with the customer if the number of dropped calls is higher while using the HFL system as opposed to using the cell phone only. Customers often confuse problems with their phone or carrier as a problem with the HFL system. The HFL system cannot control or determine:

- Cellular connection quality.
- Signal strength.
- Cellular coverage.
- Ambient weather conditions that affect cellular signals.

When a customer complains about dropped calls, ask questions about when or where the calls are dropped, such as:

- Do you drive the same route on a regular basis?
- Does the call drop in the same location?
- Where do you keep your cell phone?
- Have you compared the number of dropped calls using the HFL versus making calls from the handset?
- Does your phone have an antenna that needs to be extended?

Many reasons for a dropped call are not related to the HFL system. Here are some causes for dropped calls:

- If the quantity of dropped calls is about the same when the customer uses the HFL system versus the handset, the issue is likely due to the cellular phone or carrier.
- If the phone is equipped with a retractable antenna, it needs to be extended to maximize signal strength.
- If a customer also notices that the calls tend to drop in the same areas, the HFL system may be operating normally, but something about the area diminishes cellular coverage to a point where the call drops.
- Hills or mountains can block or interfere with cellular signals.
- High-rise buildings, bridges, or other large structures may block or interfere with cellular signals.
- Placing the cell phone in a purse, in a metal briefcase, under the seat, in the glove box can all affect signal reception.
- There are coverage gaps in the cellular service. When driving, a call is typically passed from one tower to another. If the customer drives through an area where there is a coverage gap between towers, the call drops.
- Electrical storms, heavy rain, or overcast conditions interfere with signal strength.
- The cell phone battery's state of charge can affect signal reception. A low battery may reduce the phone's ability to boost the antenna's power and function properly, especially in low signal strength areas. Some phone manufacturers trade off signal transmission and reception strength for battery life. As the battery weakens, the signal strength may also weaken. Some cell phones may operate more effectively than others in low signal strength areas, especially with a partially charged battery, and depending on whether or not the retractable antenna is fully extended (if applicable). On these models, make sure the antenna is always extended to maximize signal strength and extend battery life.



Phone Will Not Automatically Connect to the HFL

Call the HFL call center at 888-528-7876 after you have duplicated the problem.

If a customer complains that their cell phone is not automatically connecting to the HFL system when they enter the vehicle, do this:

1. Make sure the Bluetooth feature is turned on in the cell phone.
2. Make sure the cell phone is properly paired to the HFL system.
3. Do a soft reset to the cell phone.
4. Check if the phone has an Authorized Connection or Trusted option.
5. Check the battery and signal strength on the cell phone. Pairing a phone requires optimal signal strength and a nearly full battery.

Incoming Calls

Call the HFL call center at 888-528-7876 after you have duplicated the problem.

If a customer complains that they cannot receive incoming calls through the HFL system, see if the call is routing to the cell phone instead of the HFL system. An easy way to know if the call is routed to the cell phone is when the customer says, "I can't hear the caller, but they can hear me."

1. Make sure the Bluetooth feature is turned on in the cell phone.
2. Make sure the cell phone is paired to the HFL system and linked.
3. Make sure the answer settings in the cell phone are set to multi-key or any-key answer. If the phone is set to flip open to answer, recommend changing the setting to Any Key or leaving the phone flipped open when using the HFL system.
4. Make sure the Auto Answer feature is turned off in the cell phone.
5. Do a soft reset to the phone.
6. Make sure the battery is fully charged and there is adequate signal strength.
7. Ask the customer if they have set specific ring tones or ringer IDs to specific contacts. If they have, recommend using one standard ring tone for all calls.
8. With navigation: Make sure the customer is pressing the HFL TALK button and not the HFL BACK button or the navigation TALK/navigation BACK buttons.

(cont'd)

HandsFreeLink System - '12 model

General Troubleshooting Information (cont'd)

Outgoing Calls

Call the HFL call center at 888-528-7876 after you have duplicated the problem.

If a customer says that they cannot place a call using the HFL system, ask if the call was initiated through the HFL system or the cell phone itself.

If the call is placed by the HFL system:

1. Make sure the Bluetooth feature is turned on in the cell phone.
2. Make sure the cell phone is paired to the HFL system and linked.
3. Make sure the customer is pressing the HFL TALK button before each command and going through the calling process correctly.
4. With navigation: Make sure the customer is pressing the HFL TALK button and not the HFL BACK button or the navigation TALK/navigation BACK buttons.
5. Check if the cell phone has an Authorized Connections or Trusted option.
6. Do a soft reset to the cell phone.

If the call is placed by the cell phone:

By default, the call will automatically transfer to HFL. This setting can be changed using the "Auto Transfer" command under the "System Setup" menu. If it is preferred to have a call placed by the cell phone remain on the cell phone, then the Auto Transfer featured should be set to Disabled. The "Transfer" command can be used to transfer calls between the HFL and handset.

Clearing the HFL System

NOTE:

- This operation clears the HFL system of all pass code(s), any paired phones, and all names in the HFL phonebook.
 - Clearing the HFL system is recommended before selling the vehicle.
1. Press and release the HFL TALK button. After the beep, say "System Setup Clear" and the HFL system responds, "This process will clear all paired phones, clear all entries in the phonebook, clear the security pass code, and restore all defaults in the system setup. Is this what you would like to do?"
 2. Press and release the HFL TALK button. After the beep, say "Yes" and the HFL system responds, "Preparing to clear the system, which may take up to 2 minutes to complete. To proceed, press the talk button, and say "Continue." Otherwise say "Go back" or "Cancel."
 3. Press and release the HFL TALK button. After the beep, say "Continue" to proceed, or say "Go back" or "Cancel".
 4. If you said "Continue," the HFL responds, "Please wait until the system is cleared." After a short period of time (up to two minutes) the HFL responds, "The system has been cleared."



Glossary of Terms

Auto Answer

This cell phone setting forces incoming calls to automatically be answered by the handset. Disable this feature on the phone when using the HFL system, as it may interfere with the HFL system answering incoming calls. Set the phone setting to:

- Send Key
- Any Key
- Multi Key answer

Answer Options

These cell phone settings allow you to select how you would like to answer an incoming call on the handset. The answer option in the phone can affect inbound calls on the HFL system.

Authorized Connection

This cell phone setting allows the phone to connect automatically with the HFL system without prompting the customer for permission to connect. In some instances, it can affect the ability of the phone to properly route sound to the HFL system.

Bluetooth Power

This cell phone function enables or disables the Bluetooth application. When using a hands-free device such as HFL, the Bluetooth application needs to be enabled.

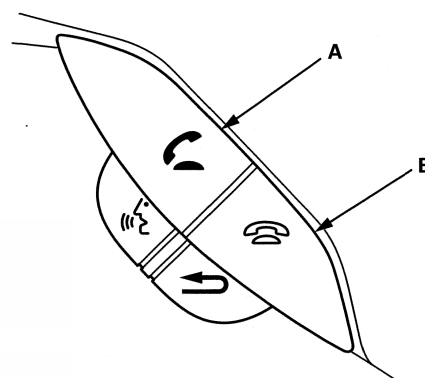
Discovery Mode

You need to have the cell phone in Discovery Mode to allow other devices with Bluetooth capabilities (such as the HFL system) to find the phone during the pairing process.

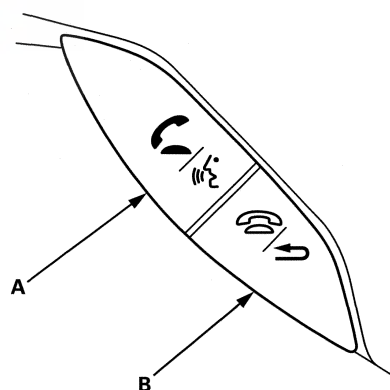
HFL Buttons

- HFL TALK button (A): Use this button on the steering wheel to give commands. Press the button before a voice command is given.
- HFL BACK button (B): Use this button on the steering wheel to end a call or return to a previous prompt in the HFL menu. Pressing the button twice or holding it down returns you to the idle.

With navigation



Without navigation



Hard Reset (Cellular Phone)

Hard reset clears the saved settings in the cell phone and restores it to the factory defaults. A hard reset should be done only as a last resort (see the cell phone owner's manual for more information).

(cont'd)

HandsFreeLink System - '12 model

General Troubleshooting Information (cont'd)

Linking

This is when your paired phone is actively ready to use the HFL system. You can pair up to six phones to the HFL system, but only one phone can be linked at a time. If two paired phones are in the vehicle, only the phone that is linked can use the HFL system and functions. The second phone must be used as a normal handset.

Pairing

A description for linking two Bluetooth devices together. In this case, you are linking a cell phone with the HFL system. After the pairing process is complete, the devices are able to recognize each other and communicate wirelessly via Bluetooth.

Soft Reset (Cellular Phone)

This helps to restore the basic functions of the phone. To do a soft reset, turn the phone power off, remove and reinsert the cell phone battery, then turn the phone back on. See the cell phone user manual for more information.

Software Version

This refers to the software version loaded in the cell phone. The software version that was tested and determined to be compatible with the HFL system may be listed on the HFL website. Not all software versions are compatible with the HFL system.

Standard Ringtone

These ringtones come factory-installed on the cell phone.



DTC Troubleshooting Index

DTC	Description	DTC type	Page
B1775	Microphone input/output shorted to power or open (with navigation)	Signal error	DTC Troubleshooting (see page 23-339)
	Microphone input/output shorted to power or open (without navigation)	Signal error	DTC Troubleshooting (see page 23-340)
B1776	Microphone input/output shorted to ground (with navigation)	Signal error	DTC Troubleshooting (see page 23-342)
	Microphone input/output shorted to ground (without navigation)	Signal error	DTC Troubleshooting (see page 23-344)
B1779	HandsFreeLink steering wheel switch failure (with navigation)	Signal error	DTC Troubleshooting (see page 23-345)
	HandsFreeLink steering wheel switch failure (without navigation)	Signal error	DTC Troubleshooting (see page 23-347)
B1780	HandsFreeLink steering wheel switch line short (with navigation)	Signal error	DTC Troubleshooting (see page 23-348)
	HandsFreeLink steering wheel switch line short (without navigation)	Signal error	DTC Troubleshooting (see page 23-349)
B1792	HandsFreeLink control module error (with navigation)	Internal error	DTC Troubleshooting (see page 23-350)
	HandsFreeLink control module error (without navigation)	Internal error	DTC Troubleshooting (see page 23-351)
U1280*	Communication bus line error (BUS-OFF)	Loss of communication	DTC Troubleshooting (see page 22-119)

*: Without navigation

HandsFreeLink System - '12 model

Symptom Troubleshooting Index

NOTE: Most HFL problems with pairing and HFL function are usually caused by the cell phone and its configuration. Call the HFL support desk at 888-528-7876 for help before any HFL components.

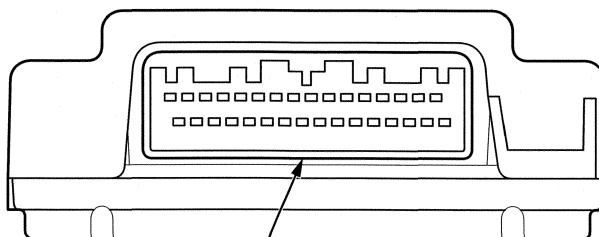
Symptom	Diagnostic procedure	Also check for
HFL does not respond	Control Unit Input Test (see page 23-361)	Check and repair all HFL related DTCs
The Bluetooth icon in the audio display is not displayed	There is no HFL-compatible phone paired to the vehicle. Pair an approved HFL-compatible phone to the vehicle.	Bluetooth cell phone compatibility (see the Owner's Manual)
The Honda approved Bluetooth cell phone is having problems pairing to the vehicle	HFL System Troubleshooting (see page 23-331)	
The Honda approved Bluetooth cell phone cannot use all its functions	HFL System Troubleshooting (see page 23-331)	
The Honda approved Bluetooth cell phone does not place or receive calls using the HFL system	HFL System Troubleshooting (see page 23-331)	
The HFL messages cannot be heard or are weak (with navigation)	Symptom Troubleshooting (see page 23-351)	
The HFL messages cannot be heard or are weak (without navigation)	Symptom Troubleshooting (see page 23-353)	
No sound when Bluetooth audio is used (with navigation)	Symptom Troubleshooting (see page 23-355)	Bluetooth cell phone compatibility (see the Owner's Manual)
Bluetooth audio does not work (with navigation)	Symptom Troubleshooting (see page 23-357)	Bluetooth cell phone compatibility (see the Owner's Manual)
Bluetooth cell phone cannot be paired	Symptom Troubleshooting (see page 23-358)	Bluetooth cell phone compatibility (see the Owner's Manual)



System Description

HandsFreeLink Control Unit Connector for Inputs and Outputs

With navigation



**HANDSFREELINK CONTROL UNIT
32P CONNECTOR**

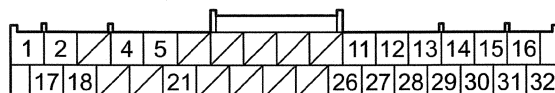


(cont'd)

HandsFreeLink System - '12 model

System Description (cont'd)

HandsFreeLink Control Unit 32P Connector



Wire side of female terminals

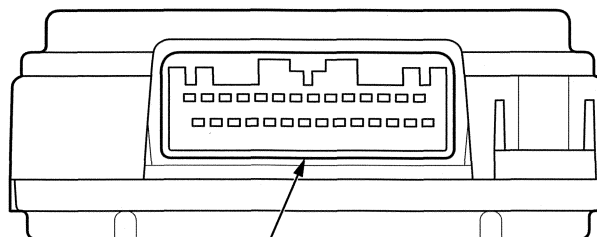
Cavity	Wire Color	Connects to
1	BLK	Body ground to G501 (GND)
2	GRN	HFL-navigation voice control switch (STRG SW)
4	YEL	Audio-navigation unit (GA-NET BUS+)
5	GRN	Audio-navigation unit (GA-NET BUS-)
11	BLK	Audio-navigation unit (AUDIO R+)
12	WHT	Audio-navigation unit (AUDIO L+)
13	PNK	Audio-navigation unit (TELEM SIG+)
14	GRY*	Shield for terminals No. 15 and No. 16 (MIC SH)
15	LT GRN	HFL-navigation microphone (MIC SIG)
16	PUR	HFL-navigation microphone (MIC GND)
17	PNK	No. 1 (10 A) fuse in the under-dash fuse/relay box (+B)
18	ORN	No. 14 (7.5 A) fuse in the under-dash fuse/relay box (ACC)
21	GRY*	Shield for terminals No. 4 and No. 5 (GA-NET BUS SH)
26	GRY*	Shield for terminals No. 11, No. 12, No. 27, and No. 28 (AUDIO SH)
27	RED	Audio-navigation unit (AUDIO R-)
28	GRN	Audio-navigation unit (AUDIO L-)
29	BLU	Audio-navigation unit (TELEM SIG-)
30	GRY*	Shield for terminals No. 13 and No. 29 (TELEM SIG SIG)
31	YEL	Audio-navigation unit (HFT-NAVI MIC+)
32	GRN	Audio-navigation unit (HFT-NAVI MIC-)

*: The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire shown on the circuit diagram.



HandsFreeLink Control Unit Connector for Inputs and Outputs

Without navigation



HANDSFREELINK CONTROL UNIT
28P CONNECTOR

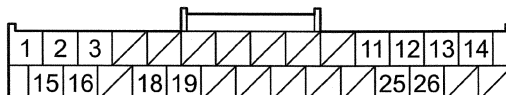


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HandsFreeLink System - '12 model

System Description (cont'd)

HandsFreeLink Control Unit 28P Connector



Wire side of female terminals

Cavity	Wire Color	Connects to
1	BLK	Body ground to G501 (GND)
2	GRN	HFL switch (STRG SW)
3	BRN	Audio unit (HFL MUTE)
11	PNK	Audio unit (TELEM SIG+)
12	GRY*	Shield for terminals No. 13 and No. 14 (MIC SH)
13	LT GRN	HFL microphone (MIC SIG)
14	PUR	HFL microphone (MIC GND)
15	PNK	No. 1 (10 A) fuse in the under-dash fuse/relay box (+ B)
16	ORN	No. 14 (7.5 A) fuse in the under-dash fuse/relay box (ACC)
18	LT GRN	B-CAN bus line
19	BLU	Audio unit (HFL ICON)
25	BLU	Audio-navigation unit (TELEM SIG-)
26	GRY*	Shield for terminals No. 11 and No. 25 (TELEM SIG SIG)

*: The shielded wires have a heat-shrink tube insulating the outside of the wire. The color of the insulating tube, typically black or dark gray, may not match the color of the wire shown on the circuit diagram.



HFL System Troubleshooting

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Before doing this troubleshooting, refer to General Troubleshooting Information (see page 23-311) to make sure the phone is compatible and configured correctly. You can also check online at handsfreelink.honda.com.
- You must be able to duplicate the customer's concern to successfully diagnose the problem.
- Always use the customer's Bluetooth cell phone to successfully diagnose the problem.
- Make sure the phone is approved and configured correctly. Online, go to handsfreelink.honda.com, or call the HFL support desk at 888-528-7876.

1. Make sure the Bluetooth cell phone is approved by checking handsfreelink.honda.com, or call the HFL support desk at 888-528-7876.

Is the Bluetooth cell phone approved?

YES—Go to step 2.

NO—Explain to the customer that the cell phone is not approved. Recommend they get a phone that does appear on the handsfreelink.honda.com website. ■

2. Check if the Bluetooth cell phone has any special requirements (software version, configuration, etc.). Call the HFL call center at 888-528-7876 for help.

Is the correct software version loaded and is the Bluetooth cell phone properly configured?

YES—Go to step 3.

NO—Explain to your customer that the Bluetooth cell phone software needs to be updated or the Bluetooth cell phone needs to be configured properly. If the HFL call center is able to help you configure the phone, explain the proper settings, otherwise direct your customer to contact their Bluetooth cell phone manufacturer or carrier. ■

3. Check the features of the approved phone at handsfreelink.honda.com, or call the HFL support desk at 888-528-7876.

Are all the features approved?

YES—Go to step 4.

NO—Check and see if the feature that is not approved is the same as the customer complaint. If the complaint is about the feature that is not approved, the vehicle is OK. Explain to the customer that the feature is not approved to work with the HFL.

4. Check for DTCs.

- With navigation (see page 23-312)
- Without navigation (see page 23-311)

Are there any DTCs indicated?

YES—Go to indicated DTC's troubleshooting (see page 23-325). ■

NO—Go to step 5.

5. Try to duplicate the problem or have the customer demonstrate the problem.

Can you duplicate the problem?

YES—Go to step 6.

NO—The system is OK at this time. ■

(cont'd)

HandsFreeLink System - '12 model

HFL System Troubleshooting (cont'd)

6. Pair the Bluetooth cell phone to a known-good vehicle (same model, year, and trim), and try duplicate the problem.

Does the Bluetooth cell phone have the same problem on the known-good vehicle?

YES—Call the HFL support desk at 888-528-7876 to make sure the Bluetooth cell phone is configured correctly and has the correct software. If the Bluetooth cell phone is configured correctly, it is either a characteristic of the HFL system, or a characteristic of the particular approved Bluetooth cell phone being used. Explain to your customer that this is a system characteristic. Another Bluetooth cell phone from the approved Bluetooth cell phone list may give more favorable results.■

NO—Substitute a known-good HandsFreeLink control unit (with navigation (see page 23-361), without navigation (see page 23-363)), and recheck. If the problem goes away, replace the original HandsFreeLink control unit (with navigation (see page 23-361), without navigation (see page 23-363)).■

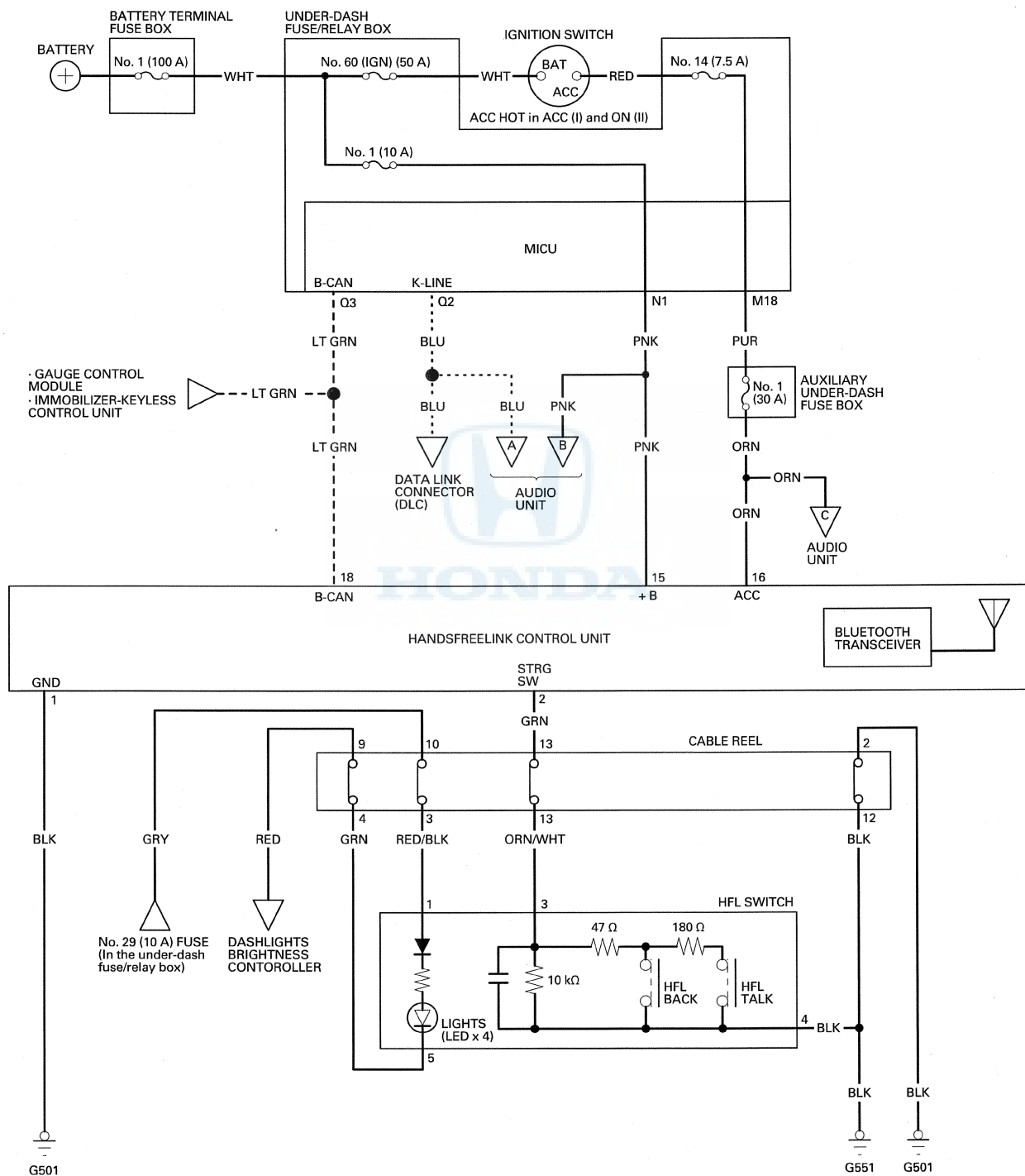


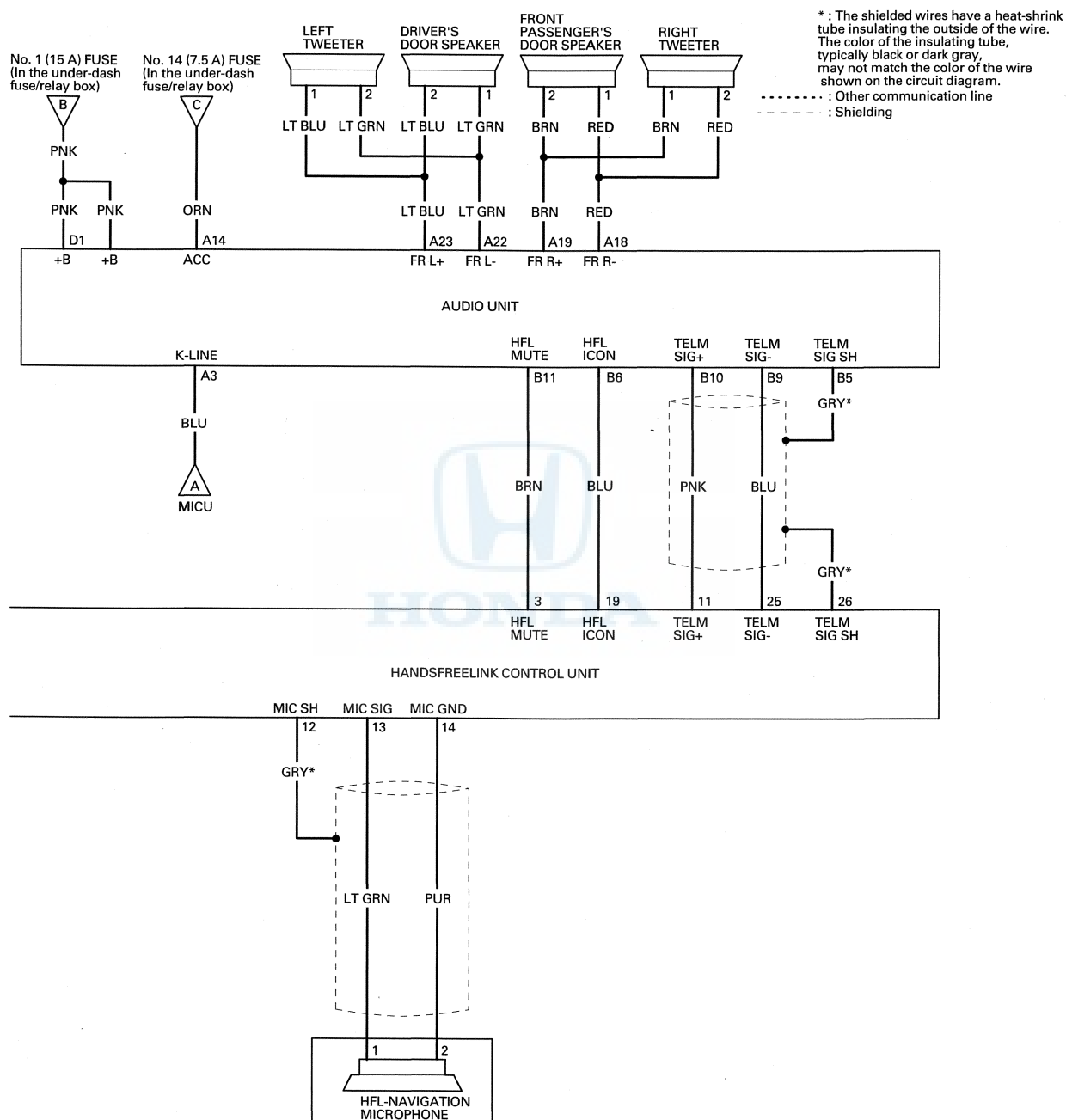


HandsFreeLink System - '12 model

Circuit Diagram

Without navigation



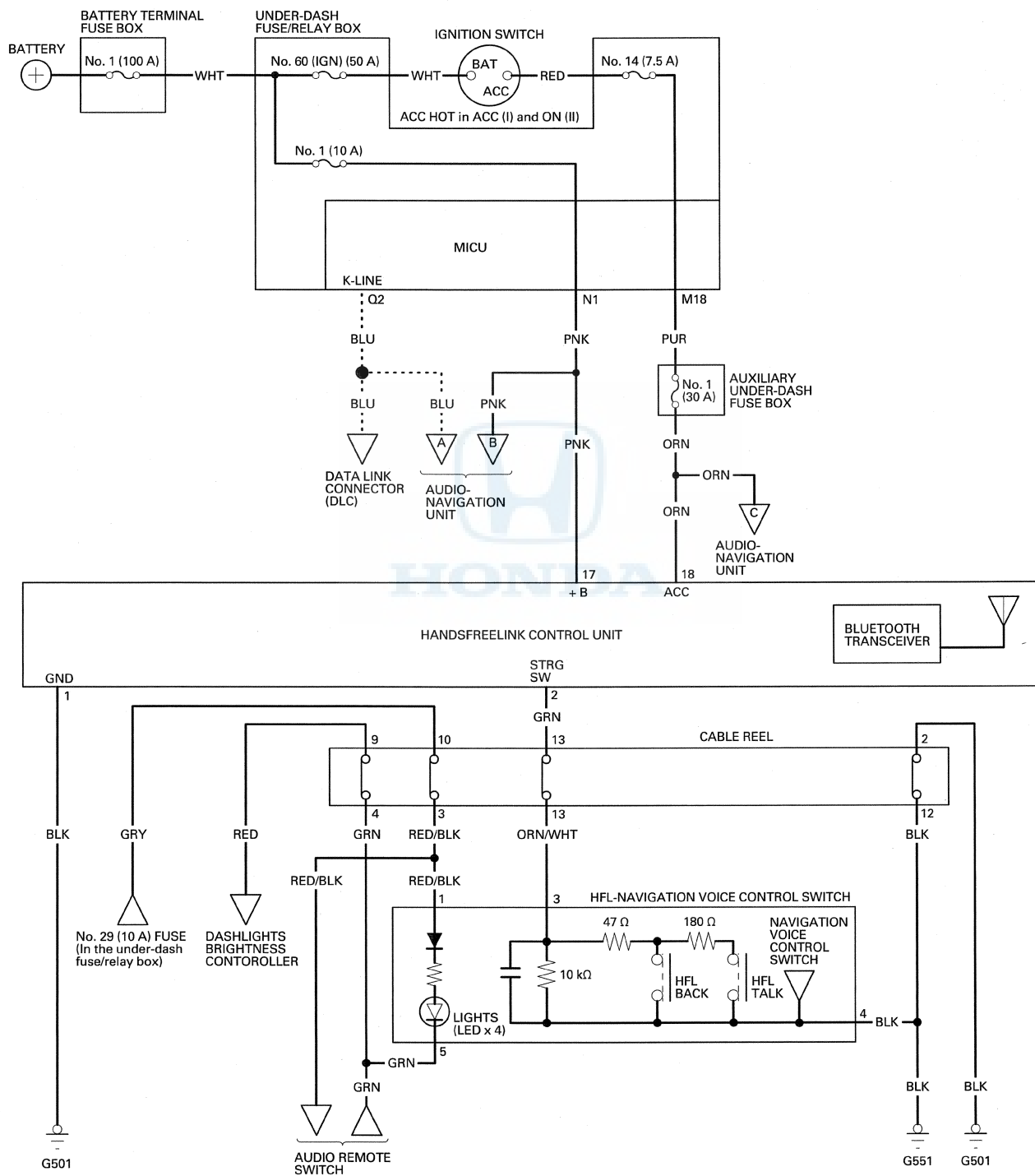


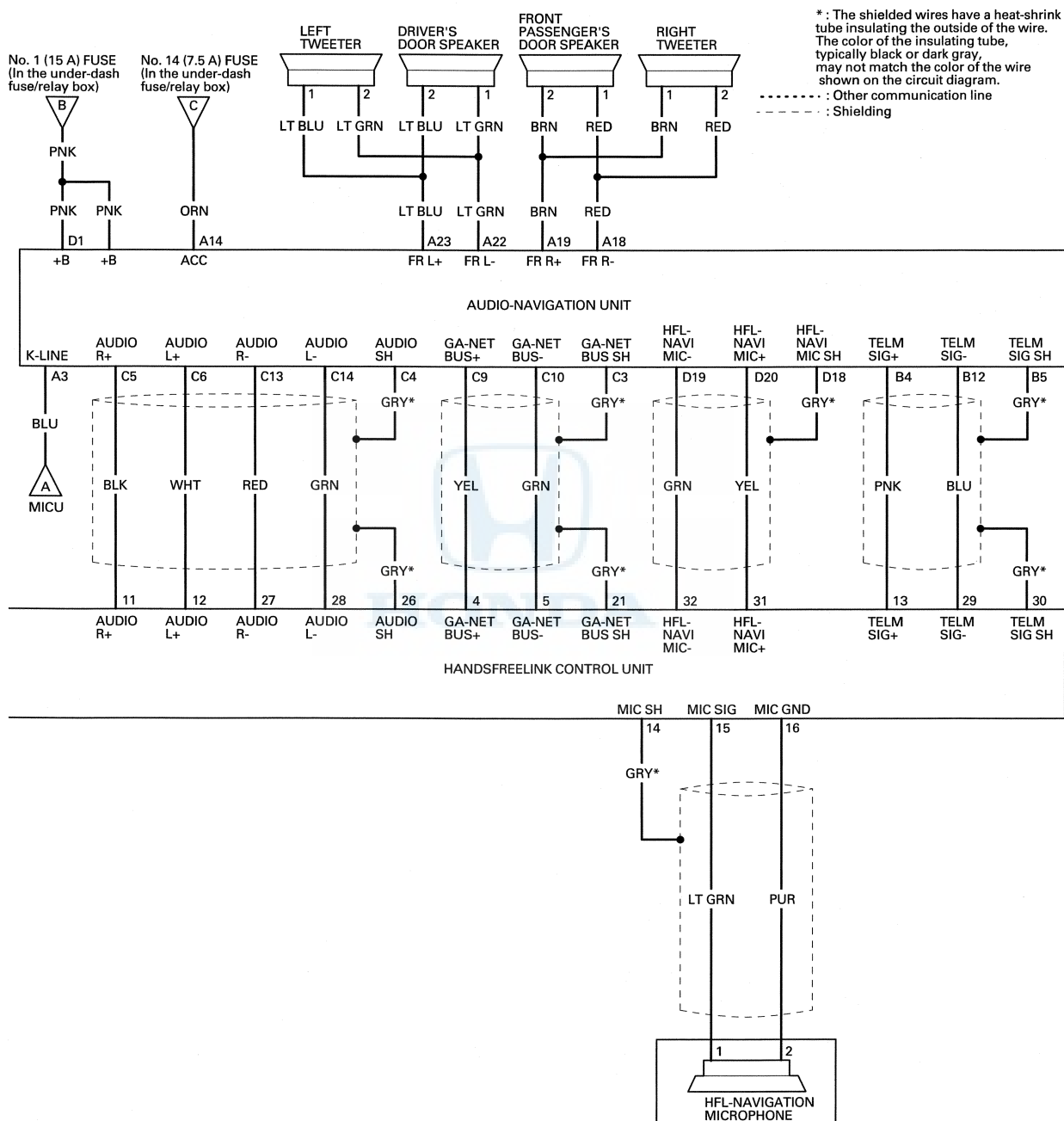
(cont'd)

HandsFreeLink System - '12 model

Circuit Diagram (cont'd)

With navigation





HandsFreeLink System - '12 model

Self-Diagnostic Function

How to Check the HandsFreeLink System Condition

NOTE:

- Check the vehicle battery condition first (see page 22-68).
 - The self-diagnostic function can only be initiated while the HFL is in its idle state.
 - The self-diagnostic function starts after you press and hold the Hang-up/BACK button on the HFL switch for 5 seconds, and ends if the HandsFreeLink control unit returns to its idle state.
1. Turn the ignition switch to ON (II).
 2. Press and hold the Hang-up/BACK button for more than 5 seconds.
 3. When the HFL system enters the self-diagnostic function, the following will occur:
 - If the HFL is OK, and there are no HFL DTCs, the HFL system says, "The HFT is OK."
 - If there are any HFL DTCs stored, the HFL system says, "The HFT is NG.". Check for the HFL DTCs.
 - With navigation (see page 23-312)
 - Without navigation (see page 23-311)





DTC Troubleshooting

DTC B1775: Microphone input/output shorted to power or open (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Check for the HFL DTCs (see page 23-312).

Is DTC B1775 indicated?

YES—The failure is duplicated, go to step 2.

NO—Intermittent failure, the system is OK at this time. ■

2. Turn the ignition switch to LOCK (0).

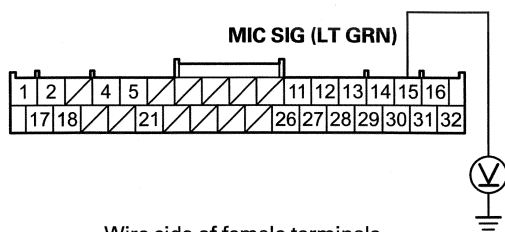
3. Disconnect the HFL-navigation microphone 3P connector.

4. Disconnect the HandsFreeLink control unit 32P connector.

5. Turn the ignition switch to ON (II).

6. Measure the voltage between HandsFreeLink control unit 32P connector terminal No. 15 and body ground.

HANDSFREELINK CONTROL UNIT 32P CONNECTOR



Wire side of female terminals

Is there voltage?

YES—There is a short to power in the wire between the HandsFreeLink control unit and the HFL-navigation microphone. Replace the affected shielded harness. ■

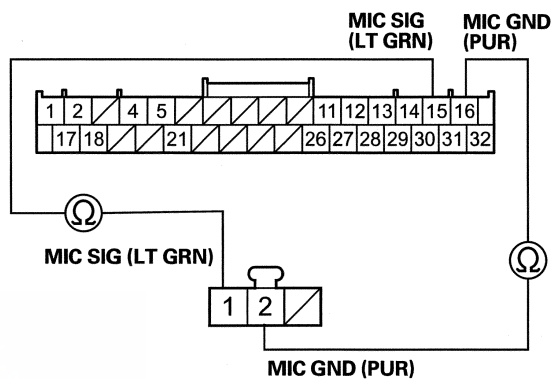
NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).

8. Check for continuity between HandsFreeLink control unit 32P connector terminal No. 15 and HFL-navigation microphone 3P connector terminal No. 1, and HandsFreeLink control unit 32P connector terminal No. 16 and HFL-navigation microphone 3P connector terminal No. 2.

HANDSFREELINK CONTROL UNIT 32P CONNECTOR

Wire side of female terminals



HFL-NAVIGATION MICROPHONE 3P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Go to step 9.

NO—There is an open in the wire(s) between the HandsFreeLink control unit and the HFL microphone. Replace the affected shielded harness. ■

9. Disconnect the audio-navigation unit connector B (16P).

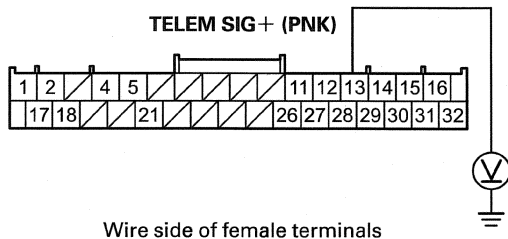
(cont'd)

HandsFreeLink System - '12 model

DTC Troubleshooting (cont'd)

10. Measure the voltage between HandsFreeLink control unit 32P connector terminal No. 13 and body ground.

HANDSFREELINK CONTROL UNIT 32P CONNECTOR



Is there voltage?

YES—There is a short to power in the wire between the HandsFreeLink control unit and the audio-navigation unit. Replace the affected shielded harness. ■

NO—Go to step 11.

11. Turn the ignition switch to LOCK (0).
12. Reconnect the HandsFreeLink control unit 32P connector and the HFL-navigation microphone 3P connector.
13. Turn the ignition switch to ON (II).
14. Do the HFL Self-Diagnostic Function (see page 23-338).

Do you hear, "The HFT is OK"?

YES—Replace the audio-navigation unit (see page 23-304). ■

NO—Go to step 15.

15. Turn the ignition switch to LOCK (0).
16. Substitute a known-good HFL-navigation microphone (see page 23-308), and recheck.

Does the symptom/indication go away?

YES—Replace the original HFL-navigation microphone (see page 23-308). ■

NO—Replace the HandsFreeLink control unit (see page 23-361). ■

DTC B1775: Microphone input/output shorted to power or open (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN system diagnosis test mode A (see page 22-107).

1. Connect the HDS to the DLC (see page 23-311).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0), and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC B1775 indicated?

YES—The failure is duplicated, go to step 5.

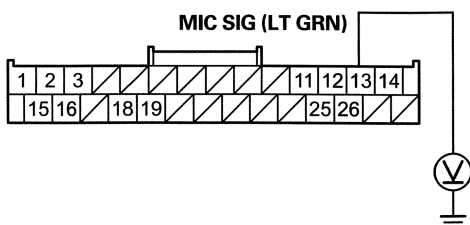
NO—Intermittent failure, the system is OK at this time. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the HFL microphone 3P connector.
7. Disconnect the HandsFreeLink control unit 28P connector.
8. Turn the ignition switch to ON (II).



9. Measure the voltage between HandsFreeLink control unit 28P connector terminal No. 13 and body ground.

HANDSFREELINK CONTROL UNIT 28P CONNECTOR



Wire side of female terminals

Is there voltage?

YES—There is a short to power in the wire between the HandsFreeLink control unit and the HFL microphone. Replace the affected shielded harness. ■

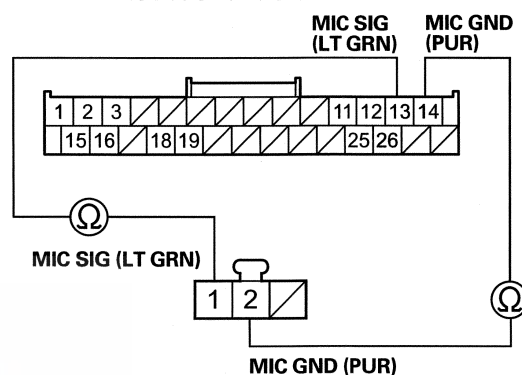
NO—Go to step 10.

10. Turn the ignition switch to LOCK (0).

11. Check for continuity between HandsFreeLink control unit 28P connector terminal No. 13 and HFL microphone 3P connector terminal No. 1, and HandsFreeLink control unit 28P connector terminal No. 14 and HFL microphone 3P connector terminal No. 2.

HANDSFREELINK CONTROL UNIT 28P CONNECTOR

Wire side of female terminals



HFL MICROPHONE 3P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Substitute a known-good HandsFreeLink control unit (see page 23-363), and recheck. If the symptom goes away, replace the original HandsFreeLink control unit (see page 23-363). If the symptom does not go away, replace the HFL microphone (see page 23-359). ■

NO—There is an open in the wire(s) between the HandsFreeLink control unit and the HFL microphone. Replace the affected shielded harness. ■

(cont'd)

HandsFreeLink System - '12 model

DTC Troubleshooting (cont'd)

DTC B1776: Microphone input/output shorted to ground (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Check for HFL DTCs (see page 23-312).

Is DTC B1776 indicated?

YES—The failure is duplicated, go to step 2.

NO—Intermittent failure, the system is OK at this time. ■

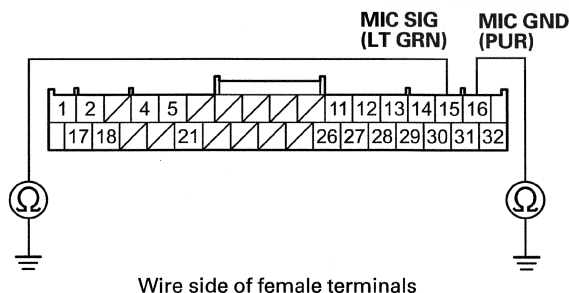
2. Turn the ignition switch to LOCK (0).

3. Disconnect the HFL-navigation microphone 3P connector.

4. Disconnect the HandsFreeLink control unit 32P connector.

5. Check for continuity between body ground and HandsFreeLink control unit 32P connector terminals No. 15 and No. 16 individually.

HANDSFREELINK CONTROL UNIT 32P CONNECTOR



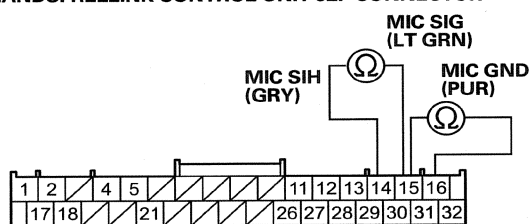
Is there continuity?

YES—There is a short to body ground in the wire(s) between the HandsFreeLink control unit and the HFL-navigation microphone. Replace the affected shielded harness. ■

NO—Go to step 6.

6. Check for continuity between HandsFreeLink control unit 32P connector terminals No. 14 and No. 15, and No. 15 and No. 16.

HANDSFREELINK CONTROL UNIT 32P CONNECTOR



Is there continuity?

YES—There is a short in wire(s) between the HandsFreeLink control unit and the HFL-navigation microphone. Replace the affected shielded harness. ■

NO—Go to step 7.

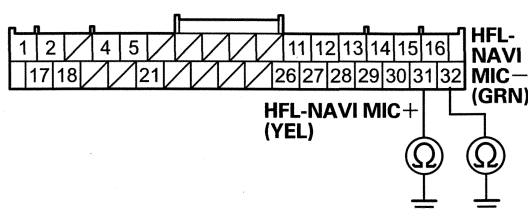
7. Remove the audio-navigation unit (see page 23-304), and disconnect audio-navigation unit connector D (20P).

NOTE: Eject any audio discs before removing the audio-navigation unit to prevent damaging the CD player's load mechanism.



8. Check for continuity between body ground and HandsFreeLink control unit 32P connector terminals No. 31 and No. 32 individually.

HANDSFREELINK CONTROL UNIT 32P CONNECTOR



Wire side of female terminals

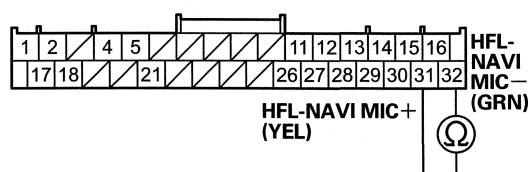
Is there continuity?

YES—There is a short to body ground in the wires between the HandsFreeLink control unit and the audio-navigation unit. Replace the affected shielded harness. ■

NO—Go to step 9.

9. Check for continuity between HandsFreeLink control unit 32P connector terminals No. 31 and No. 32.

HANDSFREELINK CONTROL UNIT 32P CONNECTOR



Wire side of female terminals

Is there continuity?

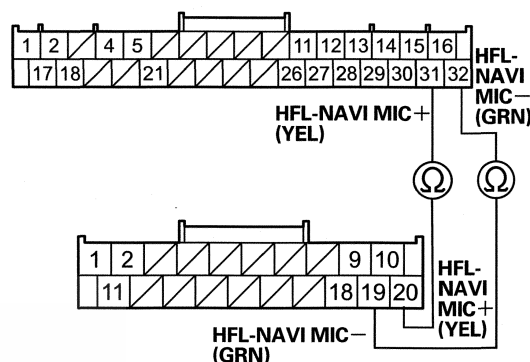
YES—There is a short in the wires between the HandsFreeLink control unit and the audio-navigation unit. Replace the affected shielded harness. ■

NO—Go to step 10.

10. Check for continuity between HandsFreeLink control unit 32P connector terminals No. 31 and No. 32 and audio-navigation unit connector D (20P) terminals No. 19 and No. 20 respectively.

HANDSFREELINK CONTROL UNIT 32P CONNECTOR

Wire side of female terminals



AUDIO-NAVIGATION UNIT CONNECTOR D (20P)

Wire side of female terminals

Is there continuity?

YES—Substitute a known-good HandsFreeLink control unit (see page 23-361), and recheck. If the symptom goes away, replace the original HandsFreeLink control unit (see page 23-361). If the symptom does not go away, replace the audio-navigation unit (see page 23-304). ■

NO—There is an open in the wires between the HandsFreeLink control unit and the audio-navigation unit. Replace the affected shielded harness. ■

(cont'd)

HandsFreeLink System - '12 model

DTC Troubleshooting (cont'd)

DTC B1776: Microphone input/output shorted to ground (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN system diagnosis test mode A (see page 22-107).

1. Connect the HDS to the DLC (see page 23-311).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0), and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC B1776 indicated?

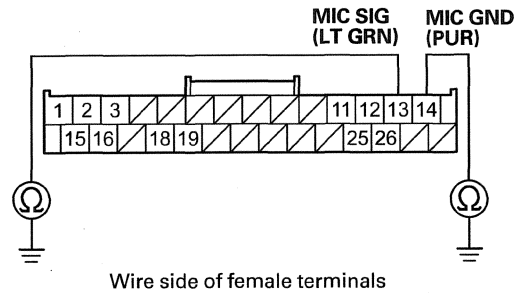
YES—The failure is duplicated, go to step 5.

NO—Intermittent failure, the system is OK at this time. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the HFL microphone 3P connector.
7. Disconnect the HandsFreeLink control unit 28P connector.

8. Check for continuity between body ground and HandsFreeLink control unit 28P connector terminals No. 13 and No. 14 individually.

HANDSFREELINK CONTROL UNIT 28P CONNECTOR



Is there continuity?

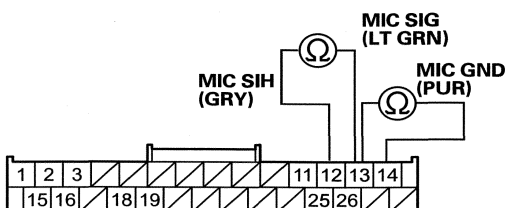
YES—There is a short to body ground in the wire(s) between the HandsFreeLink control unit and the HFL microphone. Replace the affected shielded harness. ■

NO—Go to step 9.



9. Check for continuity between HandsFreeLink control unit 28P connector terminals No. 12 and No. 13, and No. 13 and No. 14.

HANDSFREELINK CONTROL UNIT 28P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good HandsFreeLink control unit (see page 23-363), then recheck. If the symptom goes away, replace the original HandsFreeLink control unit (see page 23-363). If the symptom does not go away, replace the HFL microphone (see page 23-359).■

NO—There is an open in the wire(s) between the HandsFreeLink control unit and the HFL microphone. Replace the affected shielded harness.■

DTC B1779: HandsFreeLink steering wheel switch failure (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Check for the HFL DTCs (see page 23-312).

Is DTC B1779 indicated?

YES—The failure is duplicated, go to step 2.

NO—Intermittent failure, the system is OK at this time.■

2. Turn the ignition switch to LOCK (0).
3. Do the HFL switch test (see page 23-359).

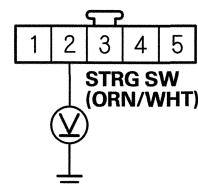
Is the switch OK?

YES—Go to step 4.

NO—Replace the HFL-navigation voice control switch (see page 23-307).■

4. Disconnect the HandsFreeLink control unit 32P connector.
5. Disconnect the HFL-navigation voice control switch 5P connector.
6. Turn the ignition switch to ON (II).
7. Measure the voltage between HFL-navigation voice control switch 5P connector terminal No. 2 and body ground.

HFL-NAVIGATION VOICE CONTROL SWITCH 5P CONNECTOR



Wire side of female terminals

Is there voltage?

YES—Repair a short to power in the wire between the HandsFreeLink control unit, the cable reel, and the HFL-navigation voicecontrol switch.■

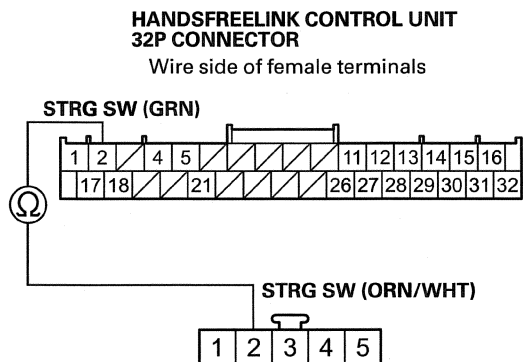
NO—Go to step 8.

(cont'd)

HandsFreeLink System - '12 model

DTC Troubleshooting (cont'd)

8. Turn the ignition switch to LOCK (0).
9. Check for continuity between HandsFreeLink control unit 32P connector terminal No. 2 and HFL-navigation voice control switch 5P connector terminal No. 2.



**HFL-NAVIGATION VOICE CONTROL SWITCH
5P CONNECTOR**

Wire side of female terminals

Is there continuity?

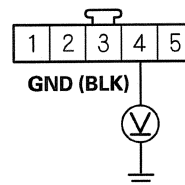
YES—Go to step 10.

NO—Repair an open in the wire between the HFL-navigation voice control switch, the cable reel, and the HandsFreeLink control unit. ■

10. Reconnect all of the connectors.

11. Measure the voltage between HFL-navigation voice control switch 5P connector terminal No. 4 and body ground.

**HFL-NAVIGATION VOICE CONTROL SWITCH
5P CONNECTOR**



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good HFL-navigation microphone (see page 23-308), then recheck. If the symptom goes away, replace the original HFL-navigation microphone (see page 23-308). If the symptom does not go away, replace the HandsFreeLink control unit (see page 23-361). ■

NO—Repair an open or high resistance in the wire between HFL-navigation microphone 5P connector terminal No. 4 and body ground (G501 and G551). ■



DTC B1779: HandsFreeLink steering wheel switch failure (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN system diagnosis test mode A (see page 22-107).

1. Connect the HDS to the DLC (see page 23-311).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0), then start the vehicle and turn the steering wheel back and forth several times.
4. Check for DTCs with the HDS.

Is DTC B1779 indicated?

YES—The failure is duplicated, go to step 5.

NO—Intermittent failure, the system is OK at this time. ■

5. Turn the ignition switch to LOCK (0).
6. Do the HFL switch test (see page 23-359).

Is the switch OK?

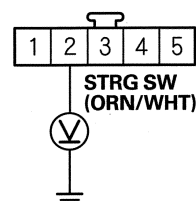
YES—Go to step 7.

NO—Replace the HFL switch (see page 23-360). ■

7. Disconnect the HandsFreeLink control unit 28P connector.
8. Disconnect the HFL switch 5P connector.
9. Turn the ignition switch to ON (II).

10. Measure the voltage between HFL switch 5P connector terminal No. 2 and body ground.

HFL SWITCH 5P CONNECTOR



Wire side of female terminals

Is there voltage?

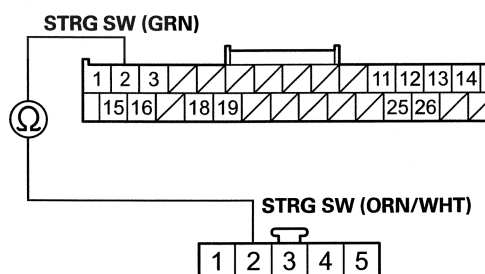
YES—Repair a short to power in the wire between the HandsFreeLink control unit, the cable reel, and the HFL switch. ■

NO—Go to step 11.

11. Turn the ignition switch to LOCK (0).
12. Check for continuity between HandsFreeLink control unit 28P connector terminal No. 2 and HFL switch 5P connector terminal No. 2.

HANDSFREELINK CONTROL UNIT 28P CONNECTOR

Wire side of female terminals



HFL SWITCH 5P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Go to step 13.

NO—Repair an open in the wire between the HFL switch, the cable reel, and the HandsFreeLink control unit. ■

13. Reconnect all of the connectors.

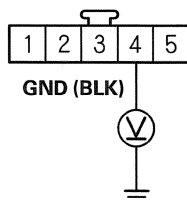
(cont'd)

HandsFreeLink System - '12 model

DTC Troubleshooting (cont'd)

14. Measure the voltage between HFL switch 5P connector terminal No. 4 and body ground.

HFL SWITCH 5P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good HFL microphone (see page 23-359), then recheck. If the symptom goes away, replace the original HFL microphone (see page 23-359). If the symptom does not go away, replace the HandsFreeLink control unit (see page 23-363). ■

NO—Repair an open or high resistance in the wire between HFL microphone 5P connector terminal No. 4 and body ground (G501 and G551). ■

DTC B1780: HandsFreeLink steering wheel switch line short (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Check for the HFL DTCs (see page 23-312).

Is DTC B1780 indicated?

YES—The failure is duplicated, go to step 2.

NO—Intermittent failure, the system is OK at this time. ■

2. Turn the ignition switch to LOCK (0).

3. Do the HFL switch test (see page 23-359).

Is the switch OK?

YES—Go to step 4.

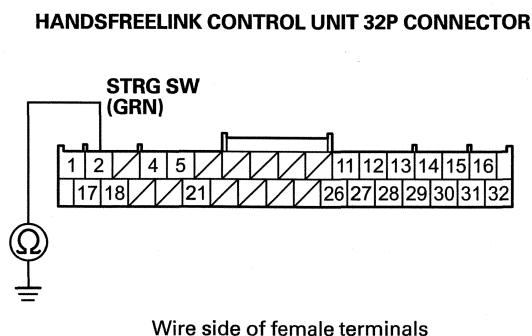
NO—Replace the HFL-navigation voice control switch (see page 23-307). ■

4. Disconnect the HandsFreeLink control unit 32P connector.

5. Disconnect the HFL-navigation voice control switch 5P connector.



6. Check for continuity between HandsFreeLink control unit 32P connector terminal No. 2 and body ground.



Is there continuity?

YES—Repair a short to body ground in the wire between the HandsFreeLink control unit and the HFL-navigation voice control switch. ■

NO—Replace the HandsFreeLink control unit (see page 23-361). ■

DTC B1780: HandsFreeLink steering wheel switch line short (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.
- If you are troubleshooting multiple DTCs, be sure to follow the instructions in B-CAN system diagnosis test mode A (see page 22-107).

1. Connect the HDS to the DLC (see page 23-311).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0), then start the vehicle, and turn the steering wheel back and forth several times.
4. Check for DTCs with the HDS.

Is DTC B1780 indicated?

YES—The failure is duplicated, go to step 5.

NO—Intermittent failure, the system is OK at this time. ■

5. Turn the ignition switch to LOCK (0).
6. Do the HFL switch test (see page 23-359).

Is the switch OK?

YES—Go to step 7.

NO—Replace the HFL switch (see page 23-360). ■

7. Disconnect the HandsFreeLink control unit 28P connector.
8. Disconnect the HFL switch 5P connector.

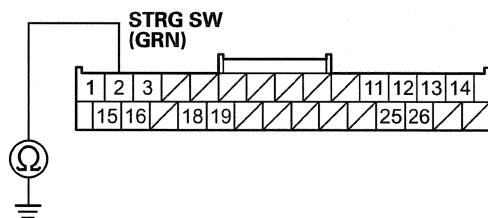
(cont'd)

HandsFreeLink System - '12 model

DTC Troubleshooting (cont'd)

9. Check for continuity between HandsFreeLink control unit 28P connector terminal No. 2 and body ground.

HANDSFREELINK CONTROL UNIT 28P CONNECTOR



Is there continuity?

YES—Repair a short to body ground in the wire between the HandsFreeLink control unit and the HFL switch. ■

NO—Replace the HandsFreeLink control unit (see page 23-363). ■

DTC B1792: HandsFreeLink control unit module error (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Check for the HFL DTCs (see page 23-312).

Is DTC B1792 indicated?

YES—Replace the HandsFreeLink control unit (see page 23-361). ■

NO—Intermittent failure, the system is OK at this time. ■



Symptom Troubleshooting

DTC B1792: HandsFreeLink control unit module error (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Connect the HDS to the DLC (see page 23-311).
2. Clear the DTCs with the HDS.
3. Turn the ignition switch to LOCK (0), and then back to ON (II).
4. Check for DTCs with the HDS.

Is DTC B1792 indicated?

YES—Replace the HandsFreeLink control unit (see page 23-363). ■

NO—Intermittent failure, the system is OK at this time. ■

The HFL messages cannot be heard or are weak (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Check that the audio system is operating normally and the speaker sound levels from different audio sources (AM, FM, CD, Navigation, etc.).

Does the audio system work normally, and is the audio output from the speaker normal when playing various audio sources?

YES—Go to step 3.

NO—Go to No sound is heard from the speaker(s) (see page 23-200). ■

3. Do the HFL Self-Diagnostic Function (see page 23-338).

Do you hear, "The HFT is OK"?

YES—Intermittent failure, the system is OK at this time. ■

NO—The failure is duplicated, go to step 4.

4. Check for the HFL DTCs (see page 23-312).

Are there any HFL DTCs indicated?

YES—Go to indicated DTC's troubleshooting (see page 23-325). ■

NO—Go to step 5.

5. Turn the ignition switch to LOCK (0).
6. Do the HFL Switch Test (see page 23-359).

Is the switch OK?

YES—Go to step 7.

NO—Replace the HFL-navigation voice control switch (see page 23-307). ■

7. Disconnect audio-navigation unit connector B (20P) and the HandsFreeLink control unit 32P connector.

(cont'd)

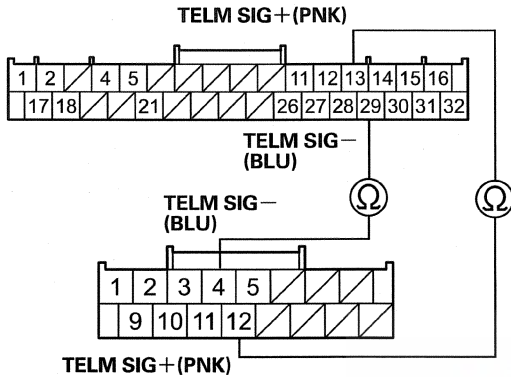
HandsFreeLink System - '12 model

Symptom Troubleshooting (cont'd)

8. Check for continuity between the HandsFreeLink control unit 32P connector terminals No. 13 and No. 29 and audio-navigation unit connector B (20P) terminals No. 4 and No. 12 respectively.

HANDSFREELINK CONTROL UNIT 32P CONNECTOR

Wire side of female terminals



AUDIO-NAVIGATION UNIT CONNECTOR B (20P)

Wire side of female terminals

Is there continuity?

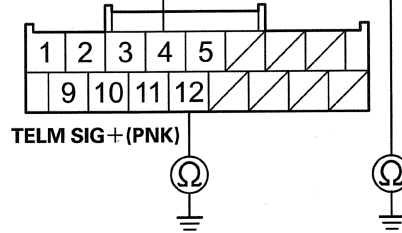
YES—Go to step 9.

NO—There is an open in the wire(s) between the HandsFreeLink control unit and the audio-navigation unit. Replace the affected shielded harness. ■

9. Check for continuity between body ground and audio-navigation unit connector B (20P) terminals No. 4 and No. 12 individually.

AUDIO-NAVIGATION UNIT CONNECTOR B (20P)

TELM SIG- (BLU)



Wire side of female terminals

Is there continuity?

YES—There is a short to body ground in the wire(s) between the HandsFreeLink control unit and the audio-navigation unit. Replace the affected shielded harness. ■

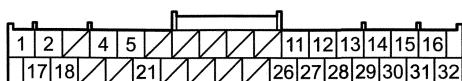
NO—Go to step 10.



10. Check for continuity between the HandsFreeLink control unit 32P connector according to the table.

From terminal (wire color)	To terminals (wire color)
30 (GRY)	13 (PNK), 29 (BLU)
13 (PNK)	29 (BLU)

HANDSFREELINK CONTROL UNIT 32P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—There is a short in the wire(s) between the HandsFreeLink control unit and the audio-navigation unit. Replace the affected shielded harness. ■

NO—Substitute a known-good HandsFreeLink control unit (see page 23-361), and recheck. If the symptom goes away, replace the original HandsFreeLink control unit (see page 23-361). If the symptom does not go away, replace the audio-navigation unit (see page 23-304). ■

The HFL messages cannot be heard or are weak (without navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Check that the audio system is operating normally and the speaker sound levels from different audio sources (AM, FM, CD, etc.).

Does the audio system work normally, and is the audio output from the speaker normal when playing various audio sources?

YES—Go to step 3.

NO—Go to No sound is heard from the speaker(s) (see page 23-203). ■

3. Do the HFL Self-Diagnostic Function (see page 23-338).

Do you hear, "The HFT is OK"?

YES—Intermittent failure, the system is OK at this time. ■

NO—The failure is duplicated, go to step 4.

4. Connect the HDS to the DLC (see page 23-311).
5. Clear the DTCs with the HDS.
6. Turn the ignition switch to LOCK (0), and then back to ON (II).
7. Check for DTCs with the HDS.

Are there any DTCs indicated?

YES—Go to indicated DTC's troubleshooting (see page 23-325). ■

NO—Go to step 8.

8. Turn the ignition switch to LOCK (0).
9. Do the HFL Switch Test (see page 23-359).

Is the switch OK?

YES—Go to step 10.

NO—Replace the HFL switch (see page 23-360). ■

10. Disconnect audio unit connector B (12P) and the HandsFreeLink control unit 28P connector.

(cont'd)

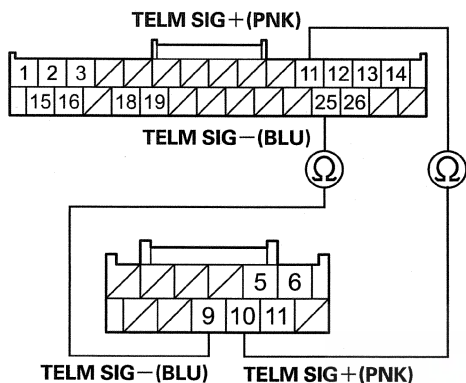
HandsFreeLink System - '12 model

Symptom Troubleshooting (cont'd)

11. Check for continuity between the HandsFreeLink control unit 28P connector terminals No. 11 and No. 25 and audio unit connector B (12P) terminals No. 9 and No. 10 respectively.

HANDSFREELINK CONTROL UNIT 28P CONNECTOR

Wire side of female terminals



AUDIO UNIT CONNECTOR B (12P)

Wire side of female terminals

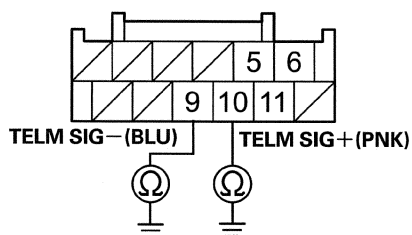
Is there continuity?

YES—Go to step 12.

NO—There is an open in the wire(s) between the HandsFreeLink control unit and the audio unit. Replace the affected shielded harness. ■

12. Check for continuity between body ground and audio unit connector B (12P) terminals No. 9 and No. 10 individually.

AUDIO UNIT CONNECTOR B (12P)



Wire side of female terminals

Is there continuity?

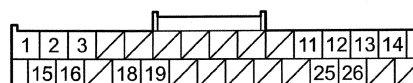
YES—There is a short to body ground in the wire(s) between the HandsFreeLink control unit and the audio unit. Replace the affected shielded harness. ■

NO—Go to step 13.

13. Check for continuity between the terminals of the HandsFreeLink control unit 28P connector according to the table.

From terminal (wire color)	To terminals (wire color)
26 (GRY)	11 (PNK), 25 (BLU)
11 (PNK)	25 (BLU)

HANDSFREELINK CONTROL UNIT 28P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—There is a short in the wire(s) between the HandsFreeLink control unit and the audio unit. Replace the affected shielded harness. ■

NO—Substitute a known-good HandsFreeLink control unit (see page 23-363), and recheck. If the symptom goes away, replace the original HandsFreeLink control unit (see page 23-363). If the symptom does not go away, replace the audio unit (see page 23-231). ■



No sound when Bluetooth audio is used (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Set the fader and the balance positions to the center.
- Check if the cell phone with Bluetooth audio functions normally.
- Make sure the cell phone is properly paired.
- Make sure the customer's Bluetooth cell phone is compatible with the Honda HFL system.
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).

2. Check that the audio system is operating normally, from different audio sources (AM/FM and CD) and the speaker sound levels are normal.

Does the audio system work normally and is the audio output from the speaker normal when playing various audio sources?

YES—Go to step 3.

NO—Go to No sound is heard from the speaker(s) (see page 23-200). ■

3. Pair a known-good Bluetooth audio device to the vehicle.

Can you pair the known-good Bluetooth audio device, and does it operate normally?

YES—Go to Bluetooth cell phone cannot be paired (see page 23-358). ■

NO—Go to step 4.

4. Check if the Bluetooth audio device can be played.

Does the Bluetooth audio play?

YES—Intermittent failure, the system is OK at this time. ■

NO—The failure is duplicated, go to step 5.

5. Turn the ignition switch to LOCK (0).

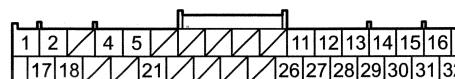
6. Disconnect audio-navigation unit connector C (14P).

7. Disconnect the HandsFreeLink control 32P connector.

8. Check for continuity between body ground and the terminals of HandsFreeLink control unit 32P connector according to the table.

HandsFreeLink control unit connector	Wire color
11	BLK
12	WHT
27	RED
28	GRN

HANDSFREELINK CONTROL UNIT 32P CONNECTOR



Wire side of female terminals

Is there continuity?

YES—There is a short to body ground in the wire(s) between the HandsFreeLink control unit and the audio-navigation unit. Replace the affected shielded harness. ■

NO—Go to step 9.

(cont'd)

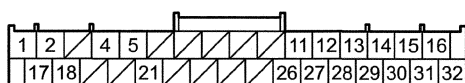
HandsFreeLink System - '12 model

Symptom Troubleshooting (cont'd)

9. Check for continuity between the terminals of HandsFreeLink control unit 32P connector according to the table.

From terminal (wire color)	To terminals (wire color)
26 (GRY)	11 (BLK), 12 (WHT), 27 (RED), 28 (GRN)

HANDSFREELINK CONTROL UNIT 32P CONNECTOR



Wire side of female terminals

Is there continuity between any of the terminals?

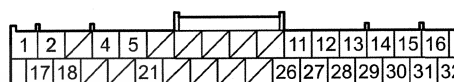
YES—There is a short in the wires between the HandsFreeLink control unit and the audio-navigation unit. Replace the affected shielded harness.■

NO—Go to step 10.

10. Check for continuity between audio-navigation unit connector C (14P) and the HandsFreeLink control unit 32P connector according to the table.

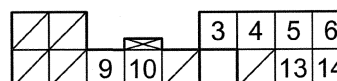
HandsFreeLink control unit connector (wire color)	Audio-navigation unit connector (wire color)
11	C5
12	C6
27	C13
28	C14

HANDSFREELINK CONTROL UNIT 32P CONNECTOR



Wire side of female terminals

AUDIO-NAVIGATION UNIT CONNECTOR C (14P)



Wire side of female terminals

Is there continuity?

YES—Substitute a known-good HandsFreeLink control unit (see page 23-361), and recheck. If the symptom goes away, replace the original HandsFreeLink control unit (see page 23-361). If the symptom does not go away, replace the audio-navigation unit (see page 23-304).■

NO—There is an open in the wire(s) between the HandsFreeLink control unit and the audio-navigation unit. Replace the affected shielded harness.■



Bluetooth audio does not work (with navigation)

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- Check if the cell phone with Bluetooth audio functions normally.
- Make sure the cell phone is properly paired.
- Make sure the customer's Bluetooth cell phone is compatible with the Honda HFL system.
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).
2. Press the AUDIO button to check if the navigation display changes to the Bluetooth audio information screen.

Is the Bluetooth audio information displayed?

YES—Go to step 3.

NO—Go to step 4.

3. Pair a known-good Bluetooth audio device to the vehicle.

Can you pair the known-good Bluetooth audio device, and does it operate normally?

YES—Intermittent failure, the system is OK at this time. ■

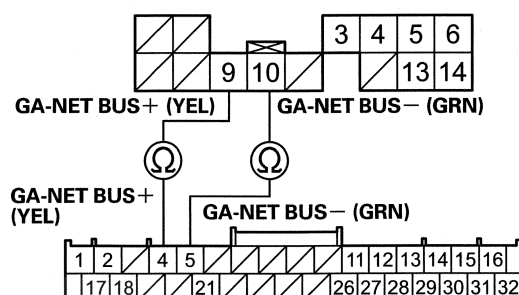
NO—Go to Bluetooth cell phone cannot be paired (see page 23-358). ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect audio-navigation unit connector C (14P).
6. Disconnect the HandsFreeLink control 32P connector.

7. Check for continuity between the HandsFreeLink control unit 32P connector terminals No. 4 and No. 5 and audio unit connector C (14P) terminals No. 9 and No. 10 respectively.

AUDIO-NAVIGATION UNIT CONNECTOR C (14P)

Wire side of female terminals



HANDSFREELINK CONTROL UNIT 32P CONNECTOR

Wire side of female terminals

Is there continuity?

YES—Substitute a known-good HandsFreeLink control unit (see page 23-361), and recheck. If the symptom goes away, replace the original HandsFreeLink control unit (see page 23-361). If the symptom does not go away, replace the audio-navigation unit (see page 23-304). ■

NO—There is an open in the wire(s) between the HandsFreeLink control unit and the audio-navigation unit. Replace the affected shielded harness. ■

(cont'd)

HandsFreeLink System - '12 model

Symptom Troubleshooting (cont'd)

Bluetooth cell phone cannot be paired

NOTE:

- Check the vehicle battery condition first (see page 22-68).
- The HFL system can pair a total of six cell phones. If the HFL system is full, you must delete one cell phone before you can pair another.
- Check if the customer's Bluetooth cell phone is compatible with the Honda HFL system and that there are no known issues (see the Owner's Manual).
- Check the connectors for poor connections or loose terminals.

1. Turn the ignition switch to ON (II).

2. Press the Pick-up button.

Does a beep sound?

YES-

- If you have the customer's Bluetooth cell phone, go to step 4.
- If you do not have the customer's Bluetooth cell phone, go to step 3.

NO—Go to The HFL messages cannot be heard or are weak:

- With navigation (see page 23-351).■
- Without navigation (see page 23-353).■

3. Pair a known-good Bluetooth cell phone to the customer's vehicle.

Can you pair the Bluetooth cell phone, and does it operate normally?

YES—The customer's Bluetooth cell phone is defective or not compatible.■

NO—Replace the HandsFreeLink control unit:

- With navigation (see page 23-361).■
- Without navigation (see page 23-363).■

4. Pair the customer's Bluetooth cell phone to a known-good vehicle.

Can you pair the Bluetooth cell phone, and does it operate normally?

YES—Replace the HandsFreeLink control unit:

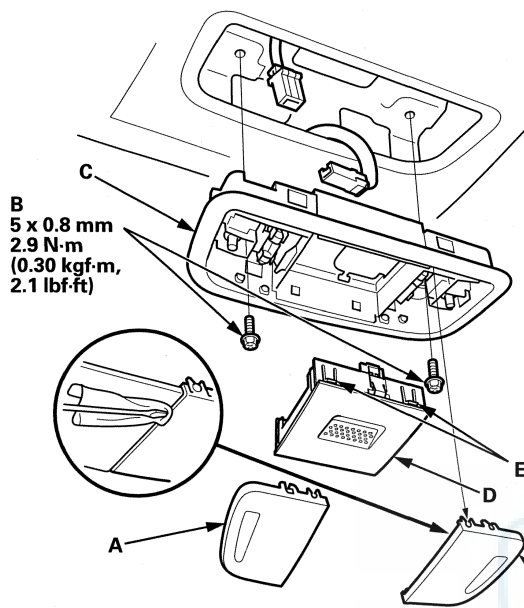
- With navigation (see page 23-361).■
- Without navigation (see page 23-363).■

NO—The customer's Bluetooth cell phone is defective or not compatible. Check online at handsfreelink.honda.com, or call the HFL call center at 888-528-7876 to make sure the customer's Bluetooth cell phone is compatible with the HFL system and that there are no known issues.■



HFL Microphone Removal/Installation

1. Remove the front individual map light lens (A) using a flat-tip screwdriver.

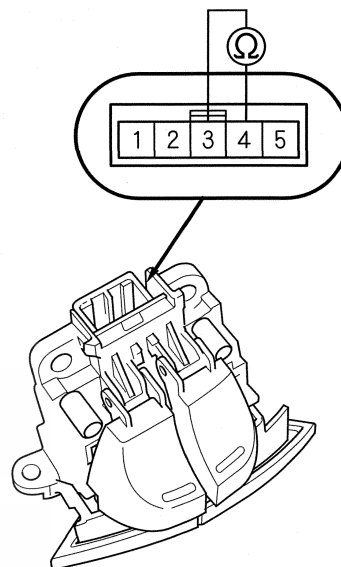


2. Remove the bolts (B), then disconnect the connectors, and remove the map light housing (C).
3. Carefully pry off the microphone housing (D) from the map light housing while pressing the retaining tabs (E).
4. Install the microphone in the reverse order removal.

HFL Switch Test

SRS components are located in this area. Review the SRS component location (see page 24-13), and the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

1. Remove the HFL switch (see page 23-360).



2. Measure the resistance between terminals No. 3 and No. 4 in each switch position according to the table.

HFL Switch

Position	Resistance
No button pressed	About 1 k Ω
HFL TALK button pressed	About 185 Ω
HFL BACK button pressed	About 45 Ω

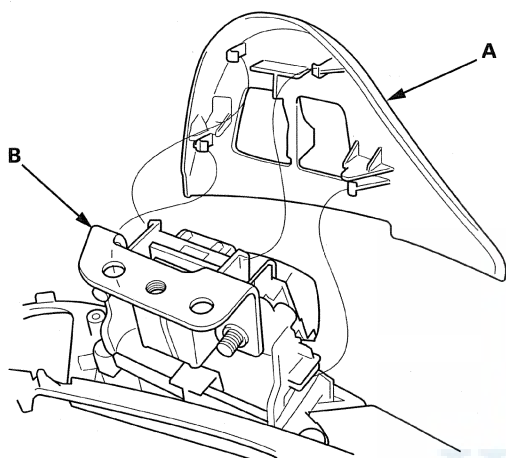
3. If the resistance is not as specified, replace the HFL switch (see page 23-360).

HandsFreeLink System - '12 model

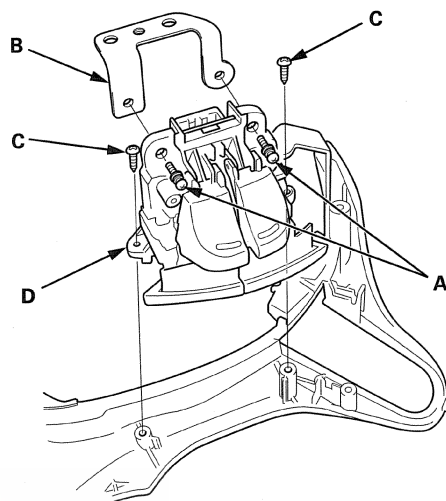
HFL Switch Replacement

SRS components are located in this area. Review the SRS component location (see page 24-13), and the precautions and procedures (see page 24-15) in the SRS section before doing repairs or service.

1. Remove the steering wheel (see page 17-6).
2. Remove the audio remote switch (see page 23-235).
3. Remove the switch cover (A) from the voice control switch (B).



4. Remove the screws (A), and remove the set plate (B).



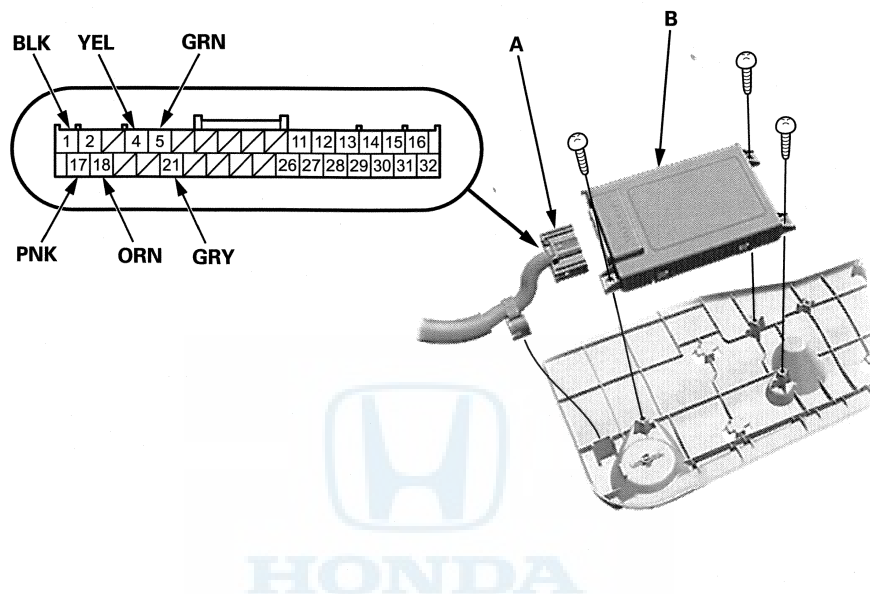
5. Remove the screws (C), and remove the voice control switch (D).
6. Install the voice control switch in the reverse order of removal.



Control Unit Input Test/Replacement

With navigation

1. Remove the driver's dashboard undercover (see page 20-98).
2. Disconnect the 32P connector (A) from the HandsFreeLink control unit (B).



3. Inspect the connector and socket terminals for a good pinfit to be sure they are all making good contact.
 - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
 - If the terminals look OK, go to step 4.
4. Reconnect the connector and make these input tests at the connector under the test conditions listed.
 - If any test indicates a problem, find and correct the cause, then recheck the system.
 - If all the input tests prove OK, go to 5.

Cavity	Wire color	Test condition	Test: Desired result	Possible cause if desired result is not obtained
1	BLK	Under all conditions	Measure the voltage to body ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
17	PNK	Under all conditions	Measure the voltage to body ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. B1 (15 A) fuse in the under-dash fuse/relay box • An open or high resistance in the wire
18	ORN	Ignition switch in ACCESSORY (I) or ON (II)	Measure the voltage to body ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. B14 (7.5 A) fuse in the under-dash fuse/relay box • An open or high resistance in the wire

(cont'd)

HandsFreeLink System - '12 model

Control Unit Input Test/Replacement (cont'd)

5. Disconnect the 32P connector again, and make this input test at the connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the HandsFreeLink control unit must be faulty; replace it.

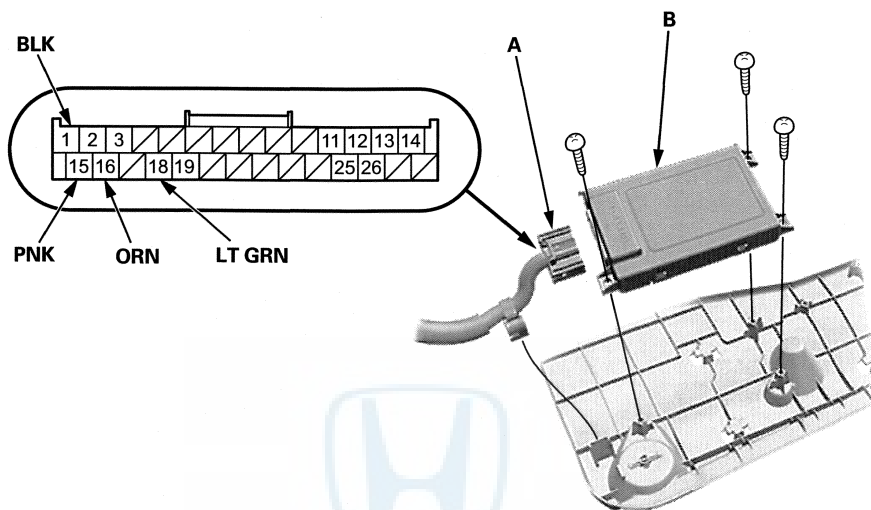
Cavity	Wire color	Test condition	Test: Desired result	Possible cause if desired result is not obtained
4 . 5	YEL . GRN	Disconnect the audio-navigation unit connector C (14P)	Check for continuity to ground: There should be no continuity.	Short to body ground in the wire(s)
4 . 5 . 21	YEL . GRN . GRY	Under all conditions	Check for continuity between No. 4 and No. 5, No. 4 and No. 21, and No. 5 and No. 21 terminals individually: There should be no continuity.	A short in the wires
		Disconnect the audio-navigation unit connector C (14P)	Check for continuity between No. 4 terminal and audio-navigation unit connector C (14P) terminal No. 9, No. 5 terminal and audio-navigation unit connector C (14P) terminal No. 10, and No. 21 terminal and audio-navigation unit connector C (14P) terminal No. 3 individually: There should be continuity.	An open in the wire(s)

HONDA



Without navigation

1. Remove the driver's dashboard undercover (see page 20-98).
2. Disconnect the 28P connector (A) from the HandsFreeLink control unit (B).



3. Inspect the connector and socket terminals for a good pinfit to be sure they are all making good contact.
 - If the terminals are bent, loose or corroded, repair them as necessary, and recheck the system.
 - If the terminals look OK, go to step 4.
4. Reconnect the connector and make these input tests at the connector under the test conditions listed.
 - If any test indicates a problem, find and correct the cause, then recheck the system.
 - If all the input tests prove OK, go to 5.

Cavity	Wire color	Test condition	Test: Desired result	Possible cause if desired result is not obtained
14	BLK	Under all conditions	Measure the voltage to body ground: There should be less than 0.2 V.	<ul style="list-style-type: none"> • Poor ground (G501) • An open or high resistance in the wire
15	PNK	Under all conditions	Measure the voltage to body ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. B1 (15 A) fuse in the under-dash fuse/relay box • An open or high resistance in the wire
16	ORN	Ignition switch in ACCESSORY (I) or ON (II)	Measure the voltage to body ground: There should be battery voltage.	<ul style="list-style-type: none"> • Blown No. B14 (7.5 A) fuse in the under-dash fuse/relay box • An open or high resistance in the wire

(cont'd)

HandsFreeLink System - '12 model

Control Unit Input Test/Replacement (cont'd)

5. Disconnect the 28P connector again, and make this input test at the connector.

- If any test indicates a problem, find and correct the cause, then recheck the system.
- If all the input tests prove OK, the HandsFreeLink control unit must be faulty; replace it.

Cavity	Wire color	Test condition	Test: Desired result	Possible cause if desired result is not obtained
18	ORN	Under all conditions	Check for continuity between No. 18 terminal and the under-dash fuse/relay box connector Q (16P) terminal No. 3: There should be continuity.	An open in the wire
		Disconnect these items: <ul style="list-style-type: none">• Under-dash fuse/relay box connector Q (16P)• Gauge control module 32P connector• Immobilizer-keyless control unit 7P connector	Check for continuity to ground: There should be no continuity.	Short to body ground in the wire



Restraints

Restraints

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SRS (Supplemental Restraint System)

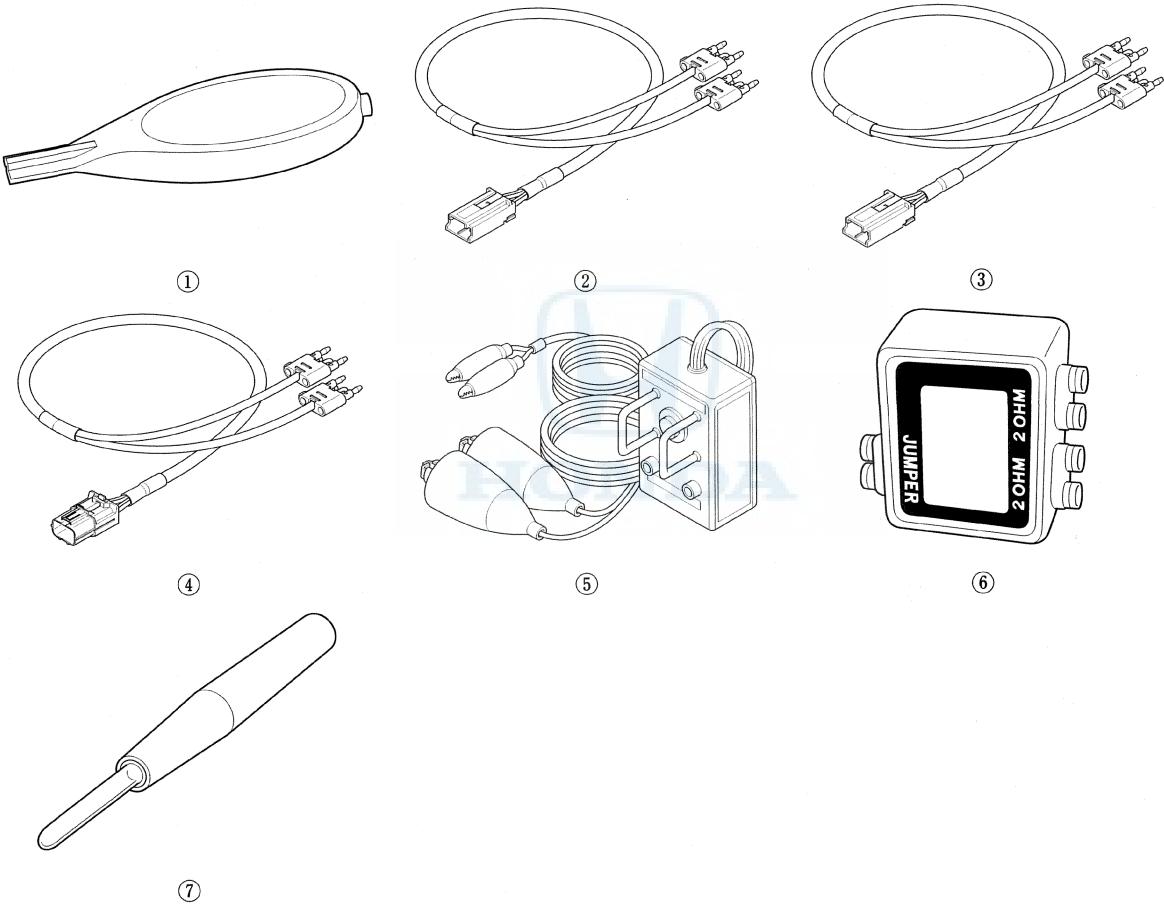
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Restraints

Special Tools

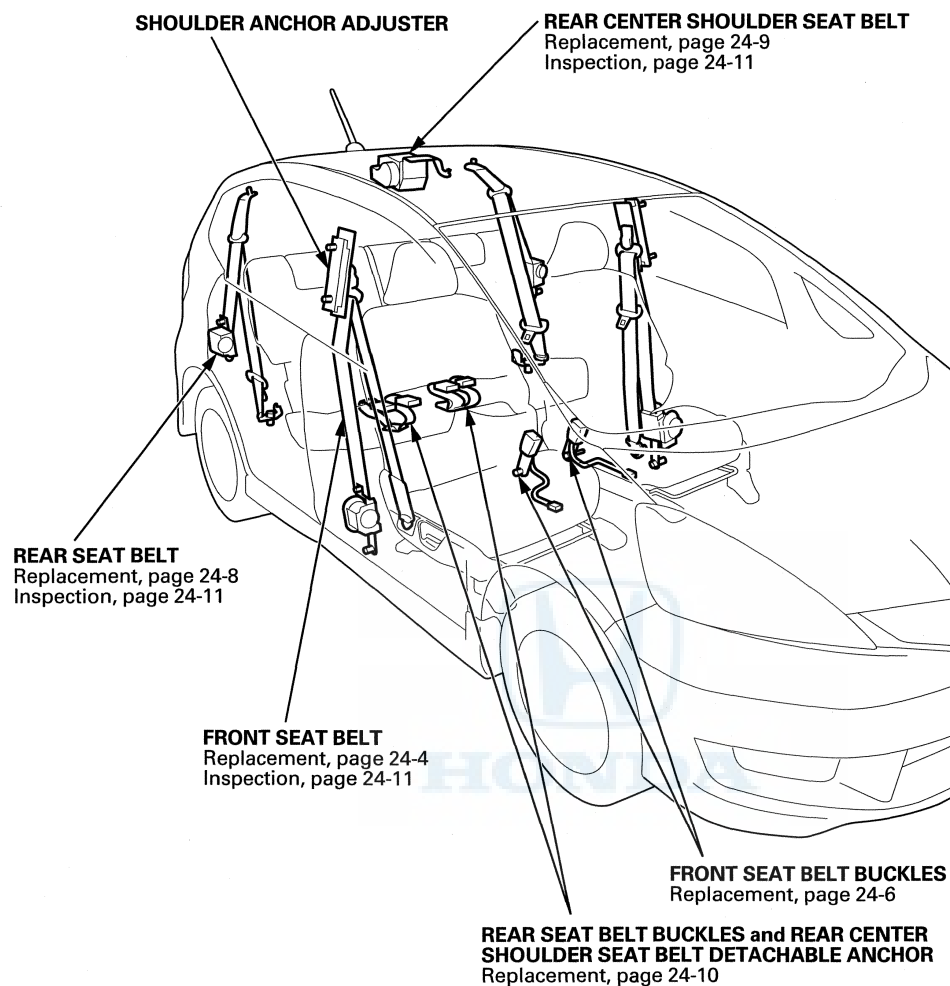
Ref.No.	Tool Number	Description	Qty
①	070AZ-SAA0100	SRS Short Cancellor	1
②	070AZ-SNAA100	SRS Simulator Lead J	1
③	070AZ-SNAA200	SRS Simulator Lead K	1
④	070AZ-SNAA300	SRS Simulator Lead L	1
⑤	07AAZ-000A100	Deployment Tool	1
⑥	07SAZ-TB4011A	SRS Inflator Simulator	1
⑦	07TAZ-001020A	Back Probe Adapter, 17 mm	1



Seat Belts



Component Location Index



Seat Belts

Front Seat Belt Replacement

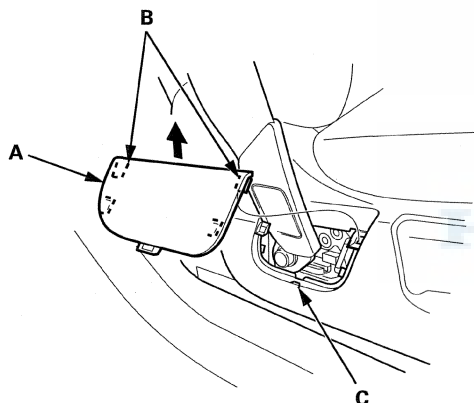
Front Seat Belt

SRS components are located in this area. Review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

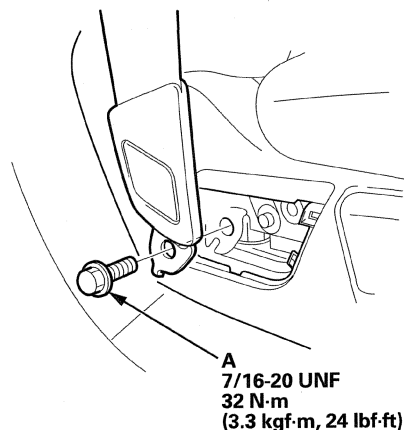
NOTE:

- Check the front seat belts for damage (see page 24-11), and replace them if necessary.
- If replacing the front seat belt after deployment, refer to Component Replacement/Inspection After Deployment (see page 24-168) for a complete list of other parts that must also be be replaced.

1. Slide the front seat all the way forward.
2. Passenger's side: Carefully pry up on the bottom of the anchor cover (A) to release the hooks (B) and the tab (C), then remove the cover by pulling it upward.



3. Passenger's side: Remove the lower anchor bolt (A).

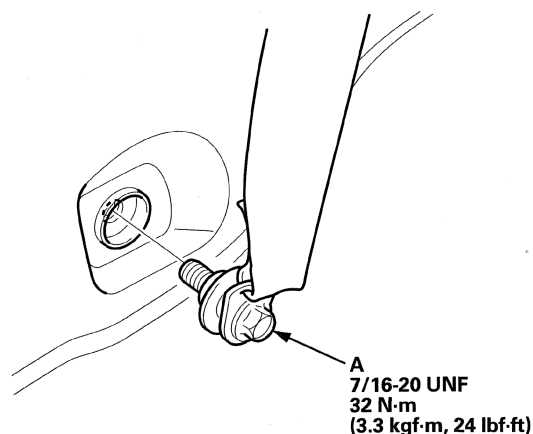


4. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before beginning work.

5. Remove these items:

- Kick panel (see page 20-66)
- Front door sill trim (see page 20-66)
- Rear door sill trim (see page 20-67)
- Front door inner seal, as needed (see step 4 on page 20-67)
- Rear door inner seal, as needed (see step 3 on page 20-68)

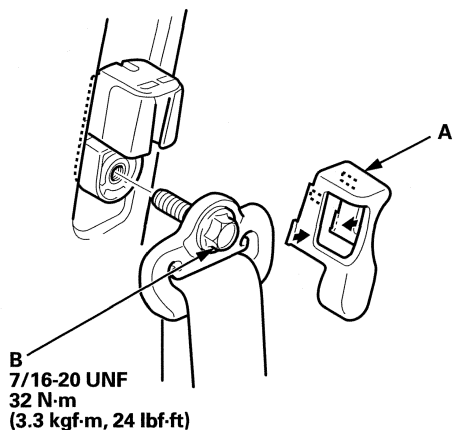
6. Driver's side: Remove the seat belt lower anchor bolt (A).



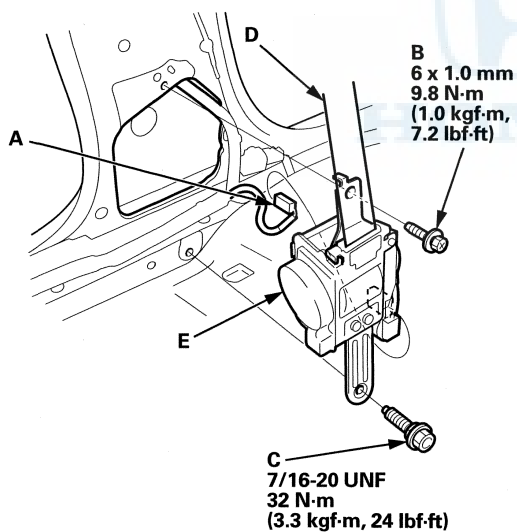
7. Remove the B-pillar lower trim (see step 4 on page 20-72)



8. Remove the upper anchor cover (A), and remove the upper anchor bolt (B).

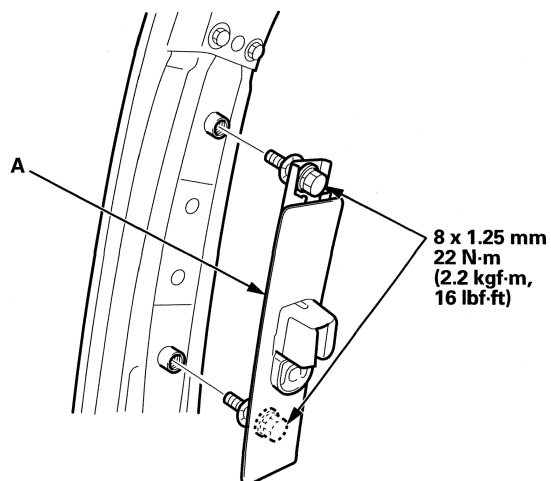


9. Disconnect the seat belt tensioner connector (A). Remove the upper retractor mounting bolt (B) and the lower retractor bolt (C), then remove the front seat belt (D) and the retractor (E).



10. Remove the B-pillar upper trim (see page 20-72)

11. Remove the shoulder anchor adjuster (A).



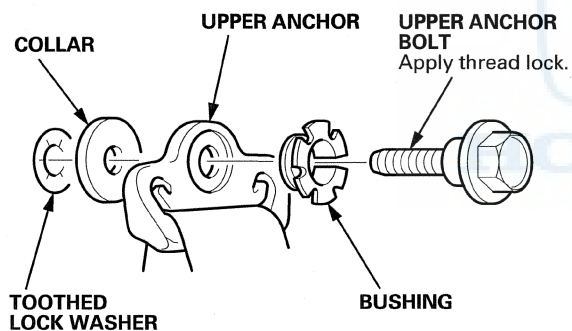
(cont'd)

Seat Belts

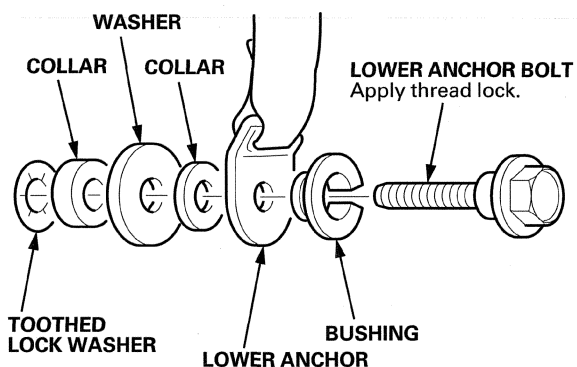
Front Seat Belt Replacement (cont'd)

12. Install the seat belt and the retractor in the reverse order of removal, and note these items:
- Apply medium strength liquid thread lock to the anchor bolts before reinstallation.
 - Tighten the bolts by hand first, then tighten to the specified torque.
 - Check that the retractor locking mechanism functions (see page 24-11).
 - Assemble the washers, the collars, and the bushing on the upper anchor bolt and the lower anchor bolt as shown.
 - Before installing the anchor bolts, make sure there are no twists or kinks in the seat belt.
 - Make sure the seat belt tensioner connector is plugged in properly.
 - Do the battery terminal reconnection procedure (see page 22-70).
 - Check for any DTCs that may have been set during repairs, and clear them.

Upper anchor bolt installation



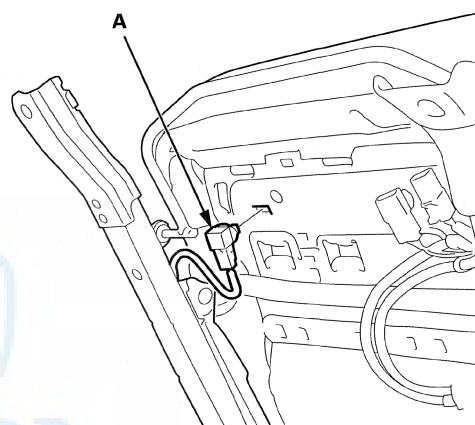
Lower anchor bolt installation (driver's side)



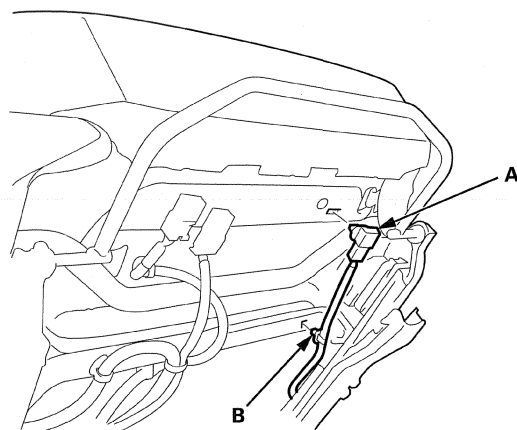
Front Seat Belt Buckle

1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before beginning work.
2. Remove the front seat (see page 20-117).
3. Lift up the front seat, detach and disconnect the seat belt switch connector (A), then detach the harness clip (B) (on the passenger's seat).

Driver's seat



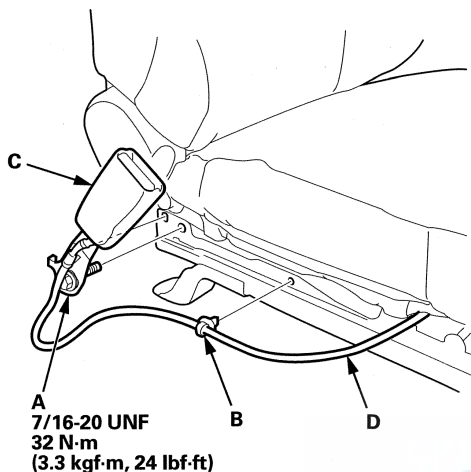
Passenger's seat



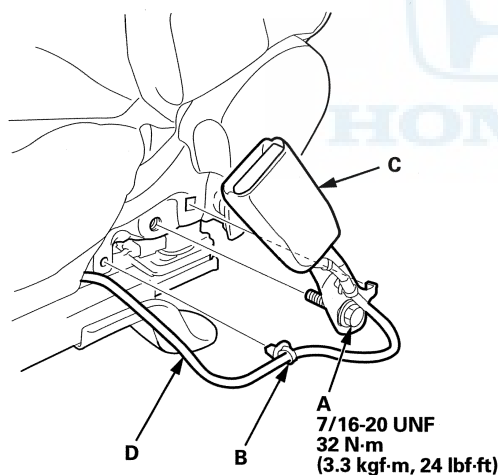


4. Remove the center anchor bolt (A), and detach the harness clip (B), then remove the seat belt buckle (C).

Driver's seat



Passenger's seat

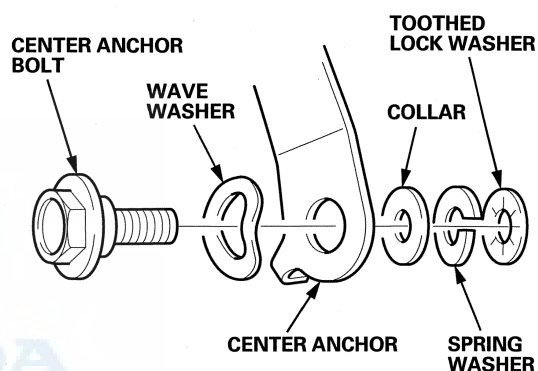


5. Pull the seat belt switch harness (D) out through the hole in the seat track.

6. Install the buckle in the reverse order of removal, and note these items:

- Assemble the washers and the collar on the center anchor bolt as shown.
- Tighten the bolts by hand first, then tighten to the specified torque.
- Make sure the seat belt switch connector is plugged in properly.
- Do the battery terminal reconnection procedure (see page 22-70).
- Check for any DTCs that may have been set during repairs, and clear them.

Center anchor bolt installation



Seat Belts

Rear Seat Belt Replacement

Rear Seat Belt

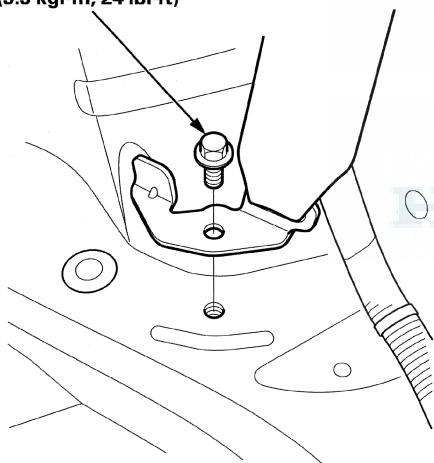
NOTE: Check the rear seat belts for damage (see page 24-11), and replace them if necessary.

1. Remove these items:

- Rear door inner seal, as needed (see step 3 on page 20-68)
- Tailgate weatherstrip, as needed (see page 20-160)
- Cargo floor (see step 1 on page 20-77)
- Cargo floor box, with temporary repair kit (TRK) (see step 4 on page 20-77)
- Rear trim panel (see step 5 on page 20-78)
- Cargo area side trim panel (see page 20-76)

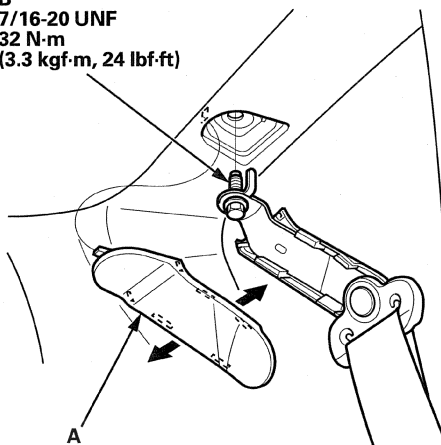
2. Pull the carpet back as necessary, and remove the lower anchor bolt (A).

A
7/16-20 UNF
32 N·m
(3.3 kgf·m, 24 lbf·ft)



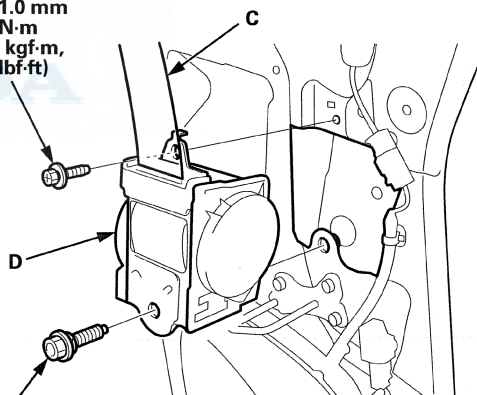
3. Remove the upper anchor cap (A), and remove the upper anchor bolt (B).

B
7/16-20 UNF
32 N·m
(3.3 kgf·m, 24 lbf·ft)



4. Remove the upper retractor mounting bolt (A) and the lower retractor bolt (B), then remove the rear seat belt (C) and the retractor (D).

A
6 x 1.0 mm
9.8 N·m
(1.0 kgf·m, 7.2 lbf·ft)



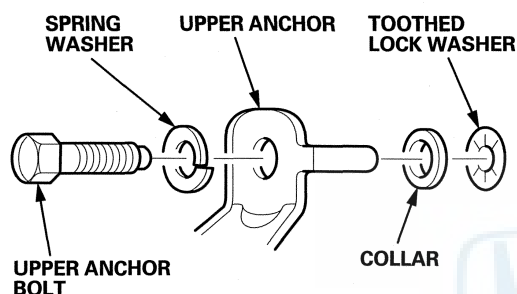
B
7/16-20 UNF
32 N·m (3.3 kgf·m, 24 lbf·ft)



5. Install the seat belt and the retractor in the reverse order of removal, and note these items:

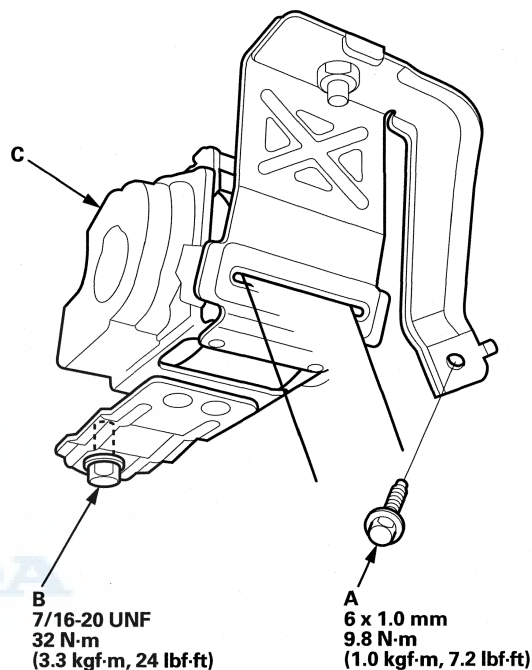
- Tighten the bolts by hand first, then tighten to the specified torque.
- Check that the retractor locking mechanism functions (see page 24-11).
- Assemble the washers and the collar on the upper anchor bolt as shown.
- Before installing the anchor bolts, make sure there are no twists or kinks in the seat belt.

Upper anchor bolt installation



Rear Center Shoulder Seat Belt

1. Remove the headliner (see page 20-86).
2. Remove the front retractor mounting bolt (A) and the rear retractor bolt (B), then remove the center seat belt and the retractor (C).



3. Install the center seat belt and the retractor in the reverse order of removal, and note these items:
 - Tighten the bolts by hand first, then tighten to the specified torque.
 - Check that the retractor locking mechanism functions (see page 24-11).

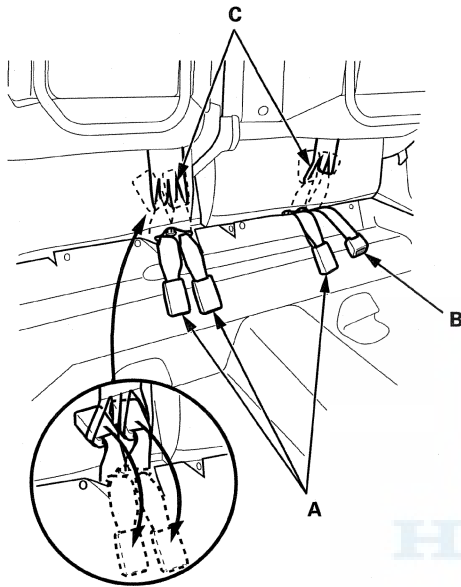
(cont'd)

Seat Belts

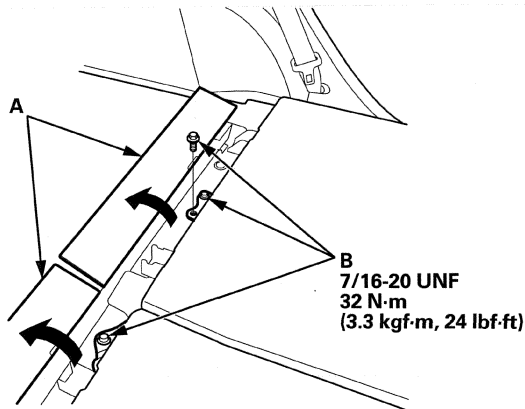
Rear Seat Belt Replacement (cont'd)

Rear Seat Belt Buckles and Center Shoulder Seat Belt Detachable Anchor

1. Lift both rear seat cushions up.
2. Pull the rear seat belt buckles (A) and the rear center seat belt detachable anchor (B) out through the elastic straps (C) on the seat cushions.

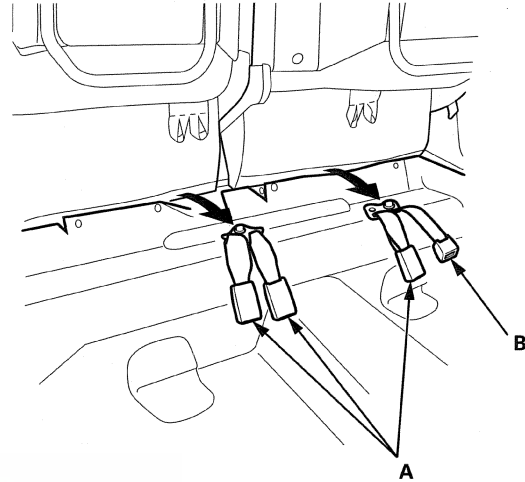


3. Place the seat belt buckles and seat belt detachable anchor on the floor underneath the seat cushions.
4. Fold both rear seat-backs.
5. Lift up the cargo floor lids (A), and remove the anchor bolts (B).



6. Lift both rear seat cushions up.

7. Remove the seat belt buckles (A) and the center seat belt detachable anchor (B).



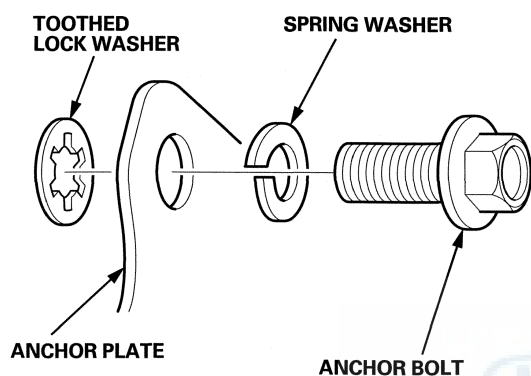


Inspection

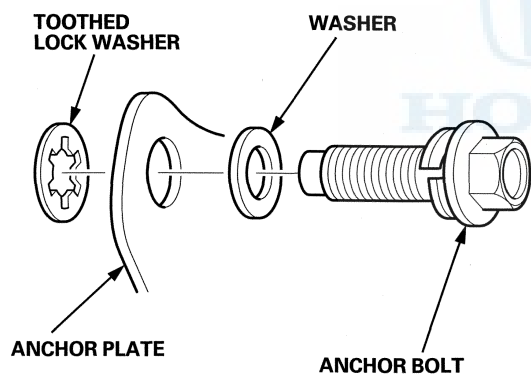
8. Install the buckles and the anchor in the reverse order of removal, and note these items:

- Tighten the bolts by hand first, then tighten to the specified torque.
- Assemble the washers on the anchor bolts as shown.

Left side anchor bolt installation



Right side anchor bolt installation



Out of Vehicle

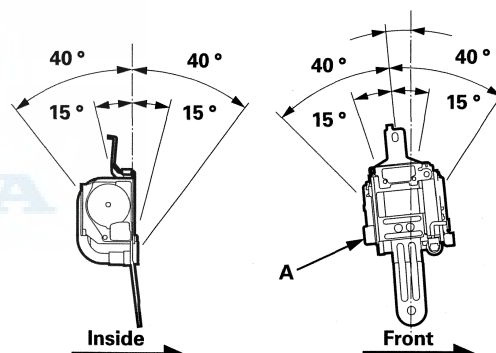
For front seat belt retractors with seat belt tensioners, review the SRS component locations (see page 24-13) and the precautions and procedures (see page 24-15) before doing repairs or service.

Retractor

1. Before installing the retractor, check that the seat belt can be pulled out freely.
2. Make sure that the seat belt does not lock when the retractor (A) is leaned slowly up to 15° from the mounted position. The seat belt should lock when the retractor is leaned over 40°. Do not attempt to disassemble the retractor.

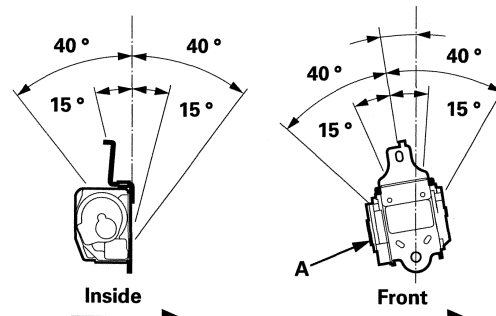
Front

Driver's side: 8°
Passenger's side: 9.5°



Rear

Left side: 11.5°
Right side: 9°

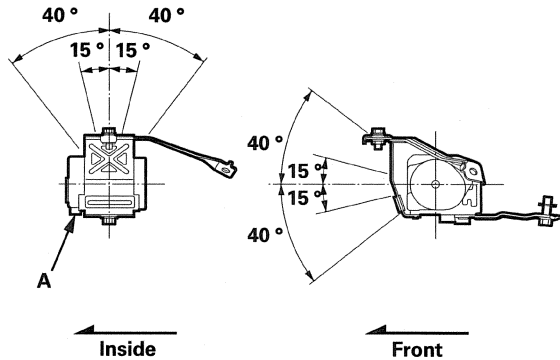


(cont'd)

Seat Belts

Inspection (cont'd)

Rear center shoulder



3. Replace the seat belt with a new assembly if there is any abnormality. Do not disassemble any part of the seat belt for any reason.

In-vehicle

1. Check that the seat belt is not twisted or caught on anything.
2. After installing the anchors, check for free movement on the anchor bolts. If necessary, remove the anchor bolts and check that the washers and other parts are not damaged or improperly installed.

3. Check the seat belts for damage or discoloration. Clean with a shop towel if necessary. Use only soap and water to clean.

NOTE: Dirt build-up in the loops of the upper anchors can cause the seat belts to retract slowly. Wipe the inside of the loops with a clean cloth dampened in isopropyl alcohol.

4. Check that the seat belt does not lock when pulled out slowly. The seat belt is designed to lock only during a sudden stop or impact.

5. Make sure that the seat belt will retract automatically when released.

6. For each passenger's seat belt, check the seat belt retractor locking mechanism ALR (automatic locking retractor). This function is for securing child seats.

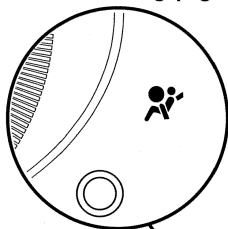
- 1. Pull the seat belt all the way out to engage the ALR. The seat belt should retract, but not extend. This is normal.
 - 2. To disengage the ALR, release the seat belt and allow it to fully retract, then pull the seat belt out part-way. The seat belt should retract and extend normally.
7. Replace the seat belt with a new assembly if there is any abnormality. Do not disassemble any part of the seat belt for any reason.

SRS (Supplemental Restraint System)

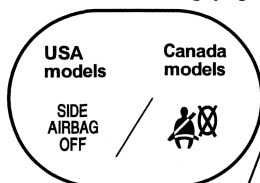


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SRS INDICATOR
Troubleshooting, page 24-164



SIDE AIRBAG CUTOFF INDICATOR
Troubleshooting, page 24-166

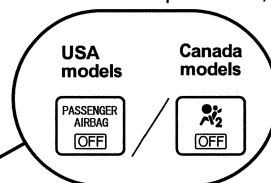


CABLE REEL
Replacement, page 24-186

DRIVER'S AIRBAG
Replacement, page 24-171
Disposal, page 24-182

FRONT PASSENGER'S AIRBAG
Replacement, page 24-172
Disposal, page 24-182

PASSENGER'S AIRBAG CUTOFF INDICATOR
Bulb Test/Replacement, page 24-196



OPDS SENSOR/SEAT-BACK
Replacement, page 20-123

FRONT PASSENGER'S SIDE AIRBAG
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RIGHT SIDE IMPACT SENSOR (FIRST)
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FRONT PASSENGER'S SEAT BELT TENSIONER
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ODS UNIT
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DRIVER'S SEAT BELT TENSIONER
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LEFT SIDE IMPACT SENSOR (FIRST)
Replacement, page 24-189

DATA LINK CONNECTOR (DLC)
Troubleshooting, page 11-193

SRS UNIT
Update, page 24-27
Replacement, page 24-188

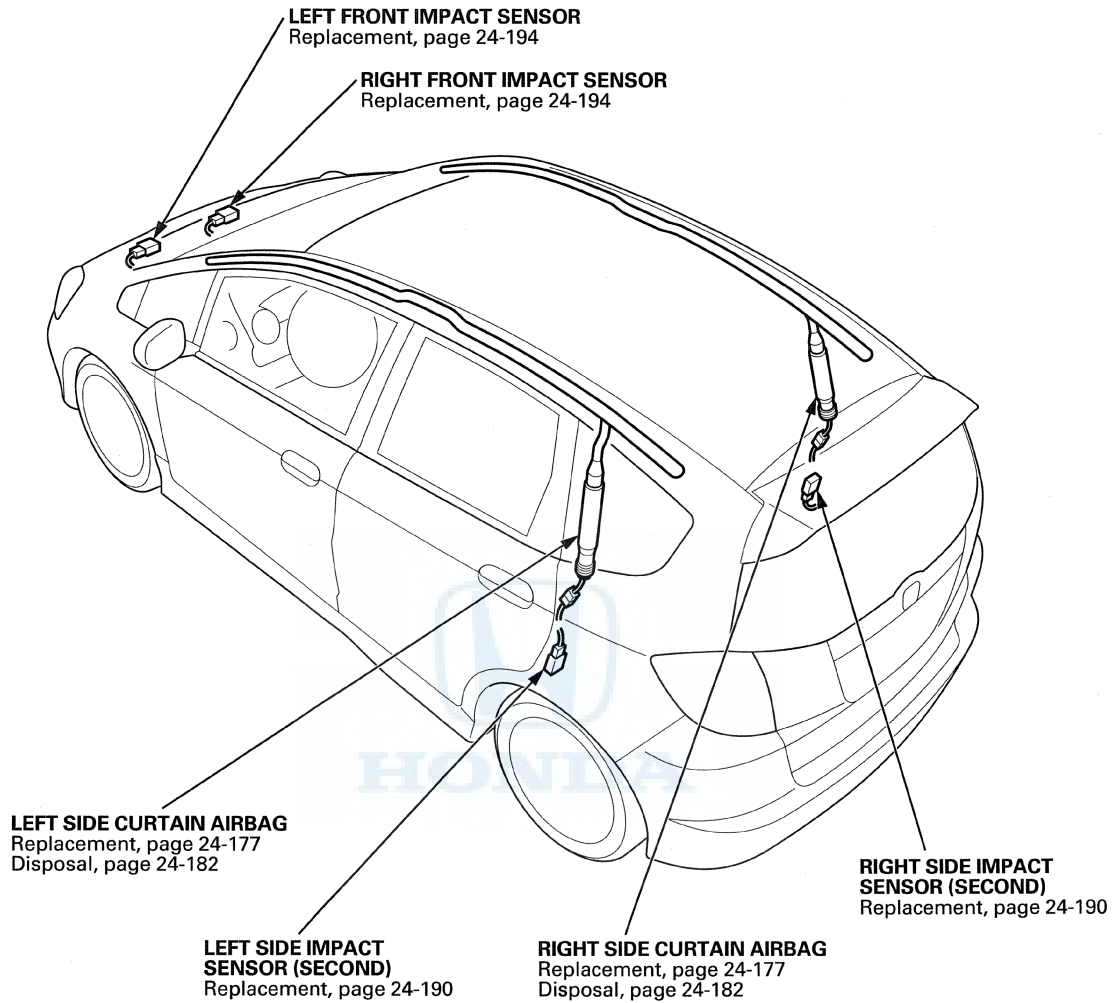
DRIVER'S SEAT POSITION SENSOR
Operation Check, page 24-32
Replacement, page 24-195

*: This illustration shows '09-10 models.

(cont'd)

SRS (Supplemental Restraint System)

Component Location Index (cont'd)





Precautions and Procedures

General Precautions

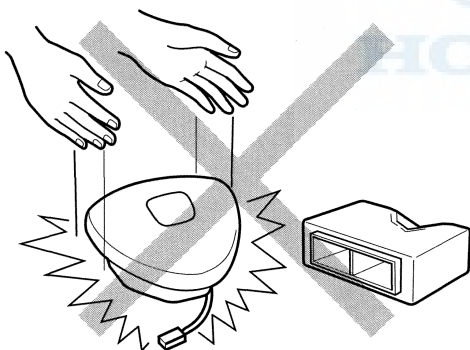
NOTE: Some systems store data in memory that is lost when the battery is disconnected. Before disconnecting the battery, refer to Battery Terminal Disconnection and Reconnection (see page 22-69).

Please read the following precautions carefully before servicing the SRS, or the airbags could accidentally deploy and cause damage or injuries.

- Except when doing electrical inspections that requires battery power, always turn the ignition switch to LOCK (0), disconnect the negative cable from the battery, then wait at least 3 minutes before starting work.

NOTE: The SRS memory is not erased even if the ignition switch is turned to LOCK (0) or the battery cables are disconnected from the battery.

- Use replacement parts which are manufactured to the same standards and quality as the original parts. Do not install used SRS parts. Use only new parts when making SRS repairs.
- Carefully inspect any SRS part before you install it. Do not install any part that shows signs of being dropped or improperly handled, such as dents, cracks or deformation.



- Before disconnecting the SRS unit connectors, always disconnect the appropriate SRS parts connectors.
- Use only a digital multimeter to check the system. If it is not a Honda multimeter, make sure its output is 10 mA (0.01 A) or less when switched to the lowest value in the ohmmeter range. A tester with a higher output could cause accidental deployment and possible injury.
- Do not put objects on the front passenger's airbag.

Steering-Related Precautions

Cable Reel Alignment

- Misalignment of the cable reel could cause an open in the wiring, making the SRS, remote steering wheel controls, or the horn inoperative. Center the cable reel whenever you do the following (see step 6 on page 24-187).
 - Installation of the steering wheel
 - Installation of the cable reel
 - Installation of the steering column
 - Other steering-related adjustment or installation
- Do not disassemble the cable reel.
- Do not apply grease to the cable reel.
- If the cable reel shows any signs of damage, replace it with a new one. For example, if the cable reel does not rotate smoothly, replace it.

(cont'd)

SRS (Supplemental Restraint System)

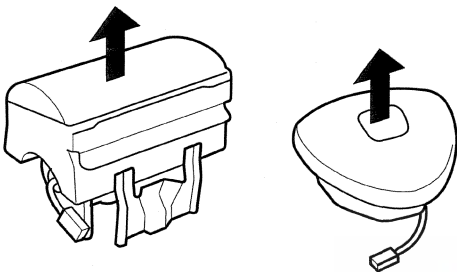
Precautions and Procedures (cont'd)

Airbag Handling and Storage

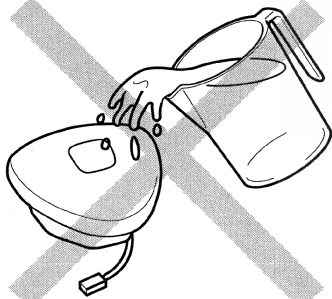
Do not disassemble an airbag. It has no serviceable parts. Once an airbag has been deployed, it cannot be repaired or reused.

For temporary storage of an airbag during service, observe the following precautions.

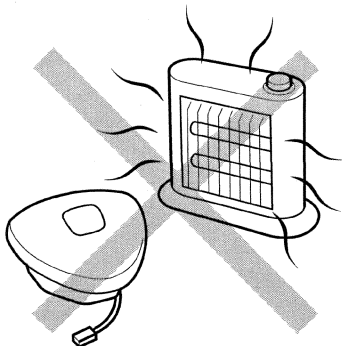
- Store the removed airbag with the pad surface up. Never put anything on the airbag.



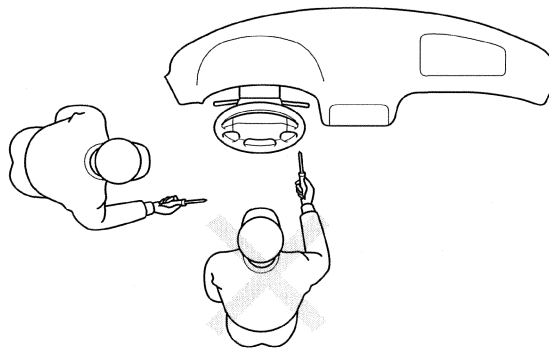
- To prevent damage to the airbag, keep it away from any oil, grease, detergent, or water.



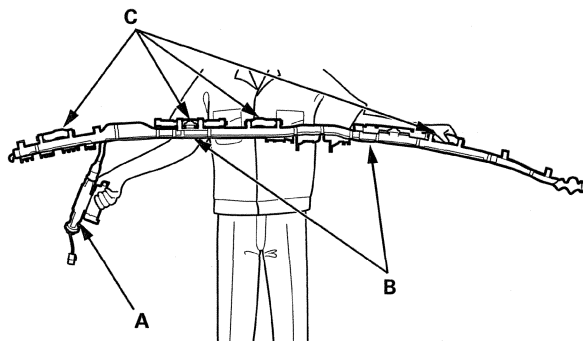
- Store the removed airbag on a secure, flat surface away from any high heat source (exceeding 200 °F/93 °C).



- Never do electrical tests on the airbags, such as measuring resistance.
- Do not position yourself in front of the airbag during removal, inspection, or replacement.



- For proper disposal of a damaged airbag or tensioner, refer to Airbag and Tensioner Disposal (see page 24-182).
- The side curtain airbag module assembly is a long, jointed part containing an inflator (A), a flexible bag (B), and brackets (C). When removing or installing the side curtain airbag inflator assembly, never:
 - Drop the airbag assembly.
 - Cut, tear, or unwrap the tape strips.
 - Handle the flexible bag.
 - Excessively bend or unfold the airbag.

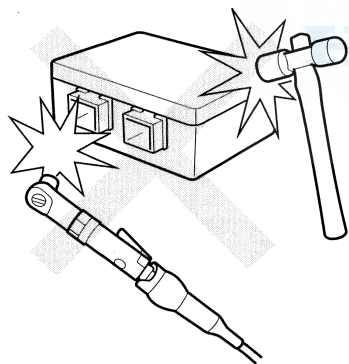




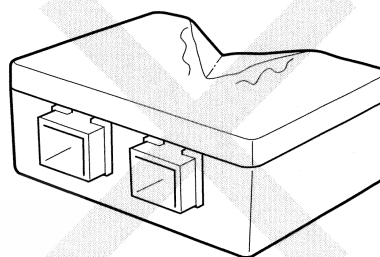
SRS Unit, Front and Side Impact Sensors, Driver's Seat Position Sensor, and Front Passenger's Weight Sensors

NOTE: Some systems store data in memory that is lost when the battery is disconnected. Before disconnecting the battery, refer to Battery Terminal Disconnection and Reconnection (see page 22-69).

- Turn the ignition switch to LOCK (0), disconnect the negative cable from the battery, then wait at least 3 minutes before starting installation or replacement of the SRS unit or disconnecting the connectors from the SRS unit.
- Be careful not to bump or impact the SRS unit, the front impact sensors or the side impact sensors when the ignition switch is in ON (II), or for at least 3 minutes after the ignition switch is turned to LOCK (0).
- Do not reconnect any connectors to the SRS unit until it is fully installed, including torquing the TORX bolts.
- During installation or replacement, be careful not to bump (by impact wrench, hammer, etc.) the area around the SRS unit, the front impact sensors, or the side impact sensors. The airbags could accidentally deploy and cause damage or injury.



- After a collision where the front airbag, the side airbag, the side curtain airbags, or the seat belt tensioner deployed, go to Component Replacement/Inspection After Deployment (see page 24-168). After a collision where the airbags or the side airbags did not deploy, inspect for any damage or any deformation on the SRS unit, the front impact sensors and the side impact sensors. Also, do the front seat active head restraint inspection (see page 20-116). Replace all damaged parts.



- Do not disassemble the SRS unit, the front impact sensors, the side impact sensors, the driver's seat position sensor or the front passenger's weight sensors.
- Always install the SRS unit and all impact sensors securely with the new TORX bolts to the specified torque.
- Do not spill water or oil on the SRS unit or any of the sensors.

(cont'd)

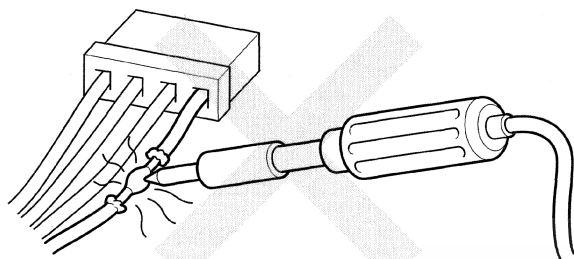
SRS (Supplemental Restraint System)

Precautions and Procedures (cont'd)

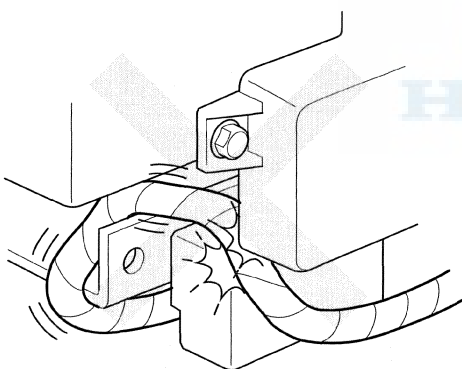
Wiring Precautions

Some of the SRS wiring can be identified by a special yellow outer covering, and the SRS connectors can be identified by their yellow color. Observe the following instructions.

- Never attempt to modify, splice, or repair SRS wiring. If there is an open or damage to the SRS wiring, replace the harness.



- Be sure to install the harness wires so they do not get pinched or interfere with other parts.



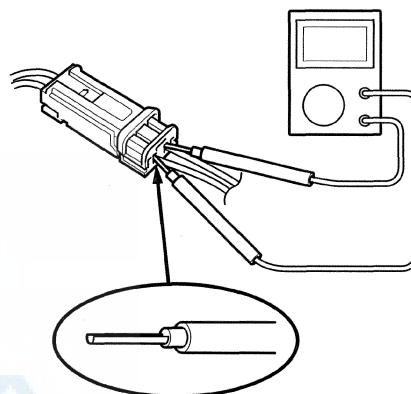
- Make sure all SRS ground locations are clean, and the grounds are securely fastened for optimum metal-to-metal contact. Poor grounds can cause intermittent problems that are difficult to diagnose.
- Do not use any silicone based cleaners or lubricants on any SRS connectors or terminals.

Precautions for Electrical Inspections

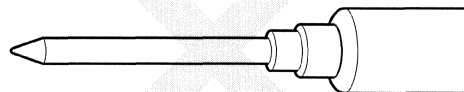
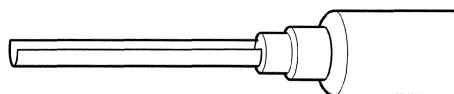
Special Tools Required

Back Probe Adapter, 17 mm (07TAZ-001020A)

- Make sure the battery is fully charged when doing electrical tests. If the battery is not fully charged, the results of the tests may not be accurate.
- When using electrical test equipment, insert the probe of the tester into the wire side of the connector (except waterproof connectors). Do not insert the probe of the tester into the terminal side of the connector, and do not tamper with the connector.



- Use the back probe adapter, 17 mm (07TAZ-001020A). Do not insert the probe forcibly.

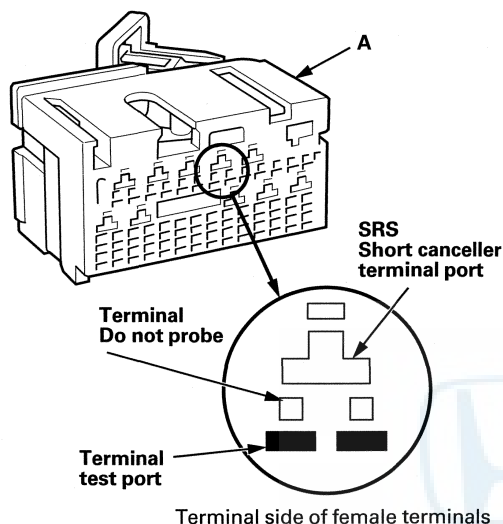


- Use specified service connectors in troubleshooting. Using improper tools could cause a diagnostic error due to poor metal-to-metal contact.



SRS Unit Connectors

When diagnosing or troubleshooting at an SRS unit connector (A), use the terminal test port below the terminal you need to check. Gently insert the pin probes of the tester or jumper wire at the terminal test port from the terminal side.

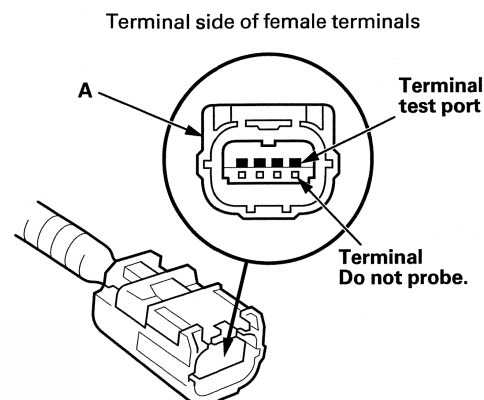


NOTE:

- Do not insert the pin probes of the tester or jumper wire at the terminal port or the SRS short canceller terminal port.
- To prevent damage to the connector terminals, do not insert the test equipment probes, paper clips, or other substitutes as they can damage the terminals. Damaged terminals cause a poor connection and an incorrect measurement.

Water Proof SRS Connectors

When diagnosis/troubleshooting is done at the water proof connector (A), use the terminal test port above the terminal you need to check. Gently contact the pin probe of the tester or jumper wire at the terminal test port from the terminal side.



NOTE:

- Do not insert the pin probes of the tester or a jumper wire into terminal port.
- To prevent damage to the connector terminals, do not insert the test equipment probes, paper clips, or other substitutes as they can damage the terminals. Damaged terminals cause a poor connection and an incorrect measurement.

(cont'd)

SRS (Supplemental Restraint System)

Precautions and Procedures (cont'd)

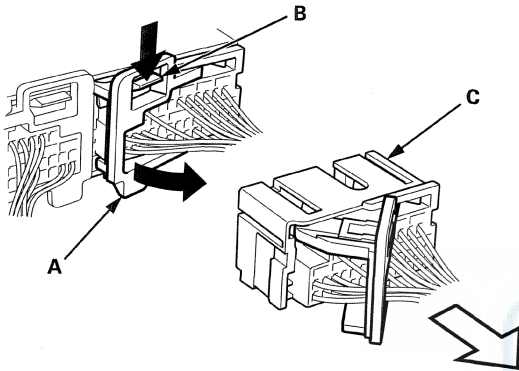
Lever-Locked Connector

The SRS unit connectors have a lever lock.

SRS Unit Connectors

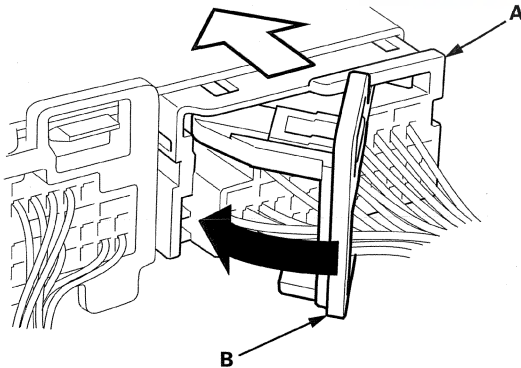
Disconnecting

To release the lock, pull the lever (A) while pushing the lock (B) on the outside of the connector, then pull out the connector (C).



Connecting

To reconnect the connector, push in on the connector (A). As the connector is pressed in, the lever (B) moves to the locked position.



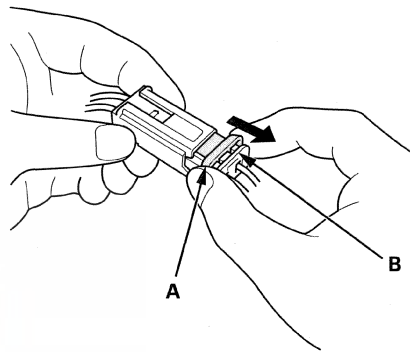
Spring-Loaded Lock Connector

Some SRS connectors have a spring-loaded lock.

Front Airbag and Seat Belt Tensioner Connectors

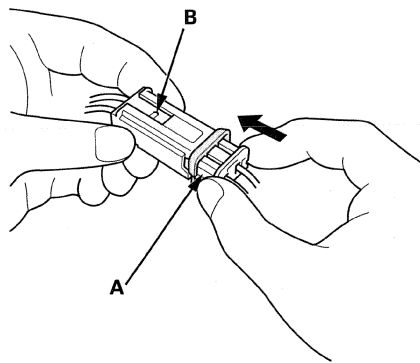
Disconnecting

To release the lock, pull the spring-loaded sleeve (A) toward the stop (B) while holding the opposite half of the connector, then pull the connector halves apart. Be sure to pull on the sleeve and not on the connector.



Connecting

To reconnect, hold the pawl-side connector, and press on the back of the sleeve-side connector in the direction shown. As the two connector halves are pressed together, the sleeve (A) is pushed back by the pawl (B). Do not touch the sleeve.

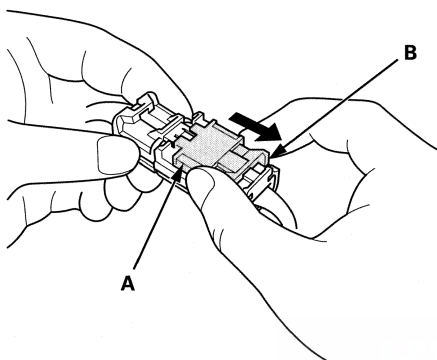




Side Airbag and Side Curtain Airbag Connectors

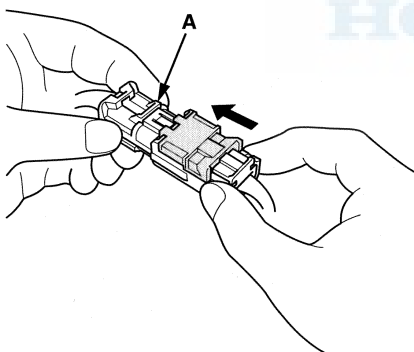
Disconnecting

To release the lock, pull the spring-loaded sleeve (A) toward the stop (B) while holding the opposite half of the connector, then pull the connector halves apart. Be sure to pull on the sleeve and not on the connector half.



Connecting

Hold both connector halves, and press them firmly together until the projection (A) of the sleeve-side connector clicks.



Opening the SRS Unit Shorting Connectors for Diagnosis

Special Tools Required

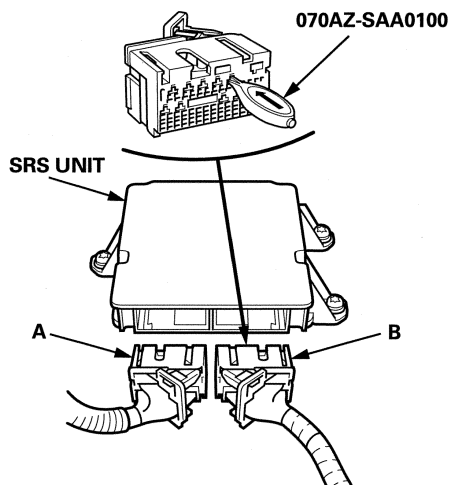
SRS Short Cancellor 070AZ-SAA0100

NOTE:

- To prevent damage to the connector cavity, insert an SRS short canceller straight into the cavity from the terminal side.
- Before installing an SRS short canceller, wash it with electrical contact cleaner, then dry it with compressed air.
- Do not use an SRS short canceller if it is damaged.
- Make sure to remove an SRS short canceller before reconnecting the SRS unit connector.
- Some systems store data in memory that is lost when the battery is disconnected. Before disconnecting the battery, refer to Battery Terminal Disconnection and Reconnection (see page 22-69).

When SRS unit connector A (39P) or B (39P) is disconnected, a short circuit is automatically created in the connector to prevent accidental deployment of an airbag or tensioner. The circuit may need to be opened sometimes when diagnosing the system. Insert an SRS short canceller in the specified cavities when necessary to keep the circuit open for diagnosis.

Terminal side of female terminals



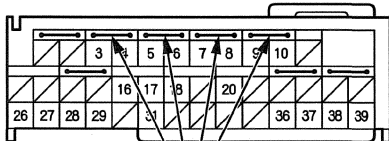
(cont'd)

SRS (Supplemental Restraint System)

Precautions and Procedures (cont'd)

Terminal numbers are shown from the wire side of the female terminals. Insert the SRS short canceller(s) into the cavities on the terminal side of the connector.

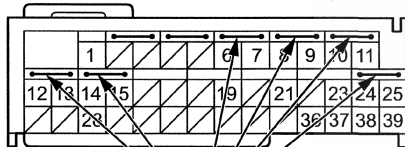
SRS UNIT CONNECTOR A (39P)



Insert short canceller(s) here.

Wire side of female terminals

SRS UNIT CONNECTOR B (39P)

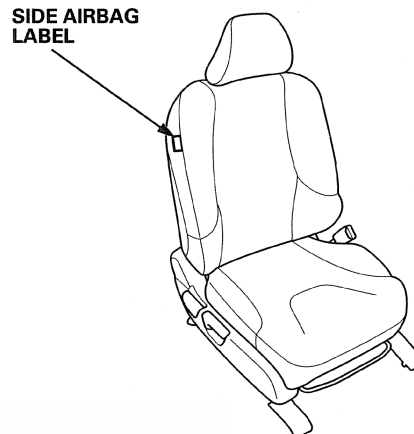


Insert short canceller(s) here.

Wire side of female terminals

Seats With Side Airbags

Seats with side airbags have a "SIDE AIRBAG" label on the seat-back.



- Clean the seats with a damp cloth. Do not soak the seats with liquid. Do not spray steam on the seats.
- Do not repair a torn or frayed seat-back cover/pad. Replace the seat-back cover/pad if it is damaged.
- After a collision where the side airbag was deployed, replace the side airbag and the seat frame and related parts with new parts. If the seat-back cushion is split, it must be replaced. Refer to Component Replacement/Inspection After Deployment (see page 24-168).
- Never put aftermarket accessories on the seat (covers, pads, seat heaters, lights, etc.).

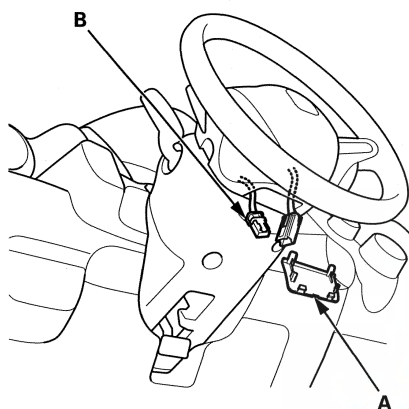


Disconnecting System Connectors

1. Turn the ignition switch to LOCK (0). Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.

Driver's Airbag

2. Remove the access panel (A) from the steering wheel, then disconnect the driver's airbag inflator 4P connector (B) on the cable reel harness.



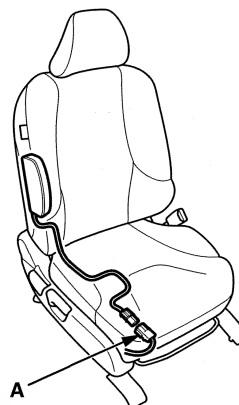
Front Passenger's Airbag

3. Remove the glove box (see page 20-101).
4. Disconnect the front passenger's airbag inflator 4P connector (A) on the dashboard wire harness.



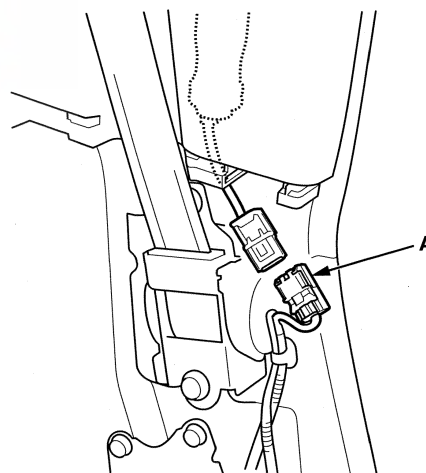
Side Airbag

5. Disconnect the driver's and the front passenger's side airbag inflator 2P connector (A) on the floor wire harness.



Side Curtain Airbag

6. Remove the quarter pillar trim (see page 20-74).
7. Disconnect the left and right side curtain airbag inflator 2P connector (A) on the floor wire harness.



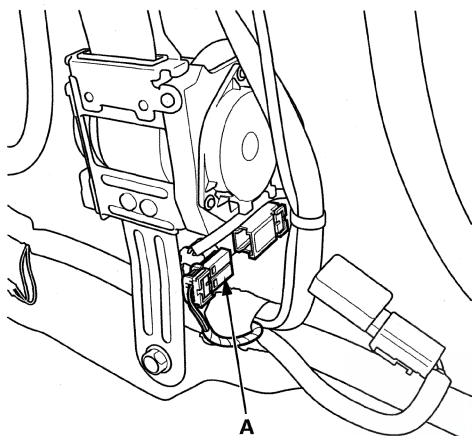
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SRS (Supplemental Restraint System)

Precautions and Procedures (cont'd)

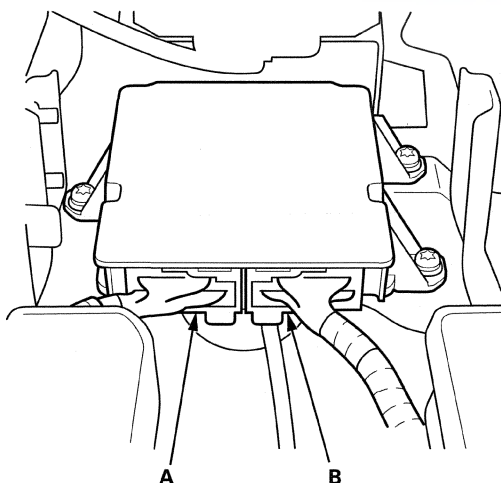
Seat Belt Tensioner

8. Remove the B-pillar lower trim (see page 20-72).
9. Disconnect the driver's and the front passenger's seat belt tensioner 4P connector (A) on the floor wire harness.



SRS Unit

10. Remove the center console (see page 20-93) and the heater joint duct (see step 5 on page 20-106).
11. Disconnect SRS unit connectors A (39P) and B (39P) from the SRS unit.



General Troubleshooting Information

DTC (Diagnostic Trouble Codes)

The self-diagnostic function of the SRS unit allows it to locate the causes of system problems and store this information in memory. For easier troubleshooting, this data can be retrieved with the HDS via the data link circuit.

- When you turn the ignition switch to ON (II), the SRS indicator should come on. If it goes off after 6 seconds, the system is normal, and is not currently detecting any problems.
- If there is a problem, the system locates and defines the problem, stores this information in memory, and turns on the SRS indicator. The data remains in memory even if the ignition switch is turned to LOCK (0) or the battery is disconnected.
- The data is stored in memory as a diagnostic trouble code (DTC).
- DTCs are either latching or resetting depending on the malfunction. With resetting DTCs, the SRS indicator goes off the next time the ignition switch is turned to ON (II) and the system is normal, but the DTC is still stored. With latching DTCs, the SRS indicator does not turn OFF until the malfunction is repaired and the DTC is cleared.
- When you connect the HDS to the data link connector (DLC), you can retrieve a more detailed DTC in the HDS SRS menu.

NOTE: Only read DTCs from the SRS menu, not from SWS menus unless instructed to check SWS DTCs. SWS (ODS unit) DTCs are subcodes of SRS unit DTCs. Only troubleshoot the corresponding SRS DTCs. Also these SWS DTCs are cleared by turning the ignition switch to LOCK (0).

- After reading and recording the DTC, go to the troubleshooting procedure for that code.



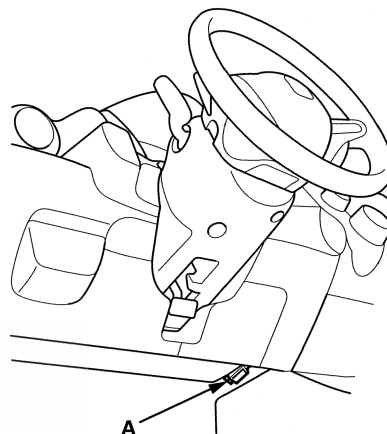
Precautions

- Make sure the battery is fully charged. If the battery is dead or low, electrical measurements values may not be correct.
- Determine if the vehicle has been crashed and repaired, make sure all required parts have been replaced. See component replacement list.
- Use only a digital multimeter to check the system. Make sure its output is 10 mA (0.01 A) or less when switched to the smallest value in the ohmmeter range. A tester with a higher output could damage the airbag circuit or cause accidental airbag deployment and possible injury.
- Whenever the ignition switch is in ON (II), or has been turned to LOCK (0) for less than 3 minutes, be careful not to bump the SRS unit; the airbags could accidentally deploy and cause damage or injuries.
- Before removing the dashboard wire harness or floor wire harness, disconnect the driver's airbag connector, the front passenger's airbag connector, both side airbag connectors, both side curtain airbag connectors, and both seat belt tensioner connectors.
- Do not touch a tester probe to the terminals in the SRS unit or harness connectors, and do not connect the SRS unit terminals or the sensor terminals with a jumper wire. Use only the back probe set and the multimeter. Backprobe spring-loaded lock type connectors correctly.

How to Read DTCs

NOTE: Make sure the battery is fully charged before you begin.

1. Make sure the ignition switch is in LOCK (0).
2. Connect the HDS to the data link connector (DLC) (A).



3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, inspect the power line of SRS unit, fuses, and ground, and if there is not any abnormality found, then go to the DLC circuit troubleshooting (see page 11-193).
5. Use the HDS to check for DTCs.
6. Read and record the DTC.

NOTE:

- Only read DTCs from the SRS menu, not from SWS menus unless instructed to check SWS DTCs. SWS (ODS unit) DTCs are subcodes of SRS unit DTCs. Only troubleshoot the corresponding SRS DTCs. These SWS DTCs are cleared when you turn the ignition switch to LOCK (0).
 - Do not clear the DTC until instructed by the troubleshooting procedure.
7. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
 8. Disconnect the HDS from the DLC.
 9. Do the troubleshooting procedure for the DTC.

(cont'd)

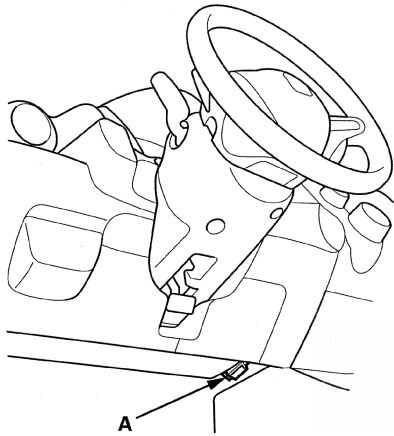
SRS (Supplemental Restraint System)

General Troubleshooting Information (cont'd)

How to Clear DTCs

NOTE: Make sure the battery is fully charged before you begin.

1. Make sure the ignition switch is in LOCK (0).
2. Connect the HDS to the data link connector (DLC) (A).



3. Turn the ignition switch to ON (II).
4. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, go to the DLC circuit troubleshooting (see page 11-193).
5. In the SRS MENU of the HDS, select SRS, then DTC to clear DTC(s).
6. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
7. Disconnect the HDS from the DLC.

Troubleshooting Intermittent Failures

If there was a malfunction that sets a DTC, but it does not recur, a DTC will be stored in the memory, and the SRS indicator may come on depending on the malfunction detected.

NOTE:

- Check the condition of the battery (see page 22-68), and the charging system. Low battery voltage may cause some intermittent failures.
- A faulty or damaged cable reel can cause intermittent problem related to the driver's airbag inflator DTCs.

After checking the DTC, troubleshoot as follows:

1. Check for the DTCs with the HDS (see How to Read DTCs).
2. Clear the DTCs with the HDS (see How to Clear DTCs).
3. Set the parking brake, then start the engine, and let it idle.
4. The SRS indicator comes on for about 6 seconds and then goes off.
5. Shake the related wire harnesses then the connectors, and look for loose connections, poor pinfits, and poor grounds.
6. Take a test-drive (quick acceleration, quick braking, and cornering), turn the steering wheel fully left and right, and hold it there for 5 to 10 seconds. If the problem recurs, the SRS indicator will come on.
7. If you cannot duplicate the concern, ask the customer about the conditions when it occurred, or ask the customer to demonstrate the concern.
8. If you cannot duplicate the intermittent failure, the system is OK at this time.



SRS Unit Update

Special Tools Required

- Honda diagnostic system (HDS) tablet tester
- Honda Interface Module (HIM) and an iN workstation with the latest HDS software version
- HDS pocket tester
- GNA600 and an iN workstation with the latest HDS software version
- MVCI unit with the latest control module (CM) update software installed

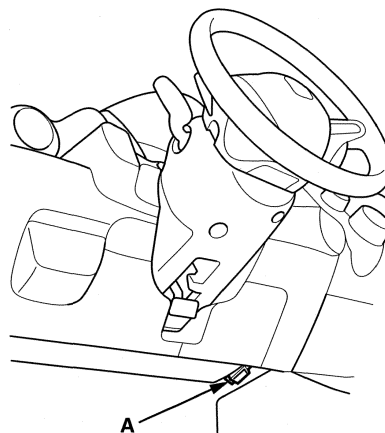
Any one of the above updating tools can be used.

NOTE:

- Make sure the HDS/iN workstation or the MVCI has the latest HDS software version.
- Before you update the SRS unit, make sure the battery in the vehicle is fully charged.
- Never turn the ignition switch to LOCK (0) or ACCESSORY (I) during the update. If there is a problem with the update, leave the ignition switch in ON (II).
- To prevent SRS unit damage, do not operate anything electrical (headlights, audio system, brakes, A/C, power windows, door locks, etc.) during the update.
- To ensure the latest program is installed, do an SRS unit update whenever the SRS unit is substituted or replaced.
- You cannot update an SRS unit with a program it already has. It will only accept a new program.
- If you need to diagnose the HIM because the HIM's red (#3) light came on or was flashing during the update, leave the ignition switch in the ON (II) when you disconnect the HIM from the data link connector (DLC). This will prevent SRS unit damage.

1. Turn the ignition switch to LOCK (0).

2. Connect the updating tool to the data link connector (DLC) (A).



(cont'd)

SRS (Supplemental Restraint System)

SRS Unit Update (cont'd)

3. Turn the ignition switch to ON (II), but do not start the engine.
4. Make sure the updating tool communicates with the vehicle and the SRS unit. If it does not communicate, go to the DLC circuit troubleshooting (see page 11-193).

5. Select the update program, and follow the screen prompts to update the SRS unit.
6. If the software in the SRS unit is the latest, disconnect the updating tool from the DLC, then go back to the procedure that you were doing. If the software in the SRS unit is not the latest, follow the instructions on the screen.

NOTE: If you run into a problem during the update procedure (programming takes over 15 minutes, status bar goes over 100%, D or immobilizer light flashes, updating tool freezes, etc.), follow these steps to minimize the chance of damaging the SRS unit:

- Leave the ignition switch in ON (II).
- Connect a jumper battery (do not connect a battery charger).
- Shut down the updating tool.
- Disconnect the updating tool from the DLC.
- Reboot the updating tool.
- Reconnect the updating tool to the DLC, and try the update procedure again.

7. Turn the ignition switch to LOCK (0).
8. Disconnect the updating tool from the DLC.

ODS Unit Initialization

NOTE:

- After SRS unit, ODS unit or OPDS sensor is replaced, do this procedure to initialize the ODS unit.
- ODS unit initialization initializes both the OPDS sensor and the front passenger's weight sensor.

OPDS Sensor Initialization

When you replace a seat-back cover/pad, the SRS unit, and/or the ODS unit, initialize the OPDS sensor with the HDS.

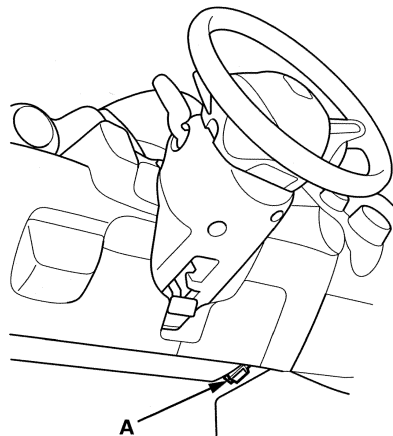
NOTE:

- Before initializing the ODS unit, make sure the battery is fully charged.
- A new (uninitialized) ODS unit installed with a faulty OPDS sensor (DTC 86-1x or 86-2x) can cause DTCs 85-71 and 85-78. If the SRS has a hard DTC 86-1x or 86-2x, troubleshoot the DTCs completely before replacing the ODS unit.
- Before initializing the ODS unit, clear the DTCs.
- Make sure all components of the front passenger's seat are correctly installed.
- Make sure nothing is on the front passenger's seat, including aftermarket seat covers or mats.
- Make sure there is nothing in the front passenger's seat-back pocket.
- Keep the A/C and the heater off.

1. Turn the ignition switch to ON (II).
2. Set the seat-back in a normal position.
3. Turn the ignition switch to LOCK (0).



4. Connect the HDS to the data link connector (DLC) (A).



5. Turn the ignition switch to ON (II).
6. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, then go to the DLC circuit troubleshooting (see page 11-193).
7. From the HDS Main Menu, select SRS, then INITIALIZATION. In the INITIALIZATION Menu, select OPDS Initialization. Follow the prompts until the OPDS sensor initialization has been completed.
8. Turn the ignition switch to LOCK (0).
9. Disconnect the HDS from the DLC.

NOTE: If the ODS unit fails to initialize after several attempts, replace the seat-back cover/pad with equipped the OPDS sensor (see page 20-123), and retry. If the ODS unit continues to fail to initialize, replace the ODS unit (see page 24-193).

Front Passenger's Weight Sensor Initialization

When you replace the SRS unit, the front passenger's weight sensor, the front passenger's seat assembly, or the ODS unit, initialize the front passenger's weight sensor with the HDS unit.

NOTE:

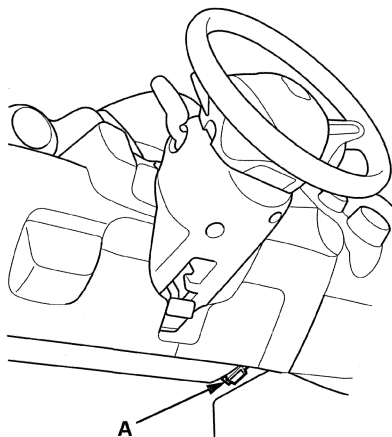
- Before initializing the front passenger's weight sensor, make sure the battery is fully charged.
 - Before initializing the ODS unit, clear the DTCs.
 - Make sure all components of the front passenger's seat are correctly installed.
 - Make sure nothing is on the front passenger's seat, including aftermarket seat covers or mats.
 - Make sure there is nothing in the front passenger's seat-back pocket.
 - Keep the windows closed.
 - Do all initialization procedures, except test-driving, in the service bay.
 - Make sure the vehicle is on level ground.
 - Keep the A/C and the heater off.
 - Do not touch the front passenger's seat during the operation check.
 - Do not expose the front passenger's seat to sudden temperature changes.
1. Position the front passenger's seat all the way rearward, and adjust the seat-back to the forward most position. Do not move the seat from this position until the initialization is completed.
 2. Make sure the ignition switch is in LOCK (0).

(cont'd)

SRS (Supplemental Restraint System)

ODS Unit Initialization (cont'd)

3. Connect the HDS to the data link connector (DLC) (A).



4. Turn the ignition switch to ON (II).
5. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, go to the DLC circuit troubleshooting (see page 11-193).
6. Drive the vehicle, and accelerate to 22 mph (36 km/h), then stop on level ground.
7. From the HDS Main Menu, select SRS, then INITIALIZATION. In the INITIALIZATION Menu, select SWS Initialization. Follow the prompts until the front passenger's weight sensor initialization has been completed.
8. Turn the ignition switch to LOCK (0).
9. Disconnect the HDS from the DLC.

ODS Unit Operation Check

After Replacing Front Passenger's Seat Component(s)

NOTE: Check the ODS unit operation after any of these actions:

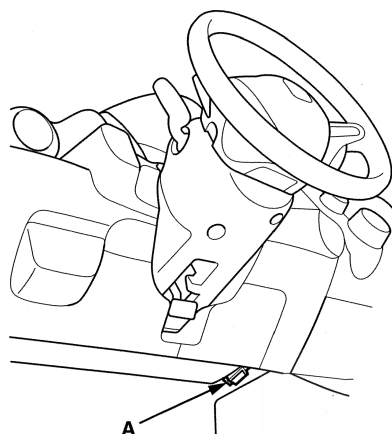
- Front passenger's seat component(s) replacement (except ODS unit and/or front passenger's weight sensor).
- SRS unit replacement.
- Remove the front passenger's weight sensor(s).
- After a vehicle collision (see page 24-31).

Pre-Operation Check Set-up

- Make sure all the components of the front passenger's seat are correctly installed.
- Position the front passenger's seat to the rear most position. Adjust the seat-back to the forward most position. Do not move the seat from this position until the operation check is completed.
- Make sure nothing is on the front passenger's seat, including aftermarket seat covers or mats.
- Make sure there is nothing in the front passenger's seat-back pocket.
- Keep the windows closed.
- Do all initialization procedures, except test-driving, in the service bay.
- Make sure the vehicle is on level ground.
- Turn the heater and the A/C off.
- Do not touch the front passenger's seat during the operation check.
- Do not expose the front passenger's seat to sudden temperature changes.
- Make sure all aftermarket devices such as amplifiers, fluorescent light, air purifiers, CB, or HAM radios, etc. are turned off.



1. Drive the vehicle, accelerate to 22 mph (36 km/h), then stop on level ground.
2. Make sure the ignition switch is in LOCK (0).
3. Connect the HDS to the data link connector (DLC) (A).



4. Turn the ignition switch to ON (II).
5. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, go to the DLC circuit troubleshooting (see page 11-193).
6. From the HDS Main Menu, select SRS, then Inspection. In the Inspection Menu, select AFTER REPLACING FRONT PASSENGER'S SEAT COMPONENT(S). Follow the prompts until the ODS unit operation check has been completed.
7. Turn the ignition switch to LOCK (0).
8. Disconnect the HDS from the DLC.

Front Passenger's Weight Sensor Output Check After a Vehicle Collision

NOTE: Check the front passenger's weight sensor output after this action:

- After a vehicle collision

Pre-Operation Check Set-up

- Make sure all the components of the front passenger's seat are correctly installed.
- Position the front passenger's seat to the rear most position. Adjust the seat-back to the forward most position. Do not move the seat from this position until the operation check is completed.
- Make sure nothing is on the front passenger's seat, including aftermarket seat covers or mats.
- Make sure there is nothing in the front passenger's seat-back pocket.
- Keep the windows closed.
- Do all initialization procedures, except test-driving, in the service bay.
- Make sure the vehicle is on level ground.
- Turn the heater and the A/C off.
- Do not touch the front passenger's seat during the operation check.
- Do not expose the front passenger's seat to sudden temperature changes.
- Make sure all aftermarket devices such as amplifiers, fluorescent light, air purifiers, CB or HAM radios, etc. are turned off.

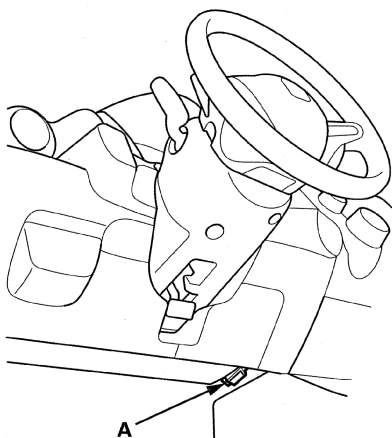
1. Drive the vehicle, accelerate to 20 mph (36 km/h), then stop on level ground.
2. Make sure the ignition switch is in LOCK (0).

(cont'd)

SRS (Supplemental Restraint System)

Front Passenger's Weight Sensor Output Check After a Vehicle Collision (cont'd)

3. Connect the HDS to the data link connector (DLC) (A).

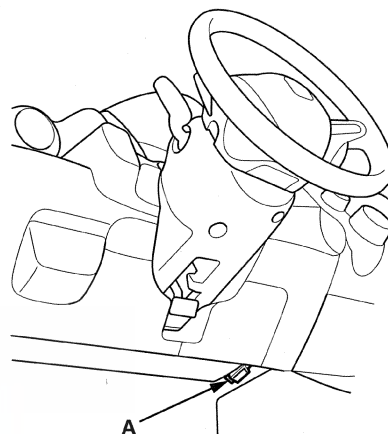


4. Turn the ignition switch to ON (II).
5. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, go to the DLC circuit troubleshooting (see page 11-193).
6. From the HDS Main Menu, select SRS, then Inspection. In the Inspection Menu, select AFTER A VEHICLE COLLISION. Follow the prompts until the front passenger's weight sensor output check has been completed.
7. Turn the ignition switch to LOCK (0).
8. Disconnect the HDS from the DLC.

Driver's Seat Position Sensor Operation Check

Check the driver's seat position sensor after the driver's seat position sensor replacement.

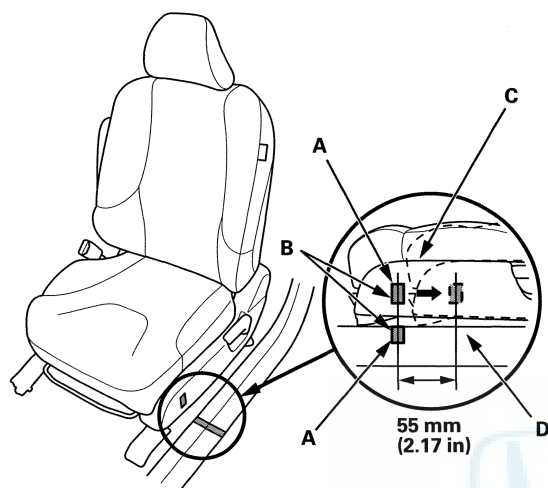
1. Make sure the driver's seat is all the way forward position.
2. Make sure the ignition switch is in LOCK (0).
3. Connect the HDS to the data link connector (DLC) (A).



4. Turn the ignition switch to ON (II).
5. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, go to the DLC circuit troubleshooting (see page 11-193).
6. '10-11 models: From the HDS Main Menu, select SRS, then PARAMETER INFORMATION. In the PARAMETER INFORMATION Menu, select Buckle Switch, Seat Position Sensor.
'12 model: From the HDS Main Menu, select SRS, then Data List.



7. Using two pieces of tape (A), make alignment marks (B) on the the seat's outer cover (C) and the front door sill trim (D) as shown. The driver's seat position sensor should read NEAR.



8. Move the seat back in small increments (about 5 mm, 0.2 in) until the driver's seat position sensor reads NOT NEAR. The seat should be about 55 mm (2.17 in) from the front.

NOTE: It takes a few seconds for the HDS to display changes, so wait for about 5 seconds between each movement.

If the driver's seat position sensor data does not work as described above, check the driver's seat position sensor for damage, and replace parts as needed.

9. Turn the ignition switch to LOCK (0).
10. Disconnect the HDS from the DLC.

SRS (Supplemental Restraint System)

DTC Troubleshooting Index

DTC	Detection Item	Notes
11-1x	Open in the driver's airbag first inflator	DTC Troubleshooting (see page 24-49)
11-2x	Increased resistance in the driver's airbag first inflator	
11-3x	Short to another wire or decreased resistance in the driver's airbag first inflator	DTC Troubleshooting (see page 24-51)
11-4x	Open in the driver's airbag second inflator	DTC Troubleshooting (see page 24-49)
11-5x	Increased resistance in the driver's airbag second inflator	
11-6x	Short to another wire or decreased resistance in the driver's airbag second inflator	DTC Troubleshooting (see page 24-51)
11-8x	Short to power in the driver's airbag first inflator	DTC Troubleshooting (see page 24-53)
11-9x	Short to ground in the driver's airbag first inflator	DTC Troubleshooting (see page 24-55)
11-Ax	Short to power in the driver's airbag second inflator	DTC Troubleshooting (see page 24-53)
11-Bx	Short to ground in the driver's airbag second inflator	DTC Troubleshooting (see page 24-55)
12-1x	Open in the front passenger's airbag first inflator	DTC Troubleshooting (see page 24-57)
12-2x	Increased resistance in the front passenger's airbag first inflator	
12-3x	Short to another wire or decreased resistance in the front passenger's airbag first inflator	DTC Troubleshooting (see page 24-58)
12-4x	Open in the front passenger's airbag second inflator	DTC Troubleshooting (see page 24-57)
12-5x	Increased resistance in the front passenger's airbag second inflator	
12-6x	Short to another wire or decreased resistance in the front passenger's airbag second inflator	DTC Troubleshooting (see page 24-58)
12-8x	Short to power in the front passenger's airbag first inflator	DTC Troubleshooting (see page 24-60)
12-9x	Short to ground in the front passenger's airbag first inflator	DTC Troubleshooting (see page 24-61)
12-Ax	Short to power in the front passenger's airbag second inflator	DTC Troubleshooting (see page 24-60)
12-Bx	Short to ground in the front passenger's airbag second inflator	DTC Troubleshooting (see page 24-61)
21-1x	Open in the driver's seat belt tensioner	DTC Troubleshooting (see page 24-63)
21-2x	Increased resistance in the driver's seat belt tensioner	
21-3x	Short to another wire or decreased resistance in the driver's seat belt tensioner	DTC Troubleshooting (see page 24-64)
21-8x	Short to power in the driver's seat belt tensioner	DTC Troubleshooting (see page 24-66)
21-9x	Short to ground in the driver's seat belt tensioner	DTC Troubleshooting (see page 24-67)
22-1x	Open in the front passenger's seat belt tensioner	DTC Troubleshooting (see page 24-69)
22-2x	Increased resistance in the front passenger's seat belt tensioner	
22-3x	Short to another wire or decreased resistance in the front passenger's seat belt tensioner	DTC Troubleshooting (see page 24-70)
22-8x	Short to power in the front passenger's seat belt tensioner	DTC Troubleshooting (see page 24-72)
22-9x	Short to ground in the front passenger's seat belt tensioner	DTC Troubleshooting (see page 24-73)

NOTE: The "x" at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that you may also see on the HDS display. The alphanumeric character is unrelated to your DTC troubleshooting; it is used by the SRS unit manufacturer.



DTC	Detection Item	Notes
31-1x	Open in the driver's side airbag inflator	DTC Troubleshooting (see page 24-75)
31-2x	Increased resistance in the driver's side airbag inflator	
31-3x	Short to another wire or decreased resistance in the driver's side airbag inflator	DTC Troubleshooting (see page 24-76)
31-8x	Short to power in the driver's side airbag inflator	DTC Troubleshooting (see page 24-78)
31-9x	Short to ground in the driver's side airbag inflator	DTC Troubleshooting (see page 24-79)
32-1x	Open in the front passenger's side airbag inflator	DTC Troubleshooting (see page 24-81)
32-2x	Increased resistance in the front passenger's side airbag inflator	
32-3x	Short to another wire or decreased resistance in the front passenger's side airbag inflator	DTC Troubleshooting (see page 24-82)
32-8x	Short to power in the front passenger's side airbag inflator	DTC Troubleshooting (see page 24-84)
32-9x	Short to ground in the front passenger's side airbag inflator	DTC Troubleshooting (see page 24-85)
33-1x	Open in the left side curtain airbag inflator	DTC Troubleshooting (see page 24-87)
33-2x	Increased resistance in the left side curtain airbag inflator	
33-3x	Short to another wire or decreased resistance in the left side curtain airbag inflator	DTC Troubleshooting (see page 24-88)
33-8x	Short to power in the left side curtain airbag inflator	DTC Troubleshooting (see page 24-90)
33-9x	Short to ground in the left side curtain airbag inflator	DTC Troubleshooting (see page 24-91)
34-1x	Open in the right side curtain airbag inflator	DTC Troubleshooting (see page 24-93)
34-2x	Increased resistance in the right side curtain airbag inflator	
34-3x	Short to another wire or decreased resistance in the right side curtain airbag inflator	DTC Troubleshooting (see page 24-94)
34-8x	Short to power in the right side curtain airbag inflator	DTC Troubleshooting (see page 24-96)
34-9x	Short to ground in the right side curtain airbag inflator	DTC Troubleshooting (see page 24-97)
41-1x	No signal from the left front impact sensor	DTC Troubleshooting (see page 24-99)
41-2x	Internal failure of the left front impact sensor	DTC Troubleshooting (see page 24-103)
41-3x		
41-9x		
41-Ax		
41-Bx		
42-1x	No signal from the right front impact sensor	DTC Troubleshooting (see page 24-101)
42-2x	Internal failure of the right front impact sensor	DTC Troubleshooting (see page 24-103)
42-3x		
42-9x		
42-Ax		
42-Bx		

NOTE: The "x" at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that you may also see on the HDS display. The alphanumeric character is unrelated to your DTC troubleshooting; it is used by the SRS unit manufacturer.

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting Index (cont'd)

DTC	Detection Item	Notes
43-1x	No signal from the left side impact sensor (first)	DTC Troubleshooting (see page 24-104)
43-2x	Internal failure of the left side impact sensor (first)	DTC Troubleshooting (see page 24-108)
43-8x		
43-9x		
43-Ax		
43-Bx		
44-1x	No signal from the right side impact sensor (first)	DTC Troubleshooting (see page 24-106)
44-2x	Internal failure of the right side impact sensor (first)	DTC Troubleshooting (see page 24-108)
44-8x		
44-9x		
44-Ax		
44-Bx		
45-1x	No signal from the left side impact sensor (second)	DTC Troubleshooting (see page 24-108)
45-2x	Internal failure of the left side impact sensor (second)	DTC Troubleshooting (see page 24-113)
45-8x		
45-9x		
45-Ax		
45-Bx		
46-1x	No signal from the right side impact sensor (second)	DTC Troubleshooting (see page 24-111)
46-2x	Internal failure of the right side impact sensor (second)	DTC Troubleshooting (see page 24-113)
46-8x		
46-9x		
46-Ax		
46-Bx		
51-xx	Internal failure of the SRS unit	DTC Troubleshooting (see page 24-114)
52-xx		
53-xx		
54-xx		
55-xx		
53-FF	SRS unit programming error	DTC Troubleshooting (see page 24-114)
56-21	Lost communication with the ECM/PCM (PGM-FI system)	DTC Troubleshooting (see page 24-115)
56-22		
56-23		
56-25	Lost communication with the gauge control module	DTC Troubleshooting (see page 24-116)
56-26	Undefined data received from the gauge control module	DTC Troubleshooting (see page 24-117)
56-27		
56-31	Lost communication with the ECM/PCM (PGM-FI system)	DTC Troubleshooting (see page 24-118)
56-32		
56-33		

NOTE: The "x" at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that you may also see on the HDS display. The alphanumeric character is unrelated to your DTC troubleshooting; it is used by the SRS unit manufacturer.



DTC	Detection Item	Notes
61-1x	Open in the driver's seat belt buckle switch	DTC Troubleshooting (see page 24-119)
61-2x	Short in the driver's seat belt buckle switch	DTC Troubleshooting (see page 24-120)
62-1x	Open in the front passenger's seat belt buckle switch	DTC Troubleshooting (see page 24-121)
62-2x	Short in the front passenger's seat belt buckle switch	DTC Troubleshooting (see page 24-123)
71-1x	Open in the driver's seat position sensor	DTC Troubleshooting (see page 24-124)
71-2x	Short to the driver's seat position sensor	DTC Troubleshooting (see page 24-125)
81-4x	Internal the failure of the ODS unit	DTC Troubleshooting (see page 24-127)
81-5x		
81-63		
81-64		
81-61	No signal from the ODS unit	DTC Troubleshooting (see page 24-128)
81-62	Incorrect data from the ODS unit	
81-71	ODS unit not calibrated	DTC Troubleshooting (see page 24-130)
81-78		
81-79	Front passenger's weight sensors initial check failure	DTC Troubleshooting (see page 24-131)
82-14	No signal from the front passenger's weight sensor (front inner side)	DTC Troubleshooting (see page 24-132)
82-15	Internal failure of the front passenger's weight sensor (front inner side)	DTC Troubleshooting (see page 24-148)
82-16	No signal from the front passenger's weight sensor (rear inner side)	DTC Troubleshooting (see page 24-136)
82-17	Internal failure of the front passenger's weight sensor (rear inner side)	DTC Troubleshooting (see page 24-148)
83-24	No signal from the front passenger's weight sensor (front outer side)	DTC Troubleshooting (see page 24-140)
83-25	Internal failure of the front passenger's weight sensor (front outer side)	DTC Troubleshooting (see page 24-148)
83-26	No signal from the front passenger's weight sensor (rear outer side)	DTC Troubleshooting (see page 24-144)
83-27	Internal failure of the front passenger's weight sensor (rear outer side)	DTC Troubleshooting (see page 24-148)
85-4x	Internal failure of the ODS unit	DTC Troubleshooting (see page 24-149)
85-5x		
85-63		
85-64		
85-61	No signal from the ODS unit	DTC Troubleshooting (see page 24-150)
85-62	Incorrect data from the ODS unit	
85-71	ODS unit not initialized	DTC Troubleshooting (see page 24-130)
85-78		
85-79	OPDS initial check failure	DTC Troubleshooting (see page 24-153)

NOTE: The "x" at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that you may also see on the HDS display. The alphanumeric character is unrelated to your DTC troubleshooting; it is used by the SRS unit manufacturer.

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SRS (Supplemental Restraint System)

DTC Troubleshooting Index (cont'd)

DTC	Detection Item	Notes
86-1x	Faulty OPDS seat-back sensor	DTC Troubleshooting (see page 24-154)
86-2x	Faulty OPDS seat support sensor	
92-1x	Short to power in the passenger's airbag cutoff indicator	DTC Troubleshooting (see page 24-155)
92-2x	Open or short to ground in the passenger's airbag cutoff indicator	DTC Troubleshooting (see page 24-156)
A1-1x	Faulty power supply (VA line)	DTC Troubleshooting (see page 24-157)
A2-1x	Faulty power supply (VB line)	DTC Troubleshooting (see page 24-158)
A3-1x	SRS connector A not properly installed	DTC Troubleshooting (see page 24-159)
A4-1x	SRS connector B not properly installed	
Ex-11	Control operation recorded	DTC Troubleshooting (see page 24-160)
Fx-11	Airbags and/or tensioners deployment recorded	DTC Troubleshooting (see page 24-160)

NOTE: The "x" at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that you may also see on the HDS display. The alphanumeric character is unrelated to your DTC troubleshooting; it is used by the SRS unit manufacturer.





Only read DTCs from the SRS menu, not from SWS menus unless instructed to check SWS DTCs. SWS (ODS unit) DTCs are subcodes of SRS unit DTCs. Only troubleshoot the corresponding SRS DTCs. Also these SWS DTCs are cleared by turning the ignition switch to LOCK (0).

SWS DTC Index

SRS Unit DTC	SWS DTC	Detection Item	Notes
81-4x	41-xx	Internal failure of the ODS unit	DTC Troubleshooting (see page 24-163)
	42-xx		
	43-xx		
81-71	71-xx	ODS unit not calibrated	DTC Troubleshooting (see page 24-164)
82-14	14-11	Short to power in the front passenger's weight sensor (front inner side) power circuit	DTC Troubleshooting (see page 24-161)
	14-12	Short to ground in the front passenger's weight sensor (front inner side) power circuit	
	14-13	Open in the front passenger's weight sensor (front inner side) output circuit	
	14-14	Short to ground in the front passenger's weight sensor (front inner side) output circuit	
82-15	15-3x	Internal failure of the front passenger's weight sensor (front inner side)	DTC Troubleshooting (see page 24-163)
82-16	16-11	Short to power in the front passenger's weight sensor (rear inner side) power circuit	DTC Troubleshooting (see page 24-161)
	16-12	Short to ground in the front passenger's weight sensor (rear inner side) power circuit	
	16-13	Open in the front passenger's weight sensor (rear inner side) output circuit	
	16-14	Short to ground in the front passenger's weight sensor (rear inner side) output circuit	
82-17	17-3x	Internal failure of the front passenger's weight sensor (rear inner side)	DTC Troubleshooting (see page 24-163)
83-24	24-11	Short to power in the front passenger's weight sensor (front outer side) power circuit	DTC Troubleshooting (see page 24-162)
	24-12	Short to ground in the front passenger's weight sensor (front outer side) power circuit	
	24-13	Open in the front passenger's weight sensor (front outer side) output circuit	
	24-14	Short to ground in the front passenger's weight sensor (front outer side) output circuit	
83-25	25-3x	Internal failure of the front passenger's weight sensor (front outer side)	DTC Troubleshooting (see page 24-163)
83-26	26-11	Short to power in the front passenger's weight sensor (rear outer side) power circuit	DTC Troubleshooting (see page 24-162)
	26-12	Short to ground in the front passenger's weight sensor (rear outer side) power circuit	
	26-13	Open in the front passenger's weight sensor (rear outer side) output circuit	
	26-14	Short to ground in the front passenger's weight sensor (rear outer side) output circuit	
83-27	27-3x	Internal failure of the front passenger's weight sensor (rear outer side)	DTC Troubleshooting (see page 24-163)

NOTE: The "x" at the end of each DTC denotes a numeric character (0 thru 9) or an alpha character (A thru F) that you may also see on the HDS display. The alphanumeric character is unrelated to your DTC troubleshooting; it is used by the SRS unit manufacturer.

SRS (Supplemental Restraint System)

Symptom Troubleshooting Index

Symptom	Diagnostic procedure	Also check for
SRS indicator does not come on	Symptom Troubleshooting (see page 24-164)	
SRS indicator stays on, but no DTCs are stored, or cannot be read	Symptom Troubleshooting (see page 24-165)	<ul style="list-style-type: none">• Charging system for under or overcharging• Communication with the HDS
Side airbag cutoff indicator flashes	Check for DTCs. If any DTC is indicated, go to the DTC troubleshooting	ODS unit initialization
Side airbag cutoff indicator stays on	Symptom Troubleshooting (see page 24-166)	
Side airbag cutoff indicator does not come on	Symptom Troubleshooting (see page 24-166)	
Passenger's airbag cutoff indicator flashes	Check for DTCs. If any DTC is indicated, go to the DTC troubleshooting	ODS unit initialization
Passenger's airbag cutoff indicator stays on or comes on suddenly	Symptom Troubleshooting (see page 24-167)	ODS unit initialization
Passenger's airbag cutoff indicator does not come on	Check for DTCs. If any DTC is indicated, go to the DTC troubleshooting	
HDS does not communicate with the SRS unit or the vehicle	Troubleshoot the DLC circuit (see page 11-193)	Communication with the HDS





System Description

SRS Components

Airbags

The SRS is a supplemental safety device which, when used with the seat belt, is designed to help protect the driver and front passenger in a frontal impact exceeding a certain set limit. The system consists of the SRS unit, including impact sensor (A), the cable reel (B), the driver's airbag (C), the front passenger's airbag (D), side airbags (E), side curtain airbags (F), seat belt tensioners (G), side impact sensors (first) (H), front impact sensors (I), and side impact sensors (second) (J).

Since the driver's and front passenger's airbags use the same sensors, both normally inflate at the same time. However, it is possible for only one airbag to inflate. This can occur when collision severity is near threshold for airbag deployment. In such case, the SRS will only deploy airbags when the protection provided by the seat belt is insufficient.

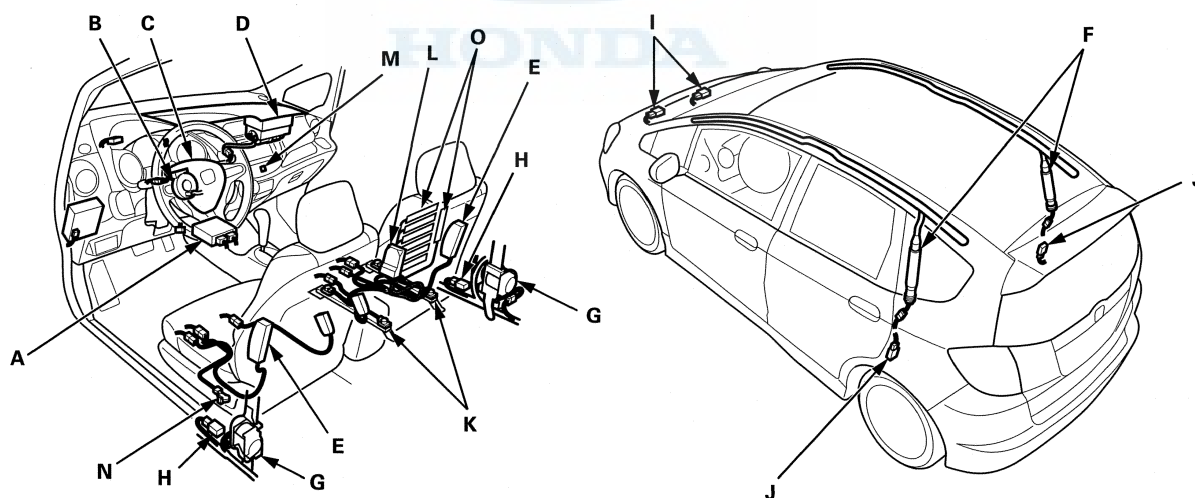
Front Passenger's Weight Sensors

The front passenger's weight sensors (K) are part of the seat. The front passenger's weight sensors detect the weight on the seat, and send the information to the ODS unit (L). If the total weight is about 30 kg (65 lbs) or less, the ODS unit sends a signal to the SRS unit to prevent the front passenger's airbag from deploying. When the passenger's airbag is disabled, the passenger airbag cutoff indicator (M) on the center panel comes on to alert the driver that the front passenger's airbag will not deploy in a front-end collision.

NOTE: The sensors only detect the weight on the seat. The sensors do not detect the weight of the passenger's legs or arms that may be resting on the floor or armrests.

Driver's Seat Position Sensor

The driver's seat position sensor (N) is under the driver's seat on the left side. When the driver's seat is moved to forward most position, the deployment of the driver's airbag is moderated to decrease its force of impact during a front-end collision.



*: This illustration shows '09-10 models.

(cont'd)

SRS (Supplemental Restraint System)

System Description (cont'd)

Side Airbag Cutoff Indicator/ODS Operation

The OPDS sensors (O) is located in the front passenger's seat-back. The ODS unit detects front passenger's position on the seat by using the OPDS sensors, then sends the signals to the SRS unit. The indicator comes on if the front passenger's seat is occupied by a small adult or child who is leaning into the deployment path, or an object (grocery bag, briefcase, purse, etc.) is in the seat. This indicates the passenger's side airbag is off and will not deploy; there is no problem with the side airbag. If the passenger sits upright, or you remove the object from the seat, the indicator should go off. There will be some delay between the occupant's repositioning, and when the indicator will turn on or off.

Passenger's Airbag Cutoff Indicator/Front Passenger's Weight Sensor Operation

The indicator comes on if the weight on the front passenger's seat is about 30 kg (66 lbs) or less. This indicates the passenger's front airbag is off and will not deploy. The front airbag is shut off to reduce the chance of airbag-caused injuries.

SRS Operation

The main circuit in the SRS unit senses and analyzes the force of impact and, if necessary, ignites the inflator charges. If battery voltage is too low or power is disconnected due to the impact, the voltage regulator and the back-up power circuit will keep voltage at a constant level.

For the SRS to operate

Seat Belt Tensioners

- (1) A front impact sensor or the side impact sensor must activate and send electric signals to the microprocessor.
- (2) The microprocessor must compute the signals and trigger the tensioners.
- (3) The charges must ignite and deploy the tensioners.

Driver's and Front Passenger's Airbag(s)

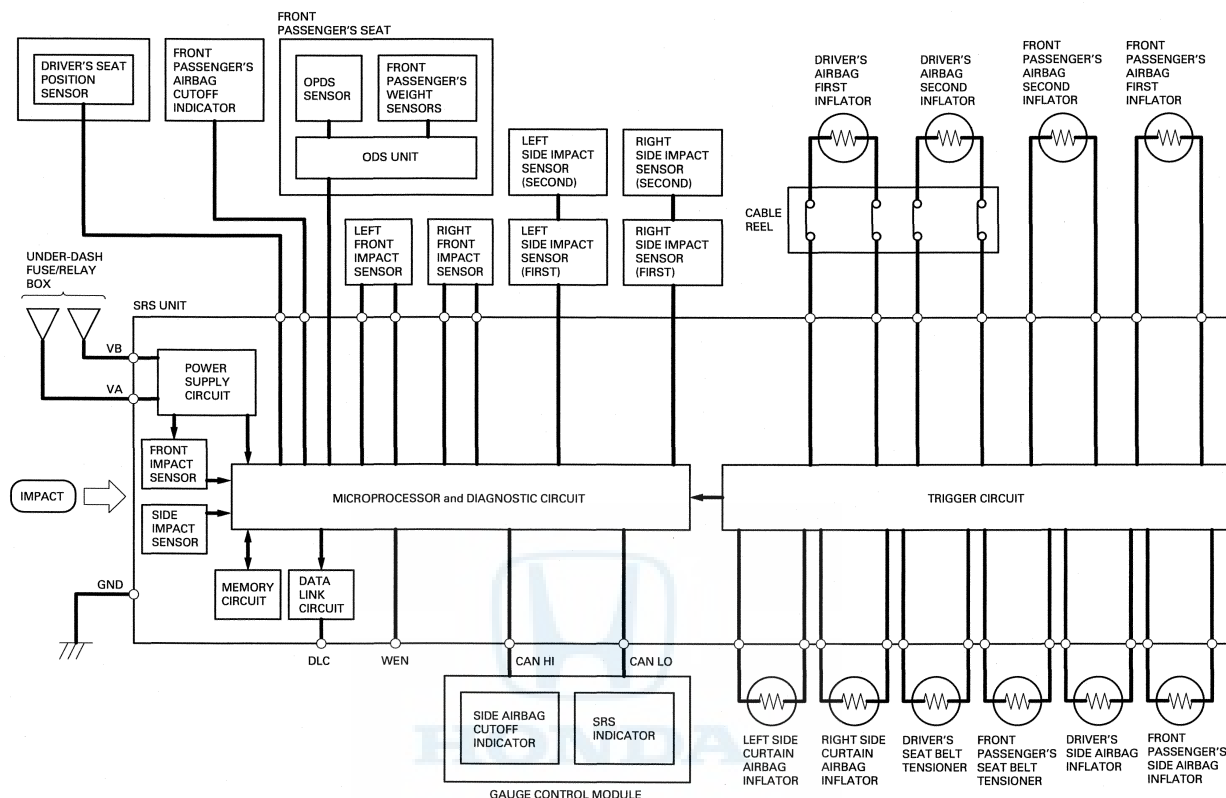
- (1) The front impact sensor must activate, and send electric signals to the microprocessor.
- (2) The microprocessor must compute the signals and trigger the airbag inflators.
- (3) The triggered inflators that receives signals must ignite and deploy the airbags.

Side Airbag(s)

- (1) A side impact sensor must activate, and send electric signals to the microprocessor.
- (2) The microprocessor must compute the signals and trigger the side airbag inflators. However, the microprocessor does not trigger the front passenger's side airbag if the SRS unit determines that the front passenger's head is in the deployment path of the side airbag.
- (3) The triggered inflators that receive the signal must ignite and deploy the side airbags.

Side Curtain Airbag(s)

- (1) The side impact sensor must activate and send electrical signals to the microprocessor.
- (2) The microprocessor must compute the signals trigger the side curtain airbag and side airbag inflators.
- (3) The triggered inflators must ignite and deploy the side curtain airbag and side airbag at the same time.



Self-diagnostic System

A self-diagnostic circuit is built into the SRS unit; when the ignition switch is turned to ON (II), the SRS indicator comes on and goes off after about 6 seconds if the system is operating normally. If the indicator does not come on, or if it does not go off after 6 seconds, or comes on while driving, it indicates a problem in the system. The system must be inspected and repaired as soon as possible.

For better serviceability, the SRS unit memory stores DTCs related to the cause of the malfunction, the SRS unit is connected to the data link connector (DLC). This information can be read with the HDS when it is connected to the DLC (see page 24-25).

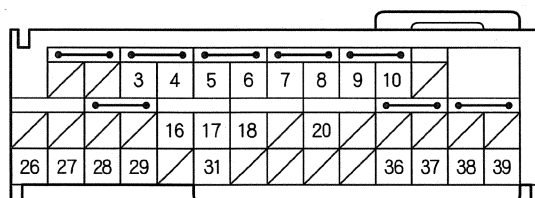
NOTE: Before you disconnect the negative cable from the battery for troubleshooting, refer to Battery Terminal Disconnection and Reconnection (see page 22-69).

(cont'd)

SRS (Supplemental Restraint System)

System Description (cont'd)

SRS Unit Inputs and Outputs at Connector A (39P)



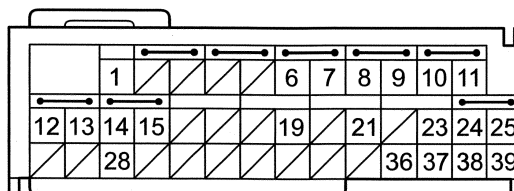
Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description
3	ORN*1	LA1—	Ground for the driver's airbag first inflator
4	YEL*1	LA1+	Power source for the driver's airbag first inflator
5	BRN*1	RA1—	Ground for the front passenger's airbag first inflator
6	LT BLU*1	RA1+	Power source for the front passenger's airbag first inflator
7	LT BLU*1	LA2—	Ground for the driver's airbag second inflator
8	LT GRN*1	LA2+	Power source for the driver's airbag second inflator
9	PUR*1	RA2—	Ground for the front passenger's airbag second inflator
10	GRN*1	RA2+	Power source for the front passenger's airbag second inflator
16	RED*1	F-CAN L	Sends and receives communication signal from the gauge control module
17	WHT*1	FCAN H	Sends and receives communication signal from the gauge control module
18	BLU*1	K-LINE	Sends and receives scan tool signal (serial data)
20	GRN*1	PTT	Sends and receives communication signal with the passenger's airbag off indicator
26	WHT*1	VA	SRS unit sub power (common with ODS)
27	PUR*1	VB	SRS dedicated power (dedicated booster circuit)
28	BLK*1	SRS GND 1	Ground circuit for the SRS unit (G504)
29	BLK*1	SRS GND 2	Ground circuit for the SRS unit (G504)
31	RED*1	WEN	Data link connector
36	BRN*1	LFS—	Ground for the left front impact sensor
37	RED*1	LFS+	Power source for the left front impact sensor
38	LT BLU*1	RFS—	Ground for the right front impact sensor
39	GRN*1	RFS+	Power source for the right front impact sensor

*1: Wire colors may be substituted in this table.



SRS Unit Inputs and Outputs at Connector B (39P)



Wire side of female terminals

Terminal Number	Wire Color	Terminal Name	Description
1	GRY ^{*1}	ODS	Sends and receives communication signal with the ODS unit
6	ORN ^{*1}	LSA—	Ground for the driver's side airbag inflator
7	PUR ^{*1}	LSA+	Power source for the driver's side airbag inflator
8	LT GRN ^{*1}	RSA—	Ground for the front passenger's side airbag inflator
9	PNK ^{*1}	RSA+	Power source for the front passenger's side airbag inflator
10	RED ^{*1}	LCA1—	Ground for the left side curtain airbag inflator
11	WHT ^{*1}	LCA1+	Power source for the left side curtain airbag inflator
12	BRN ^{*1}	LRP—	Ground for the driver's seat belt tensioner
13	PNK ^{*1}	LRP+	Power source for the driver's seat belt tensioner
14	LT GRN ^{*1}	RRP—	Ground for the front passenger's seat belt tensioner
15	LT BLU ^{*1}	RRP+	Power source for the front passenger's seat belt tensioner
19	YEL ^{*1}	FLBC	Driver's seat belt buckle switch
21	GRN ^{*1}	FRBC	Front passenger's seat belt buckle switch
23 ^{*2}	LT BLU ^{*1}	SS+	Power source for the driver's seat position sensor
24	BLU ^{*1}	RCA1—	Ground for the right side curtain airbag inflator
25	YEL ^{*1}	RCA1+	Power source for the right side curtain airbag inflator
28 ^{*3}	WHT ^{*1}	SS+	Power source for the driver's seat position sensor
36	GRY ^{*1}	LBS1—	Ground for the left side impact sensor (first)
37	PNK ^{*1}	LBS1+	Power source for the left side impact sensor (first)
38	LT GRN ^{*1}	RBS1—	Ground for the right side impact sensor (first)
39	BRN ^{*1}	RBS1+	Power source for the right side impact sensor (first)

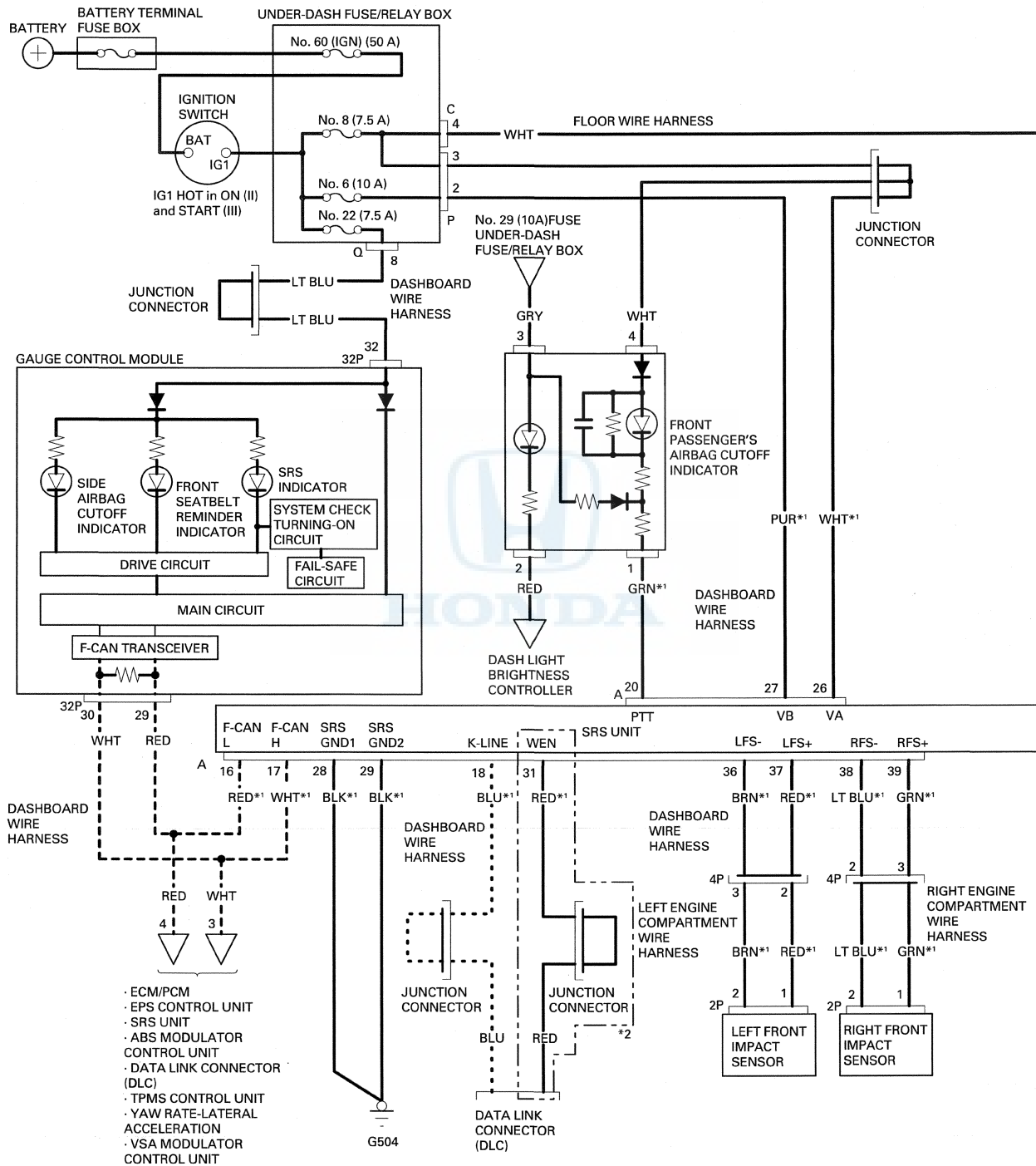
*1: Wire colors may be substituted in this table.

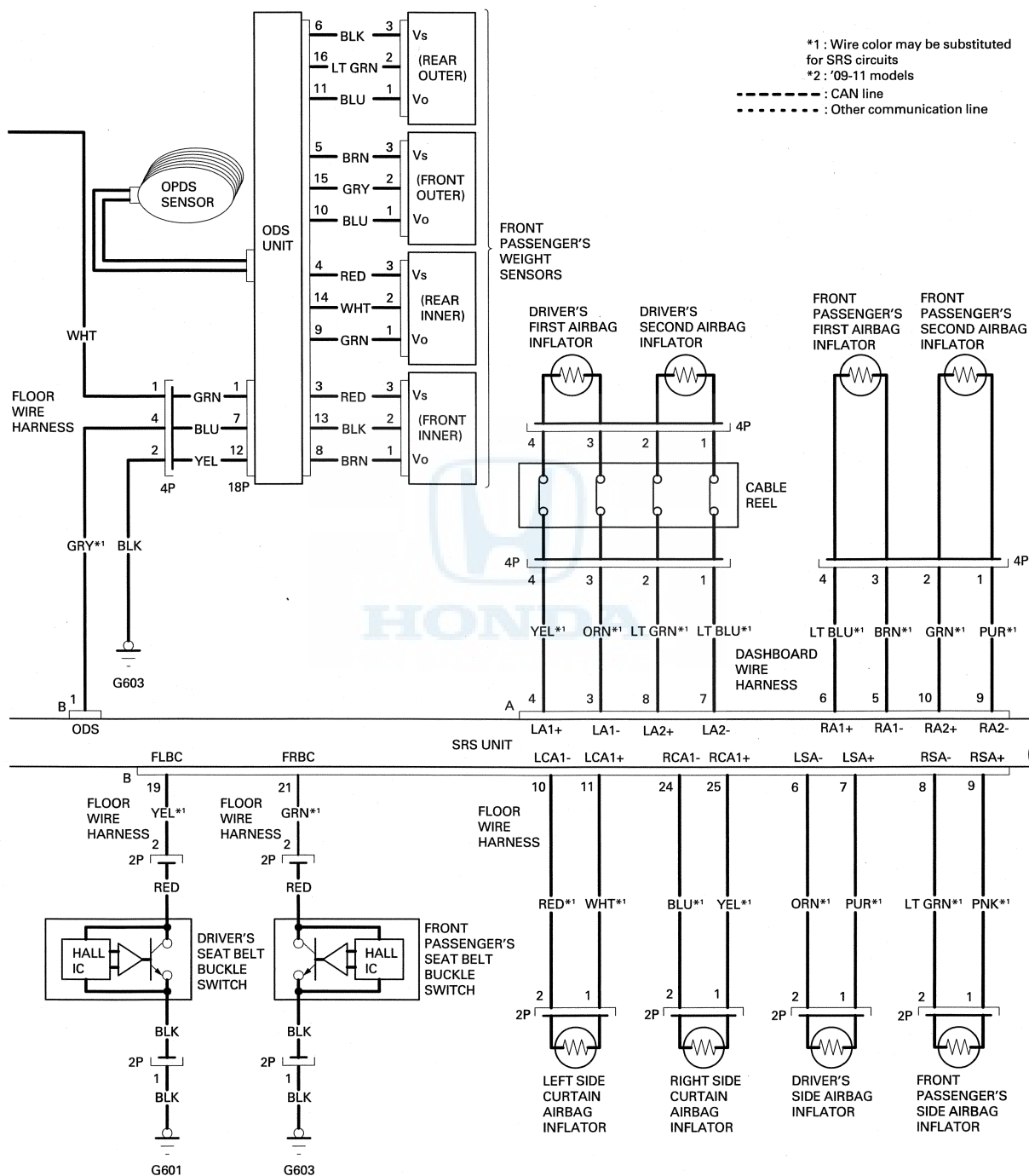
*2: '09-11 models

*3: '12 model

SRS (Supplemental Restraint System)

Circuit Diagram



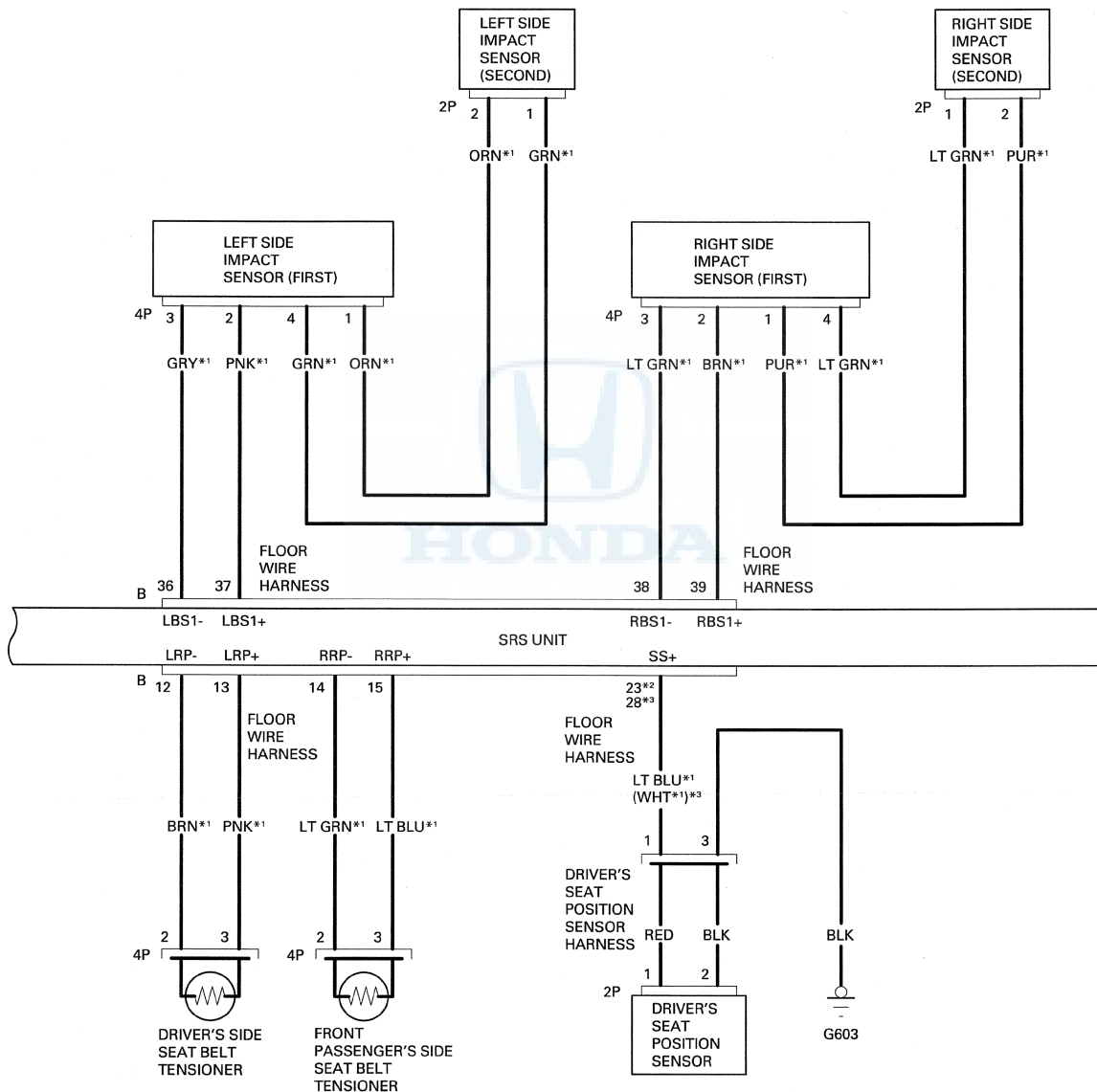


(cont'd)

SRS (Supplemental Restraint System)

Circuit Diagram (cont'd)

*1 : Wire color may be substituted
for SRS circuits
*2 : '09-'11 models
*3 : '12 model





DTC Troubleshooting

DTC 11-1x ("x" can be 0 thru 9 or A thru F):
Open in the Driver's Airbag First Inflator

DTC 11-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Driver's Airbag First Inflator

DTC 11-4x ("x" can be 0 thru 9 or A thru F):
Open in the Driver's Airbag Second Inflator

DTC 11-5x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Driver's Airbag Second Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead J 070AZ-SNAA100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

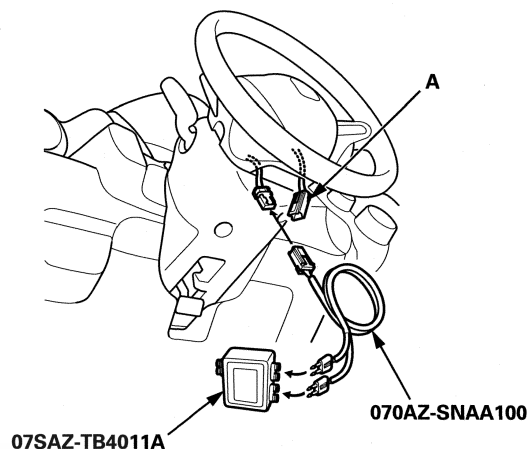
Is DTC 11-1x, 11-2x, 11-4x or 11-5x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Remove the access panel from the steering wheel (see step 2 on page 24-171).

7. Disconnect the driver's airbag inflator 4P connector (A) from the cable reel harness.



8. Connect the terminals of SRS simulator lead J to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead J to the driver's airbag inflator 4P connector on the cable reel harness.

9. Reconnect the negative cable to the battery.
10. Clear the DTCs with the HDS (see page 24-26).
11. Turn the ignition switch to ON (II), then wait for 10 seconds.
12. Check for DTCs with the HDS (see page 24-25).

Is DTC 11-1x, 11-2x, 11-4x or 11-5x indicated?

YES—Go to step 13.

NO—Open or increased resistance in the driver's airbag first or second inflator; replace the driver's airbag (see page 24-171), then clear the DTC.■

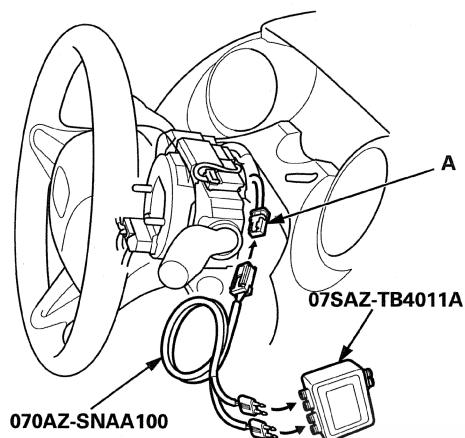
13. Turn the ignition switch to LOCK (0).
14. Disconnect the negative cable from the battery, then wait at least 3 minutes.

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

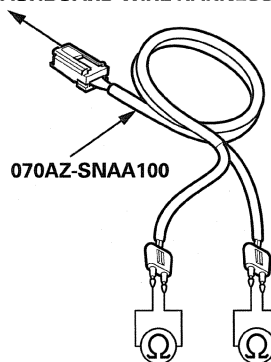
15. Remove the column cover (see page 20-105), then disconnect the cable reel 4P connector on the dashboard wire harness.



16. Connect the terminals of SRS simulator lead J to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead J to the cable reel 4P connector on the dashboard wire harness.
17. Reconnect the negative cable to the battery.
18. Clear the DTCs with the HDS (see page 24-26).
19. Turn the ignition switch to ON (II), then wait for 10 seconds.
20. Check for DTCs with the HDS (see page 24-25).
- Is DTC 11-1x, 11-2x, 11-4x or 11-5x indicated?
- YES**—Go to step 21.
- NO**—Open or increased resistance in the cable reel; replace the cable reel (see page 24-186), then clear the DTC.■
21. Turn the ignition switch to LOCK (0).
22. Disconnect the negative cable from the battery, then wait at least 3 minutes.
23. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).
24. Disconnect the SRS inflator simulator from SRS simulator lead J. Do not disconnect SRS simulator lead J from the cable reel 4P connector on the dashboard wire harness.

25. Measure the resistance between the SRS simulator lead J black and red terminals respectively.

CABLE REEL 4P CONNECTOR
on the **DASHBOARD WIRE HARNESS**



Is there less than 1.0 Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the dashboard wire harness.■

NO—Open or increased resistance in the dashboard wire harness; replace the dashboard wire harness, then clear the DTC.■



DTC 11-3x ("x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased
Resistance in the Driver's Airbag First Inflator

DTC 11-6x ("x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased
Resistance in the Driver's Airbag Second
Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead J 070AZ-SNAA100
- SRS Short Cancellor 070AZ-SAA0100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS unit (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

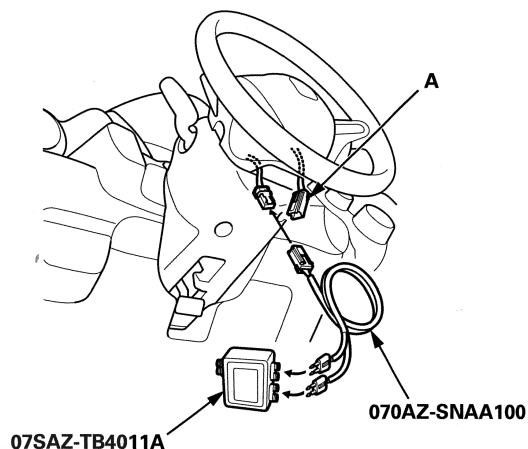
Is DTC 11-3x or 11-6x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Remove the access panel from the steering wheel (see step 2 on page 24-171).

7. Disconnect the driver's airbag inflator 4P connector (A) from the cable reel harness.



8. Connect the terminals of SRS simulator lead J to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead J to the driver's airbag inflator 4P connector on the cable reel harness.

9. Reconnect the negative cable to the battery.
10. Clear the DTCs with the HDS (see page 24-26).
11. Turn the ignition switch to ON (II), then wait for 10 seconds.
12. Check for DTCs with the HDS (see page 24-25).

Is DTC 11-3x or 11-6x indicated?

YES—Go to step 13.

NO—Short to another wire in the driver's airbag first or second inflator; replace the driver's airbag (see page 24-171), then clear the DTC. ■

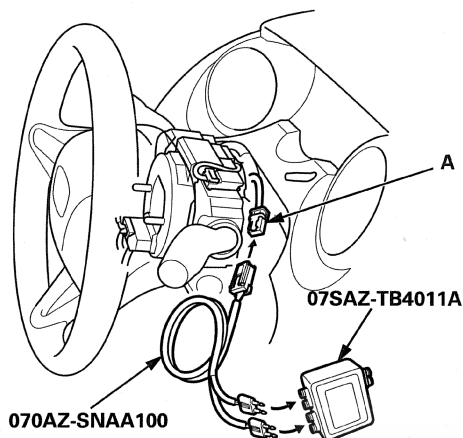
13. Turn the ignition switch to LOCK (0).
14. Disconnect the negative cable from the battery, then wait at least 3 minutes.

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

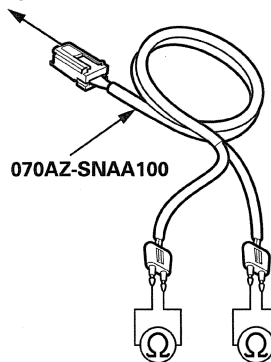
15. Remove the column cover (see page 20-105), then disconnect the cable reel 4P connector (A) on the dashboard wire harness.



16. Connect the terminals of SRS simulator lead J to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead J to the cable reel 4P connector on the dashboard wire harness.
17. Reconnect the negative cable to the battery.
18. Clear the DTCs with the HDS (see page 24-26).
19. Turn the ignition switch to ON (II), then wait for 10 seconds.
20. Check for DTCs with the HDS (see page 24-25).
- Is DTC 11-3x or 11-6x indicated?*
- YES**—Go to step 21.
- NO**—Short to another wire in the cable reel; replace the cable reel (see page 24-186), then clear the DTC.■
21. Turn the ignition switch to LOCK (0).
22. Disconnect the negative cable from the battery, then wait at least 3 minutes.
23. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).
24. Disconnect the SRS inflator simulator from SRS simulator lead J. Do not disconnect SRS simulator lead J from the cable reel 4P connector on the dashboard wire harness.
25. Connect the SRS short canceller (070AZ-SAA0100) to SRS unit connector A (39P) terminals No. 3 and No. 4, and to terminals No. 7 and No. 8 (see page 24-21).

26. Measure the resistance between the SRS simulator lead J black and red terminals respectively.

CABLE REEL 4P CONNECTOR
on the **DASHBOARD WIRE HARNESS**



Is there an open circuit, or at least 1 MΩ?

YES—Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the dashboard wire harness.■

NO—Short to another wire in the dashboard wire harness; replace the dashboard wire harness, then clear the DTC.■



DTC 11-8x ("x" can be 0 thru 9 or A thru F):
Short to Power in the Driver's Airbag First Inflator

DTC 11-Ax ("x" can be 0 thru 9 or A thru F):
Short to Power in the Driver's Airbag Second Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead J 070AZ-SNAA100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

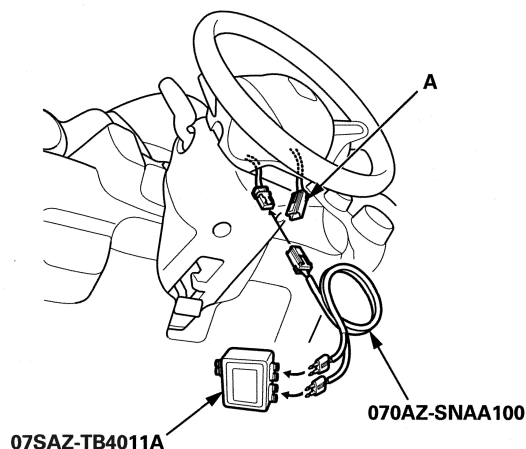
Is DTC 11-8x or 11-Ax indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Remove the access panel from the steering wheel (see step 2 on page 24-171).

7. Disconnect the driver's airbag inflator 4P connector (A) from the cable reel harness.



8. Connect the terminals of SRS simulator lead J to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead J to the driver's airbag inflator 4P connector on the cable reel harness.

9. Reconnect the negative cable to the battery.

10. Clear the DTCs with the HDS (see page 24-26).

11. Turn the ignition switch to ON (II), then wait for 10 seconds.

12. Check for DTCs with the HDS (see page 24-25).

Is DTC 11-8x or 11-Ax indicated?

YES—Go to step 13.

NO—Short to power in the driver's airbag first or second inflator; replace the driver's airbag (see page 24-171), then clear the DTC.■

13. Turn the ignition switch to LOCK (0).

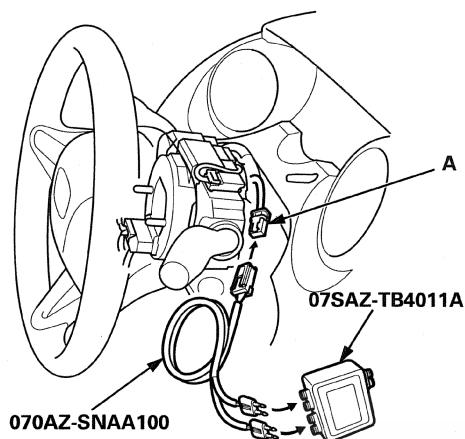
14. Disconnect the negative cable from the battery, then wait at least 3 minutes.

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

15. Remove the column cover (see page 20-105), then disconnect the cable reel 4P connector (A) on the dashboard wire harness.



16. Connect the terminals of SRS simulator lead J to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead J to the cable reel 4P connector on the dashboard wire harness.

17. Reconnect the negative cable to the battery.

18. Clear the DTCs with the HDS (see page 24-26).

19. Turn the ignition switch to ON (II), then wait for 10 seconds.

20. Check for DTCs with the HDS (see page 24-25).

Is DTC 11-8x or 11-Ax indicated?

YES—Go to step 21.

NO—Short to power in the cable reel; replace the cable reel (see page 24-186), then clear the DTC. ■

21. Turn the ignition switch to LOCK (0).

22. Disconnect the negative cable from the battery, then wait at least 3 minutes.

23. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).

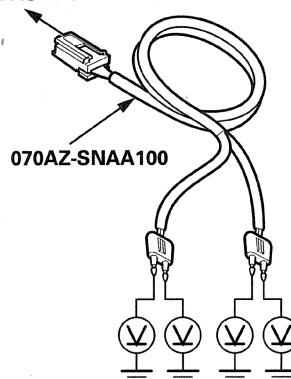
24. Disconnect the SRS inflator simulator from SRS simulator lead J. Do not disconnect SRS simulator lead J from the cable reel 4P connector on the dashboard wire harness.

25. Reconnect the negative cable to the battery.

26. Turn the ignition switch to ON (II).

27. Measure the voltage between each terminal of SRS simulator lead J and body ground individually.

**CABLE REEL 4P CONNECTOR
on the DASHBOARD WIRE HARNESS**



Is there less than 0.2 V?

YES—Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the dashboard wire harness. ■

NO—Short to power in the dashboard wire harness; replace the dashboard wire harness, then clear the DTC. ■



DTC 11-9x ("x" can be 0 thru 9 or A thru F):
Short to Ground in the Driver's Airbag First Inflator

DTC 11-Bx ("x" can be 0 thru 9 or A thru F):
Short to Ground in the Driver's Airbag Second Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead J 070AZ-SNAA100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

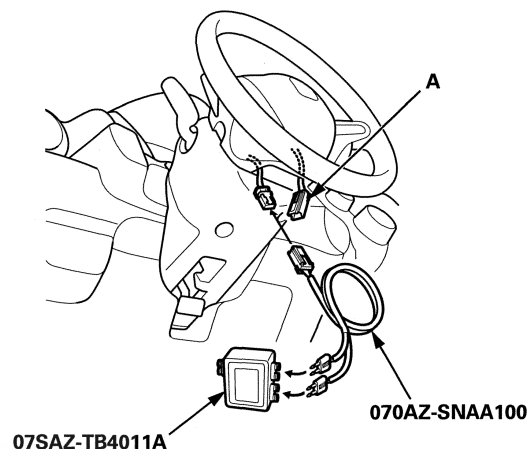
Is DTC 11-9x or 11-Bx indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Remove the access panel from the steering wheel (see step 2 on page 24-171).

7. Disconnect the driver's airbag inflator 4P connector (A) from the cable reel harness.



8. Connect the terminals of SRS simulator lead J to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead J to the driver's airbag inflator 4P connector on the cable reel harness.

9. Reconnect the negative cable to the battery.
10. Clear the DTCs with the HDS (see page 24-26).
11. Turn the ignition switch to ON (II), then wait for 10 seconds.
12. Check for DTCs with the HDS (see page 24-25).

Is DTC 11-9x or 11-Bx indicated?

YES—Go to step 13.

NO—Short to ground in the driver's airbag first or second inflator; replace the driver's airbag (see page 24-171), then clear the DTC.■

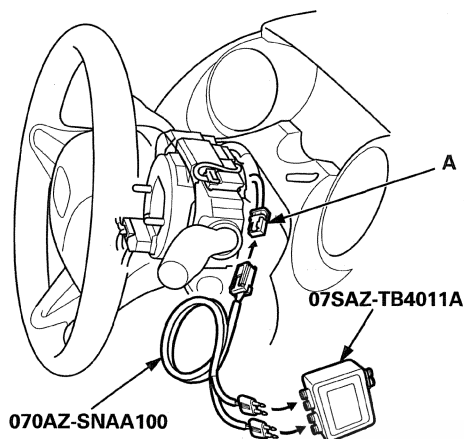
13. Turn the ignition switch to LOCK (0).
14. Disconnect the negative cable from the battery, then wait at least 3 minutes.

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

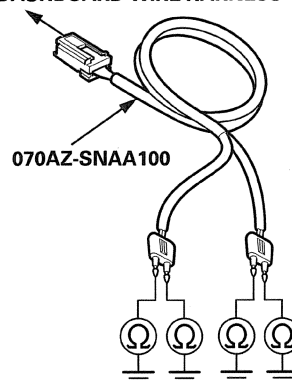
15. Remove the column cover (see page 20-105), then disconnect the cable reel 4P connector (A) on the dashboard wire harness.



16. Connect the terminals of SRS simulator lead J to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead J to the cable reel 4P connector on the dashboard wire harness.
17. Reconnect the negative cable to the battery.
18. Clear the DTCs with the HDS (see page 24-26).
19. Turn the ignition switch to ON (II), then wait for 10 seconds.
20. Check for DTCs with the HDS (see page 24-25).
- Is DTC 11-9x or 11-Bx indicated?*
- YES**—Go to step 21.
- NO**—Short to ground in the cable reel; replace the cable reel (see page 24-186), then clear the DTC. ■
21. Turn the ignition switch to LOCK (0).
22. Disconnect the negative cable from the battery, then wait at least 3 minutes.
23. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).
24. Disconnect the SRS inflator simulator from SRS simulator lead J. Do not disconnect SRS simulator lead J from the cable reel 4P connector on the dashboard wire harness.

25. Measure the resistance between each terminal of SRS simulator lead J and body ground individually.

**CABLE REEL 4P CONNECTOR
on the DASHBOARD WIRE HARNESS**



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the dashboard wire harness. ■

NO—Short to ground in the dashboard wire harness; replace the dashboard wire harness, then clear the DTC. ■



DTC 12-1x ("x" can be 0 thru 9 or A thru F):
Open in the Front Passenger's Airbag First Inflator

DTC 12-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Front Passenger's Airbag First Inflator

DTC 12-4x ("x" can be 0 thru 9 or A thru F):
Open in the Front Passenger's Airbag Second Inflator

DTC 12-5x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Front Passenger's Airbag Second Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead J 070AZ-SNAA100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).

2. Turn the ignition switch to ON (II), then wait for 10 seconds.

3. Check for DTCs with the HDS (see page 24-25).

Is DTC 12-1x, 12-2x, 12-4x or 12-5x indicated?

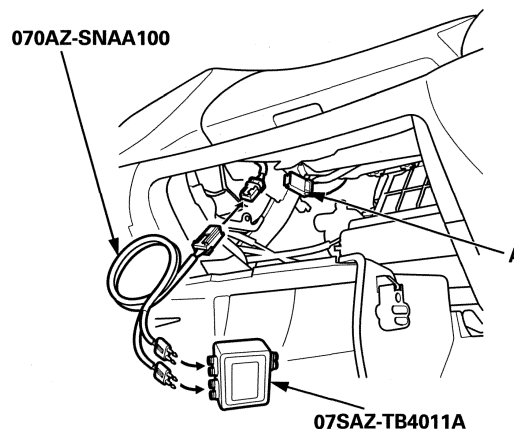
YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

4. Turn the ignition switch to LOCK (0).

5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Lower the glove box, and disconnect the front passenger's airbag inflator 4P connector (A) from the dashboard wire harness.



7. Connect the terminals of SRS simulator lead J to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead J to the front passenger's airbag inflator 4P connector on the dashboard wire harness.

8. Reconnect the negative cable to the battery.

9. Clear the DTCs with the HDS (see page 24-26).

10. Turn the ignition switch to ON (II), then wait for 10 seconds.

11. Check for DTCs with the HDS (see page 24-25).

Is DTC 12-1x, 12-2x, 12-4x or 12-5x indicated?

YES—Go to step 12.

NO—Open or increased resistance in the front passenger's airbag first or second inflator; replace the front passenger's airbag (see page 24-172), then clear the DTC.■

12. Turn the ignition switch to LOCK (0).

13. Disconnect the negative cable from the battery, then wait at least 3 minutes.

14. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).

15. Disconnect the SRS inflator simulator from SRS simulator lead J. Do not disconnect SRS simulator lead J from the front passenger's airbag inflator 4P connector on the dashboard wire harness.

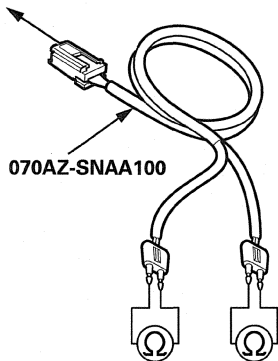
(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

16. Measure the resistance between the SRS simulator lead J black and red terminals respectively.

FRONT PASSENGER'S AIRBAG INFLATOR 4P CONNECTOR on the DASHBOARD WIRE HARNESS



Is there less than 1.0 Ω?

YES—Faulty SRS unit or poor connection at SRS unit connector A (39P). Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the dashboard wire harness. ■

NO—Open or increased resistance in the dashboard wire harness; replace the dashboard wire harness, then clear the DTC. ■

DTC 12-3x ("x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Front Passenger's Airbag First Inflator

DTC 12-6x ("x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Front Passenger's Airbag Second Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead J 070AZ-SNAA100
- SRS Short Cancellor 070AZ-SAA0100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 12-3x or 12-6x indicated?

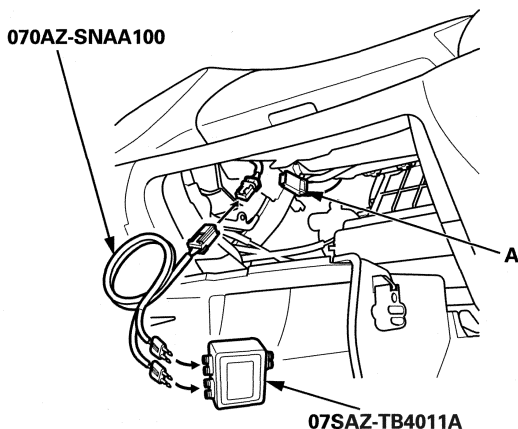
YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.



6. Lower the glove box, and disconnect the front passenger's airbag inflator 4P connector (A) from the dashboard wire harness.

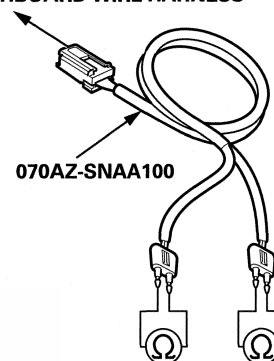


7. Connect the terminals of SRS simulator lead J to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead J to the front passenger's airbag inflator 4P connector on the dashboard wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 12-3x or 12-6x indicated?*
- YES**—Go to step 12.
- NO**—Short to another wire in the front passenger's airbag first or second inflator; replace the front passenger's airbag (see page 24-172), then clear the DTC.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead J. Do not disconnect SRS simulator lead J from the front passenger's airbag inflator 4P connector on the dashboard wire harness.

16. Connect the SRS short cancellers (070AZ-SAA0100) to SRS unit connector A (39P) terminals No. 5 and No. 6, and to terminals No. 9 and No. 10 (see page 24-21).

17. Measure the resistance between the SRS simulator lead J black and red terminals respectively.

FRONT PASSENGER'S AIRBAG INFLATOR 4P CONNECTOR on the DASHBOARD WIRE HARNESS



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the dashboard wire harness.■

NO—Short to another wire in the dashboard wire harness; replace the dashboard wire harness, then clear the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 12-8x ("x" can be 0 thru 9 or A thru F):
Short to Power in the Front Passenger's
Airbag First Inflator

DTC 12-Ax ("x" can be 0 thru 9 or A thru F):
Short to Power in the Front Passenger's
Airbag Second Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead J 070AZ-SNAA100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

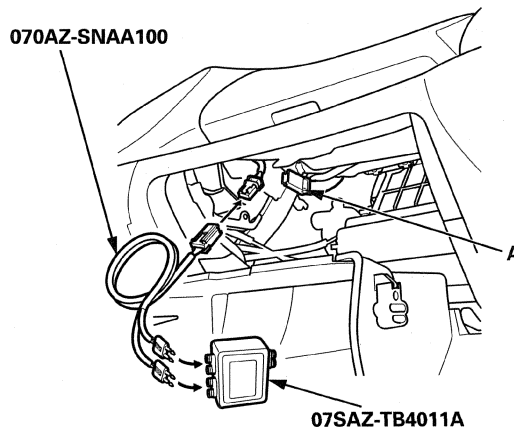
Is DTC 12-8x or 12-Ax indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Lower the glove box, and disconnect the front passenger's airbag inflator 4P connector (A) from the dashboard wire harness.



7. Connect the terminals of SRS simulator lead J to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead J to the front passenger's airbag inflator 4P connector on the dashboard wire harness.

8. Reconnect the negative cable to the battery.

9. Clear the DTCs with the HDS (see page 24-26).

10. Turn the ignition switch to ON (II), then wait for 10 seconds.

11. Check for DTCs with the HDS (see page 24-25).

Is DTC 12-8x or 12-Ax indicated?

YES—Go to step 12.

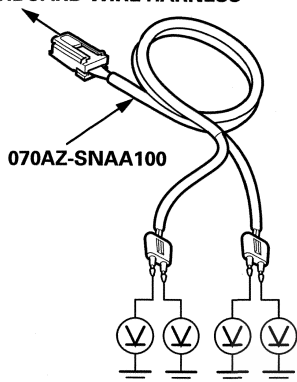
NO—Short to power in the front passenger's airbag first or second inflator; replace the front passenger's airbag (see page 24-172), then clear the DTC. ■

12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead J. Do not disconnect SRS simulator lead J from the front passenger's airbag inflator 4P connector on the dashboard wire harness.
16. Reconnect the negative cable to the battery.



17. Turn the ignition switch to ON (II), then wait for 10 seconds.
18. Measure the voltage between each terminal of SRS simulator lead J and body ground individually.

FRONT PASSENGER'S AIRBAG INFLATOR 4P CONNECTOR on the DASHBOARD WIRE HARNESS



Is there less than 0.2 V?

YES—Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the dashboard wire harness.■

NO—Short to power in the dashboard wire harness; replace the dashboard wire harness, then clear the DTC.■

DTC 12-9x ("x" can be 0 thru 9 or A thru F):
Short to Ground in the Front Passenger's Airbag First Inflator

DTC 12-Bx ("x" can be 0 thru 9 or A thru F):
Short to Ground in the Front Passenger's Airbag Second Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead J 070AZ-SNAA100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 12-9x or 12-Bx indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

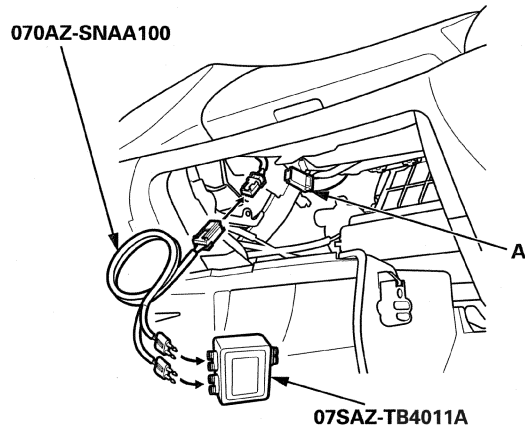
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

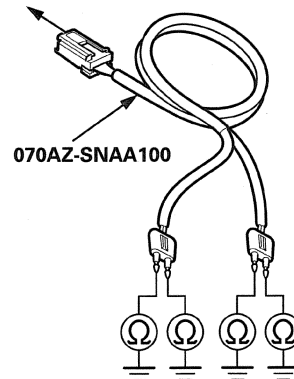
6. Lower the glove box, and disconnect the front passenger's airbag inflator 4P connector (A) from the dashboard wire harness.



7. Connect the terminals of SRS simulator lead J to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead J to the front passenger's airbag inflator 4P connector on the dashboard wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 12-9x or 12-Bx indicated?*
- YES**—Go to step 12.
- NO**—Short to ground in the front passenger's airbag first or second inflator; replace the front passenger's airbag (see page 24-172), then clear the DTC.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead J. Do not disconnect SRS simulator lead J from the front passenger's airbag inflator 4P connector.

16. Measure the resistance between each terminal of SRS simulator lead J and body ground individually.

FRONT PASSENGER'S AIRBAG INFLATOR 4P CONNECTOR on the DASHBOARD WIRE HARNESS



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the dashboard wire harness.■

NO—Short to ground in the dashboard wire harness; replace the dashboard wire harness, then clear the DTC.■



DTC 21-1x ("x" can be 0 thru 9 or A thru F):

Open in the Driver's Seat Belt Tensioner

DTC 21-2x ("x" can be 0 thru 9 or A thru F):

Increased Resistance in the Driver's Seat Belt Tensioner

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead K 070AZ-SNAA200
- SRS Short Cancellor 070AZ-SAA0100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

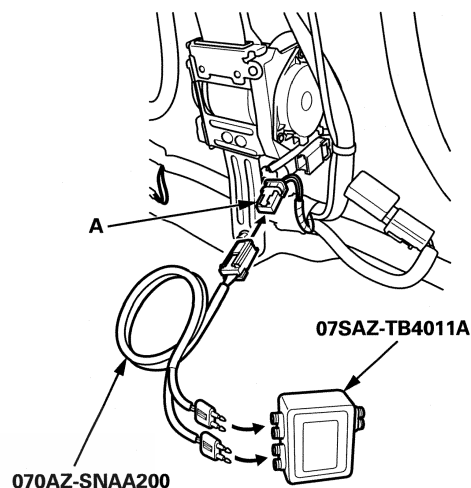
Is DTC 21-1x or 21-2x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Remove the B-pillar lower trim (see page 20-72), then disconnect the driver's seat belt tensioner 4P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead K to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead K to the driver's seat belt tensioner 4P connector on the floor wire harness.

8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).

Is DTC 21-1x or 21-2x indicated?

YES—Go to step 12.

NO—Open or increased resistance in the driver's seat belt tensioner; replace the driver's seat belt (see page 24-4), then clear the DTC. ■

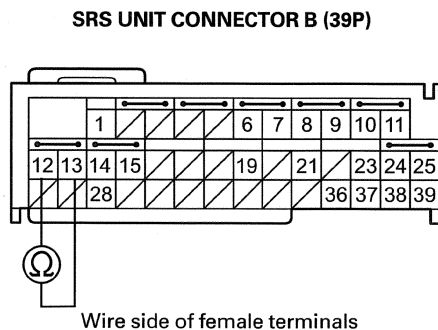
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Connect an SRS short canceller (070AZ-SAA0100) to SRS unit connector B (39P) terminals No. 12 and No. 13 (see page 24-21).

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

16. Measure the resistance between SRS unit connector B (39P) terminals No. 12 and No. 13.



Is there 2.0—3.0 Ω?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness.■

NO—Open or increased resistance in the floor wire harness; replace the floor wire harness, then clear the DTC.■

DTC 21-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in the Driver's Seat Belt Tensioner

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead K 070AZ-SNAA200
- SRS Short Cancellor 070AZ-SAA0100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 21-3x indicated?

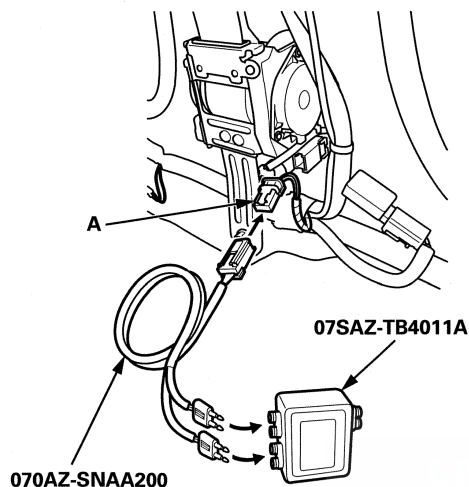
YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.



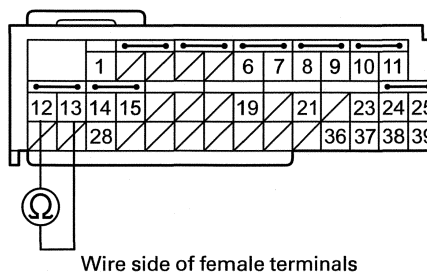
6. Remove the B-pillar lower trim (see page 20-72), then disconnect the driver's seat belt tensioner 4P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead K to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead K to the driver's seat belt tensioner 4P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 21-3x indicated?*
- YES**—Go to step 12.
- NO**—Short to another wire in the driver's seat belt tensioner; replace the driver's seat belt (see page 24-4), then clear the DTC.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS simulator lead K from the driver's seat belt tensioner 4P connector on the floor wire harness.
16. Connect an SRS short canceller (070AZ-SAA0100) to SRS unit connector B (39P) terminals No. 12 and No. 13 (see page 24-21).

17. Measure the resistance between SRS unit connector B (39P) terminals No. 12 and No. 13.

SRS UNIT CONNECTOR B (39P)



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness.■

NO—Short to another wire in the floor wire harness; replace the floor wire harness, then clear the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 21-8x ("x" can be 0 thru 9 or A thru F): Short to Power in the Driver's Seat Belt Tensioner

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead K 070AZ-SNAA200

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

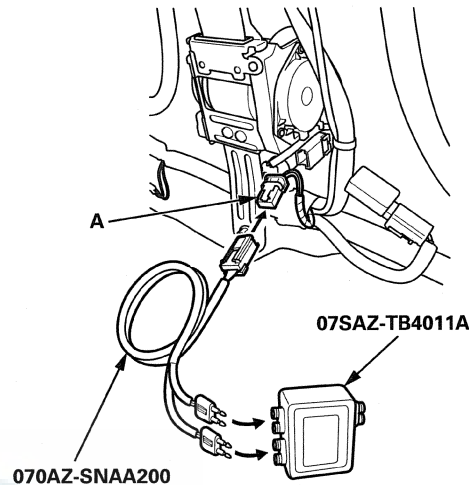
Is DTC 21-8x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

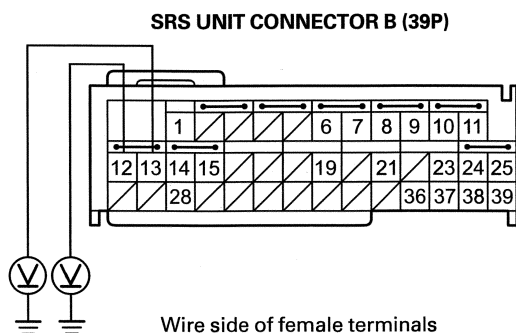
6. Remove the B-pillar lower trim, (see page 20-72) then disconnect the driver's seat belt tensioner 4P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead K to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead K to the driver's seat belt tensioner 4P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
Is DTC 21-8x indicated?
YES—Go to step 12.
NO—Short to power in the driver's seat belt tensioner; replace the driver's seat belt (see page 24-4), then clear the DTC. ■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect SRS simulator lead K from the driver's seat belt tensioner 4P connector on the floor wire harness.
16. Reconnect the negative cable to the battery.
17. Turn the ignition switch to ON (II).



18. Measure the voltage between body ground and SRS unit connector B (39P) terminals No. 12 and No. 13, individually.



Is there less than 0.2 V?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness. ■

NO—Short to power in the floor wire harness; replace the SRS floor wire harness, then clear the DTC. ■

DTC 21-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in the Driver's Seat Belt Tensioner

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead K 070AZ-SNAA200

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 21-9x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

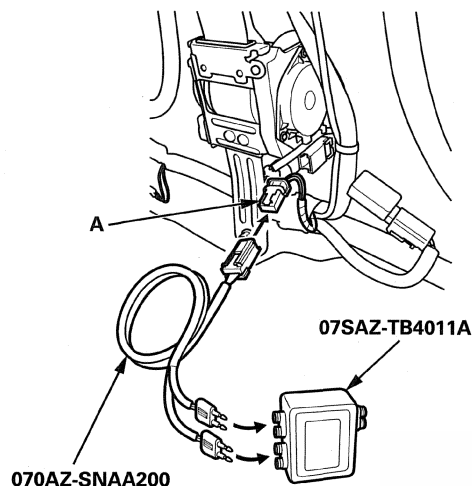
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

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SRS (Supplemental Restraint System)

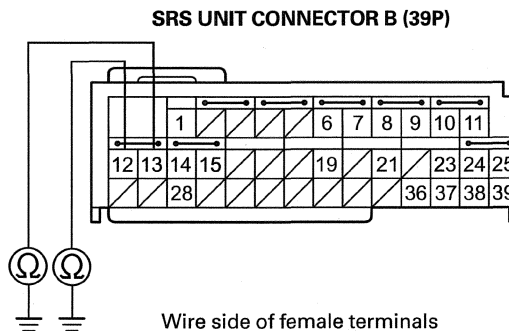
DTC Troubleshooting (cont'd)

6. Remove the B-pillar lower trim (see page 20-72), then disconnect the driver's seat belt tensioner 4P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead K to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead K to the driver's seat belt tensioner 4P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 21-9x indicated?*
- YES**—Go to step 12.
- NO**—Short to ground in the driver's seat belt tensioner; replace the driver's seat belt (see page 24-4), then clear the DTC. ■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect SRS simulator lead K from the driver's seat belt tensioner 4P connector on the floor wire harness.

16. Measure the resistance between body ground and SRS unit connector B (39P) terminals No. 12 and No. 13, individually.



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness. ■

NO—Short to ground in the floor wire harness; replace the floor wire harness, then clear the DTC. ■



DTC 22-1x ("x" can be 0 thru 9 or A thru F):
Open in the Front Passenger's Seat Belt Tensioner

DTC 22-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Front Passenger's Seat Belt Tensioner

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead K 070AZ-SNAA200
- SRS Short Cancellor 070AZ-SAA0100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

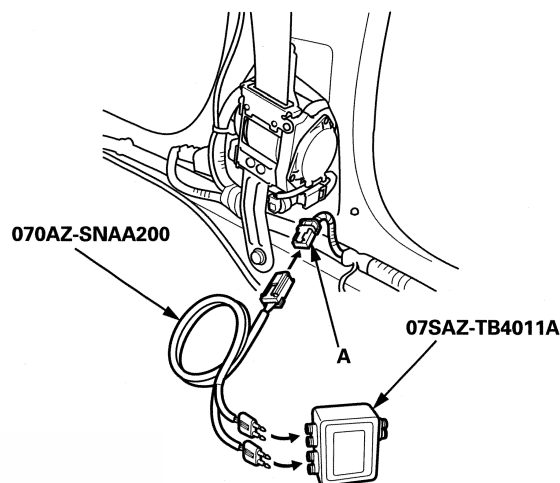
Is DTC 22-1x or 22-2x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Remove the B-pillar lower trim (see page 20-72), then disconnect the front passenger's seat belt tensioner 4P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead K to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead K to the front passenger's seat belt tensioner 4P connector on the floor wire harness.

8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.

11. Check for DTCs with the HDS (see page 24-25).

Is DTC 22-1x or 22-2x indicated?

YES—Go to step 12.

NO—Open or increased resistance in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 24-4), then clear the DTC. ■

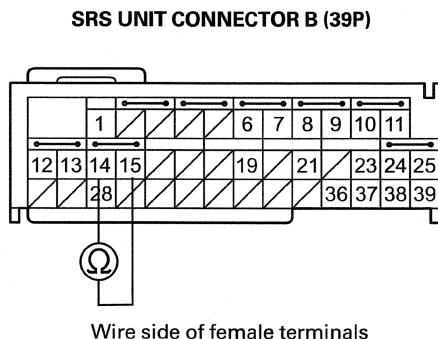
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Connect an SRS short canceller (070AZ-SAA0100) to SRS unit connector B (39P) terminals No. 14 and No. 15 (see page 24-21).

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

16. Measure the resistance between SRS unit connector B (39P) terminals No. 14 and No. 15.



Is there 2.0—3.0 Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness. ■

NO—Open or increased resistance in the SRS floor wire harness; replace the SRS floor wire harness, then clear the DTC. ■

DTC 22-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in the Front Passenger's Seat Belt Tensioner

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead K 070AZ-SNAA200
- SRS Short Cancellor 070AZ-SAA0100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 22-3x indicated?

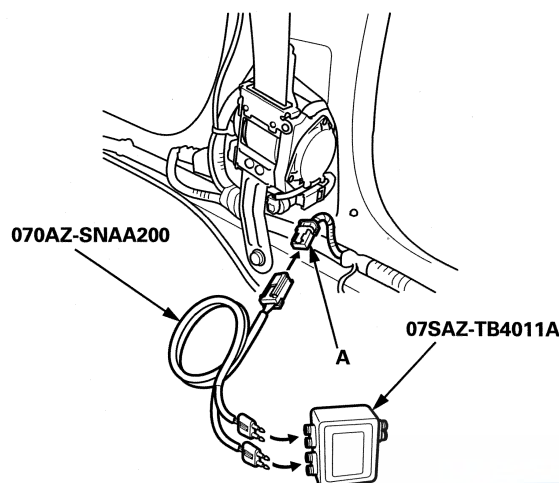
YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.



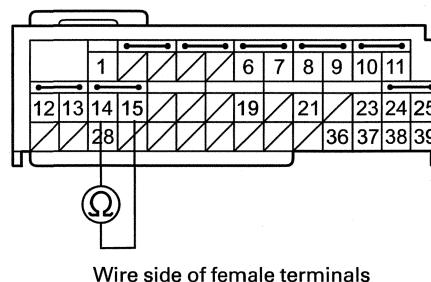
6. Remove the B-pillar lower trim (see page 20-72), then disconnect the front passenger's seat belt tensioner 4P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead K to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead K to the front passenger's seat belt tensioner 4P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 22-3x indicated?*
- YES**—Go to step 12.
- NO**—Short to another wire in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 24-4), then clear the DTC.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect SRS simulator lead K from the front passenger's seat belt tensioner 4P connector.
16. Connect an SRS short canceller (070AZ-SAA0100) to SRS unit connector B (39P) terminals No. 14 and No. 15 (see page 24-21).

17. Measure the resistance between SRS unit connector B (39P) terminals No. 14 and No. 15.

SRS UNIT CONNECTOR B (39P)



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness.■

NO—Short to another wire in the floor wire harness; replace the floor wire harness, then clear the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 22-8x ("x" can be 0 thru 9 or A thru F): Short to Power in the Front Passenger's Seat Belt Tensioner

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead K 070AZ-SNAA200

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

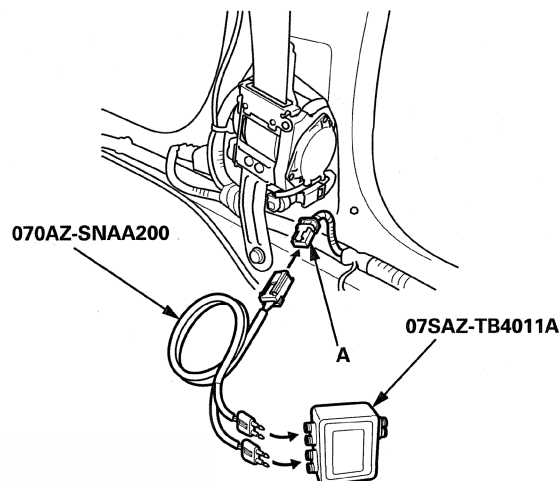
Is DTC 22-8x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Remove the B-pillar lower trim (see page 20-72), then disconnect the front passenger's seat belt tensioner 4P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead K to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead K to the front passenger's seat belt tensioner 4P connector on the floor wire harness.

8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.

11. Check for DTCs with the HDS (see page 24-25).

Is DTC 22-8x indicated?

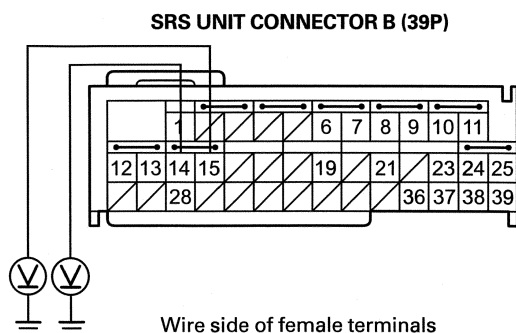
YES—Go to step 12.

NO—Short to power in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 24-4), then clear the DTC. ■

12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS simulator lead K from the front passenger's seat belt tensioner 4P connector.
16. Reconnect the negative cable to the battery.
17. Turn the ignition switch to ON (II).



18. Measure the voltage between body ground and SRS unit connector B (39P) terminals No. 14 and No. 15 individually.



Is there less than 0.2 V?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness. ■

NO—Short to power in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

DTC 22-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in the Front Passenger's Seat Belt Tensioner

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead K 070AZ-SNAA200

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 22-9x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

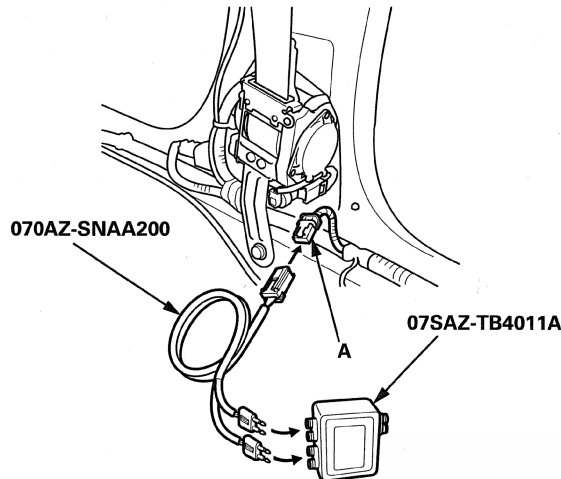
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

(cont'd)

SRS (Supplemental Restraint System)

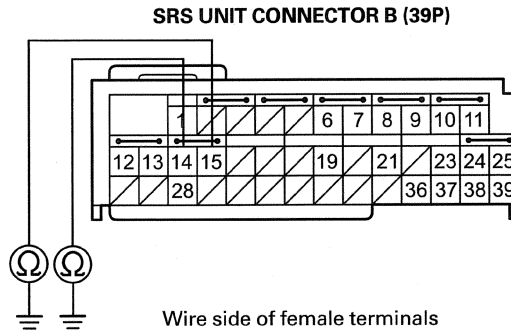
DTC Troubleshooting (cont'd)

6. Remove the B-pillar lower trim (see page 20-72), then disconnect the front passenger's seat belt tensioner 4P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead K to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead K to the front passenger's seat belt tensioner 4P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 22-9x indicated?*
- YES**—Go to step 12.
- NO**—Short to ground in the front passenger's seat belt tensioner; replace the front passenger's seat belt (see page 24-4), then clear the DTC.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect SRS simulator lead K from the front passenger's seat belt tensioner 4P connector.

16. Measure the resistance between body ground and SRS unit connector B (39P) terminals No. 14 and No. 15 individually.



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness.■

NO—Short to ground in the floor wire harness; replace the floor wire harness, then clear the DTC.■



DTC 31-1x ("x" can be 0 thru 9 or A thru F):

Open in the Driver's Side Airbag Inflator

DTC 31-2x ("x" can be 0 thru 9 or A thru F):

Increased Resistance in the Driver's Side Airbag Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

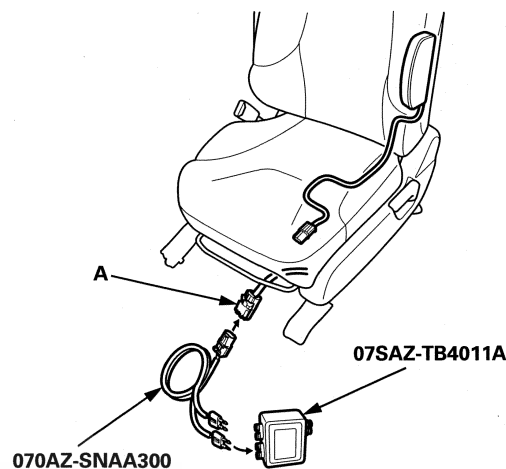
Is DTC 31-1x or 31-2x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Disconnect the driver's side airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the driver's side airbag inflator 2P connector on the floor wire harness.

8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).

10. Turn the ignition switch to ON (II), then wait for 10 seconds.

11. Check for DTCs with the HDS (see page 24-25).

Is DTC 31-1x or 31-2x indicated?

YES—Go to step 12.

NO—Open or increased resistance in the driver's side airbag inflator; replace the driver's side airbag (see page 24-175), then clear the DTC. ■

12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead L. Do not disconnect SRS simulator lead L from the driver's side airbag inflator 2P connector on the floor wire harness.

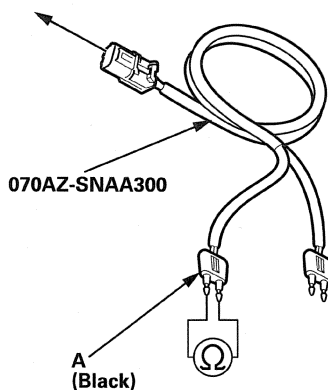
(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

16. Measure the resistance between the SRS simulator lead L (A) black terminals.

DRIVER'S SIDE AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there less than 1.0 Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness. ■

NO—Open or increased resistance in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

DTC 31-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in the Driver's Side Airbag Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300
- SRS Short Cancellor 070AZ-SAA0100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 31-3x indicated?

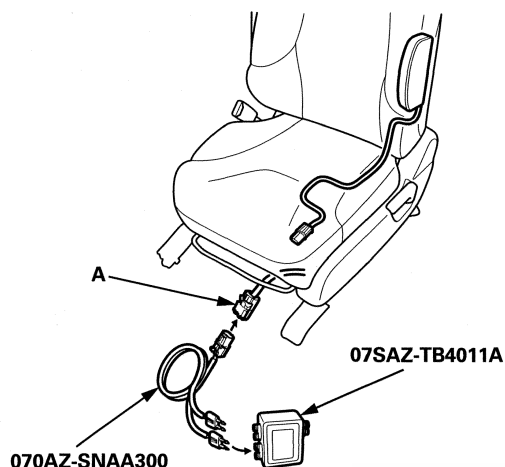
YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.



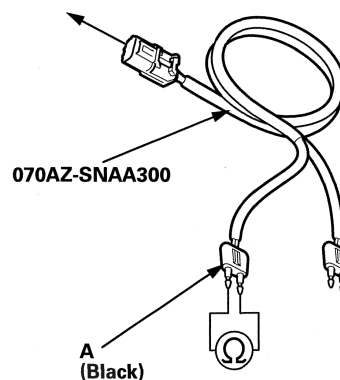
6. Disconnect the driver's side airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the driver's side airbag inflator 2P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 31-3x indicated?*
- YES**—Go to step 12.
- NO**—Short to another wire in the driver's side airbag inflator; replace the driver's side airbag (see page 24-175), then clear the DTC.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead L. Do not disconnect SRS simulator lead L from the driver's side airbag inflator 2P connector on the floor wire harness.
16. Connect an SRS short canceller (070AZ-SAA0100) to SRS unit connector B (39P) terminals No. 6 and No. 7 (see page 24-21).

17. Measure the resistance between the SRS simulator lead L (A) black terminals.

DRIVER'S SIDE AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness.■

NO—Short to another wire in the floor wire harness; replace the floor wire harness, then clear the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 31-8x ("x" can be 0 thru 9 or A thru F): Short to Power in the Driver's Side Airbag Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

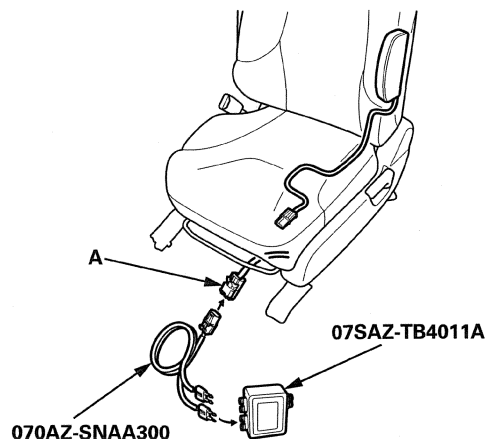
Is DTC 31-8x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Disconnect the driver's side airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the driver's side airbag inflator 2P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).

Is DTC 31-8x indicated?

YES—Go to step 12.

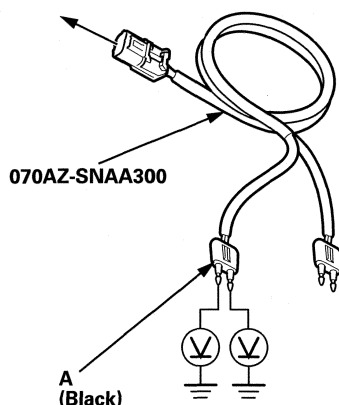
NO—Short to power in the driver's side airbag inflator; replace the driver's side airbag (see page 24-175), then clear the DTC. ■

12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead L. Do not disconnect SRS simulator lead L from the driver's side airbag inflator 2P connector on the floor wire harness.
16. Reconnect the negative cable to the battery.
17. Turn the ignition switch to ON (II).



18. Measure the voltage between black terminals of SRS simulator lead L (A) and body ground individually.

**DRIVER'S SIDE AIRBAG INFLATOR 2P CONNECTOR
on the FLOOR WIRE HARNESS**



Is there less than 0.2 V?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness. ■

NO—Short to power in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

**DTC 31-9x ("x" can be 0 thru 9 or A thru F):
Short to Ground in the Driver's Side Airbag
Inflator**

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 31-9x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

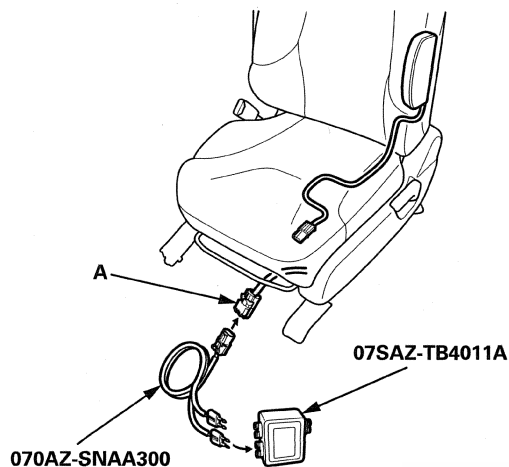
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

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SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

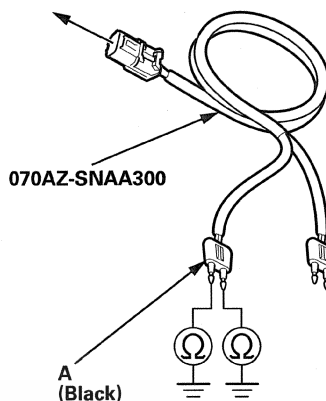
6. Disconnect the driver's side airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the driver's side airbag inflator 2P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 31-9x indicated?*
- YES**—Go to step 12.
- NO**—Short to ground in the driver's side airbag inflator; replace the driver's side airbag (see page 24-175), then clear the DTC.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead L. Do not disconnect SRS simulator lead L from the driver's side airbag inflator 2P connector on the floor wire harness.

16. Measure the resistance between black terminals of SRS simulator lead L (A) and body ground individually.

DRIVER'S SIDE AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness.■

NO—Short to ground in the floor wire harness; replace the floor wire harness, then clear the DTC.■



DTC 32-1x ("x" can be 0 thru 9 or A thru F):
Open in the Front Passenger's Side Airbag Inflator

DTC 32-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Front Passenger's Side Airbag Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

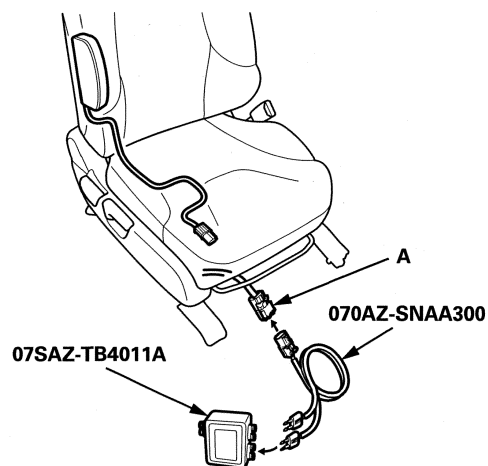
Is DTC 32-1x or 32-2x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Disconnect the front passenger's side airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the front passenger's side airbag inflator 2P connector on the floor wire harness.

8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.

11. Check for DTCs with the HDS (see page 24-25).

Is DTC 32-1x or 32-2x indicated?

YES—Go to step 12.

NO—Open or increased resistance in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 24-175), then clear the DTC.■

12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead L. Do not disconnect SRS simulator lead L from the front passenger's side airbag inflator 2P connector on the floor wire harness.

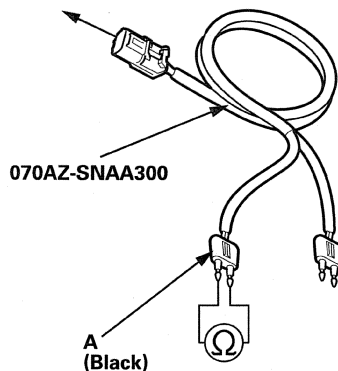
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SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

16. Measure the resistance between the SRS simulator lead L (A) black terminals.

FRONT PASSENGER'S SIDE AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there less than 1.0 Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (28P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness. ■

NO—Open or increased resistance in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

DTC 32-3x ("x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Front Passenger's Side Airbag Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300
- SRS Short Cancellor 070AZ-SAA0100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 32-3x indicated?

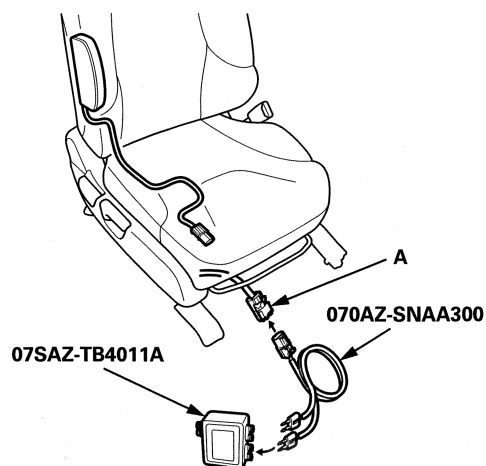
YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.



6. Disconnect the front passenger's side airbag inflator 2P connector (A) on the floor wire harness.

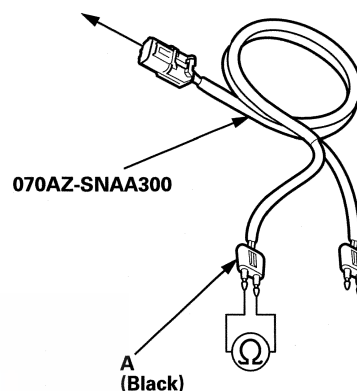


7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the front passenger's side airbag inflator 2P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 32-3x indicated?*
- YES**—Go to step 12.
- NO**—Short to another wire in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 24-175), then clear the DTC.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead L. Do not disconnect SRS simulator lead L from the front passenger's side airbag inflator 2P connector on the floor wire harness.

16. Connect an SRS short canceller (070AZ-SAA0100) to SRS unit connector B (39P) terminals No. 8 and No. 9 (see page 24-21).

17. Measure the resistance between the SRS simulator lead L (A) black terminals.

FRONT PASSENGER'S SIDE AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the harness.■

NO—Short to another wire in the floor wire harness; replace the floor wire harness, then clear the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 32-8x ("x" can be 0 thru 9 or A thru F): Short to Power in the Front Passenger's Side Airbag Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

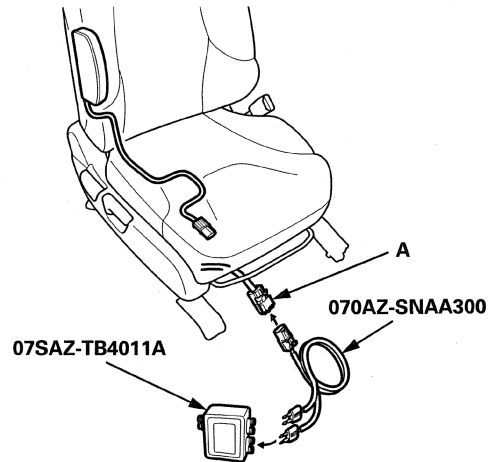
Is DTC 32-8x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Disconnect the front passenger's side airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the front passenger's side airbag inflator 2P connector on the floor wire harness

8. Reconnect the negative cable to the battery.

9. Clear the DTCs with the HDS (see page 24-26).

10. Turn the ignition switch to ON (II), then wait for 10 seconds.

11. Check for DTCs with the HDS (see page 24-25).

Is DTC 32-8x indicated?

YES—Go to step 12.

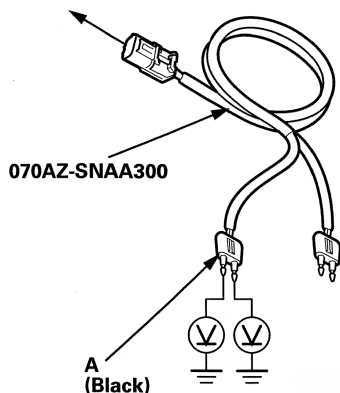
NO—Short to power in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 24-175), then clear the DTC. ■

12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead L. Do not disconnect SRS simulator lead L from the front passenger's side airbag inflator 2P connector on the floor wire harness.
16. Reconnect the negative cable to the battery.
17. Turn the ignition switch to ON (II).



18. Measure the voltage between the black terminals of SRS simulator lead L (A) and body ground individually.

FRONT PASSENGER'S SIDE AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there less than 0.2 V?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness. ■

NO—Short to power in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

**DTC 32-9x ("x" can be 0 thru 9 or A thru F):
Short to Ground in the Front Passenger's Side
Airbag Inflator**

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 32-9x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

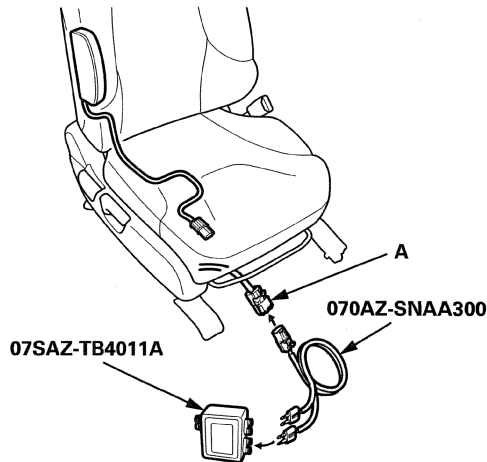
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

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SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

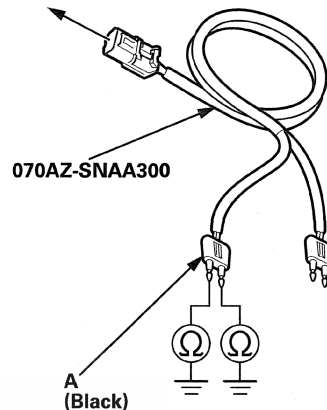
6. Disconnect the front passenger's side airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the front passenger's side airbag inflator 2P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 32-9x indicated?*
- YES**—Go to step 12.
- NO**—Short to ground in the front passenger's side airbag inflator; replace the front passenger's side airbag (see page 24-175), then clear the DTC.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from the SRS simulator lead L. Do not disconnect SRS simulator lead L from the front passenger's side airbag inflator 2P connector on the floor wire harness.

16. Measure the resistance between black terminals of SRS simulator lead L (A) and body ground individually.

FRONT PASSENGER'S SIDE AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness.■

NO—Short to ground in the floor wire harness; replace the floor wire harness, then clear the DTC.■



DTC 33-1x ("x" can be 0 thru 9 or A thru F):
Open in the Left Side Curtain Airbag Inflator

DTC 33-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Left Side Curtain Airbag Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

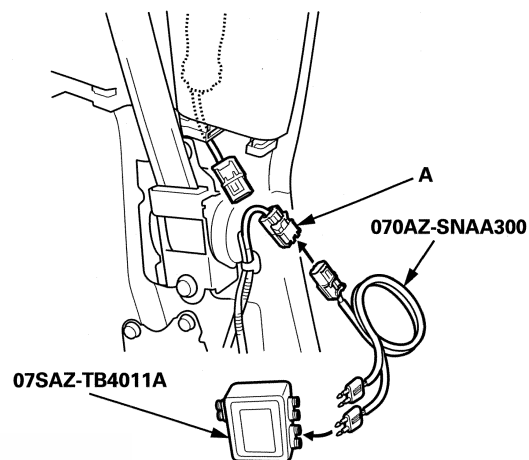
Is DTC 33-1x or 33-2x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Remove the left cargo area side trim panel (see page 20-76) then disconnect the left side curtain airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the left side curtain airbag inflator 2P connector on the floor wire harness.

8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.

11. Check for DTCs with the HDS (see page 24-25).

Is DTC 33-1x or 33-2x indicated?

YES—Go to step 12.

NO—Open or increased resistance in the left side curtain airbag; replace the left side curtain airbag (see page 24-177), then clear the DTC. ■

12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from the SRS simulator lead L. Do not disconnect SRS simulator lead L from the left side curtain airbag inflator 2P connector on the floor wire harness.

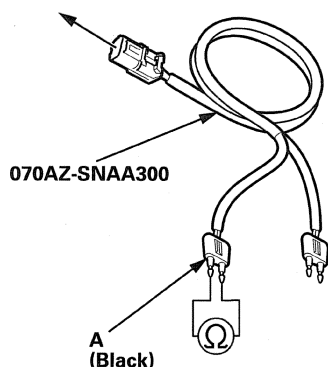
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SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

16. Measure the resistance between the SRS simulator lead L (A) black terminals.

LEFT SIDE CURTAIN AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there less than 1.0 Ω ?

YES—Faulty SRS unit or poor connection at the SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness. ■

NO—Open or increased resistance in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

DTC 33-3x ("x" can be 0 thru 9 or A thru F):
Short to Another Wire or Decreased Resistance in the Left Side Curtain Airbag Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300
- SRS Short Cancellor 070AZ-SAA0100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 33-3x indicated?

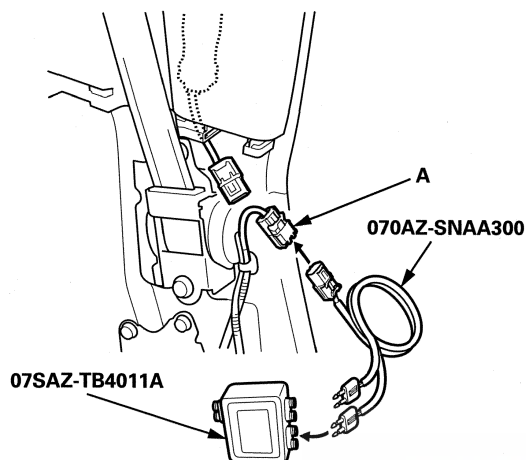
YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.



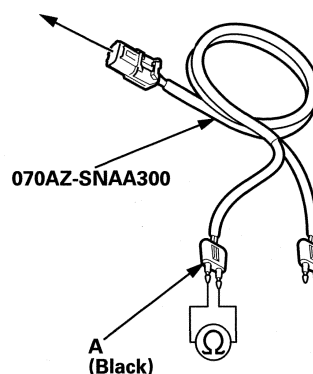
6. Remove the left cargo area side trim panel (see page 20-76) then disconnect the left side curtain airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the left side curtain airbag inflator 2P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 33-3x indicated?*
- YES**—Go to step 12.
- NO**—Short to another wire in the left side curtain airbag inflator; replace the left side curtain airbag (see page 24-177), then clear the DTC.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead L. Do not disconnect SRS simulator lead L from the left side curtain airbag inflator 2P connector on the floor wire harness.
16. Connect an SRS short canceller (070AZ-SAA0100) to SRS unit connector B (39P) terminals No. 10 and the No. 11 (see page 24-21).

17. Measure the resistance of the SRS simulator lead L (A) black terminals.

LEFT SIDE CURTAIN AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness.■

NO—Short to another wire in the floor wire harness; replace the floor wire harness, then clear the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 33-8x ("x" can be 0 thru 9 or A thru F): Short to Power in the Left Side Curtain Airbag Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

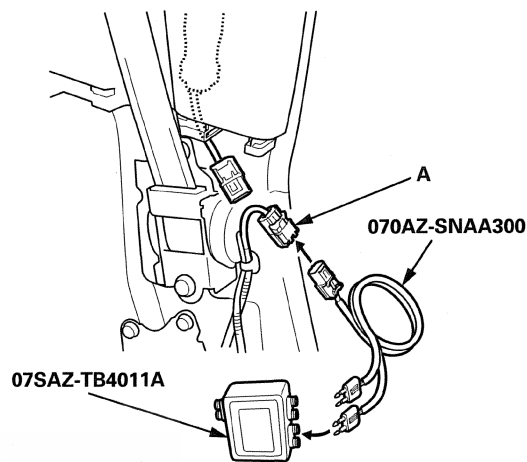
Is DTC 33-8x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Remove the left cargo area side trim panel (see page 20-76) then disconnect the left side curtain airbag inflator 2P connector (A) on the floor wire harness.

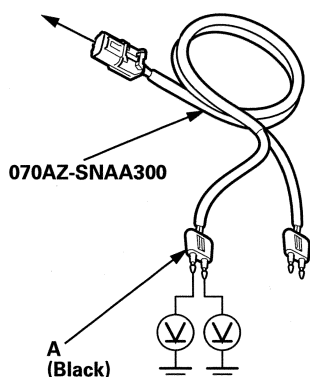


7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the left side curtain airbag inflator 2P connector on the floor wire harness.
 8. Reconnect the negative cable to the battery.
 9. Clear the DTCs with the HDS (see page 24-26).
 10. Turn the ignition switch to ON (II), then wait for 10 seconds.
 11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 33-8x indicated?*
- YES**—Go to step 12.
- NO**—Short to power in the left side curtain airbag inflator; replace the left side curtain airbag (see page 24-177), then clear the DTC. ■
12. Turn the ignition switch to LOCK (0).
 13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
 14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
 15. Disconnect the SRS inflator simulator from SRS simulator lead L. Do not disconnect SRS simulator lead L from the left side curtain airbag inflator 2P connector on the floor wire harness.
 16. Reconnect the negative cable to the battery.
 17. Turn the ignition switch to ON (II).



18. Measure the voltage between the black terminals of SRS simulator lead L (A) and body ground individually.

LEFT SIDE CURTAIN AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there less than 0.2 V?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness. ■

NO—Short to power in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

**DTC 33-9x ("x" can be 0 thru 9 or A thru F):
Short to Ground in the Left Side Curtain
Airbag Inflator**

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 33-9x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

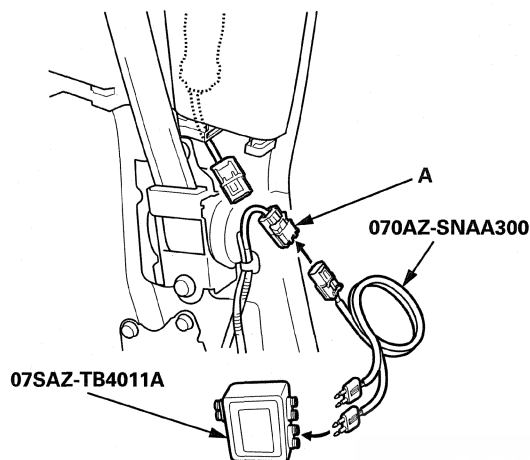
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

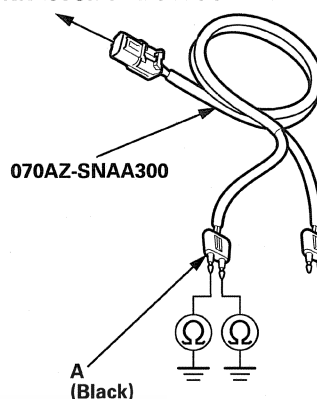
6. Remove the left cargo area side trim panel (see page 20-76) then disconnect the left side curtain airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the left side curtain airbag inflator 2P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 33-9x indicated?*
- YES**—Go to step 12.
- NO**—Short to ground in the left side curtain airbag inflator; replace the left side curtain airbag (see page 24-177), then clear the DTC.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead L. Do not disconnect SRS simulator lead L from the left side curtain airbag inflator 2P connector on the floor wire harness.

16. Measure the resistance between the black terminals of SRS simulator lead L (A) and body ground individually.

LEFT SIDE CURTAIN AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness.■

NO—Short to ground in the floor wire harness; replace the floor wire harness, then clear the DTC.■



DTC 34-1x ("x" can be 0 thru 9 or A thru F):
Open in the Right Side Curtain Airbag Inflator

DTC 34-2x ("x" can be 0 thru 9 or A thru F):
Increased Resistance in the Right Side Curtain Airbag Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

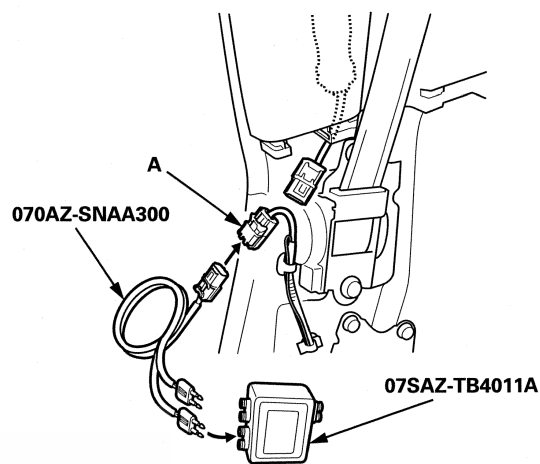
Is DTC 34-1x or 34-2x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Remove the right cargo area side trim panel (see page 20-76), then disconnect the right side curtain airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the right side curtain airbag inflator 2P connector on the floor wire harness.

8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.

11. Check for DTCs with the HDS (see page 24-25).

Is DTC 34-1x or 34-2x indicated?

YES—Go to step 12.

NO—Open or increased resistance in the right side curtain airbag inflator, replace the right side curtain airbag (see page 24-177), then clear the DTC.■

12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead L. Do not disconnect SRS simulator lead L from the right side curtain airbag inflator 2P connector on the floor wire harness.

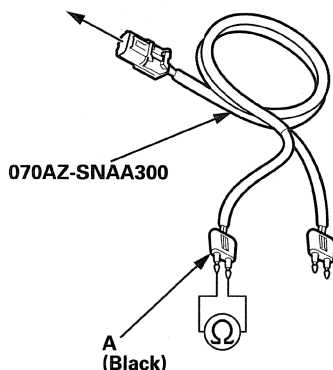
(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

16. Measure the resistance between the SRS simulator lead L (A) black terminals.

RIGHT SIDE CURTAIN AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there less than 1.0 Ω?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness. ■

NO—Open or increased resistance in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

DTC 34-3x ("x" can be 0 thru 9 or A thru F): Short to Another Wire or Decreased Resistance in the Right Side Curtain Airbag Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300
- SRS Short Cancellor 070AZ-SAA0100

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 34-3x indicated?

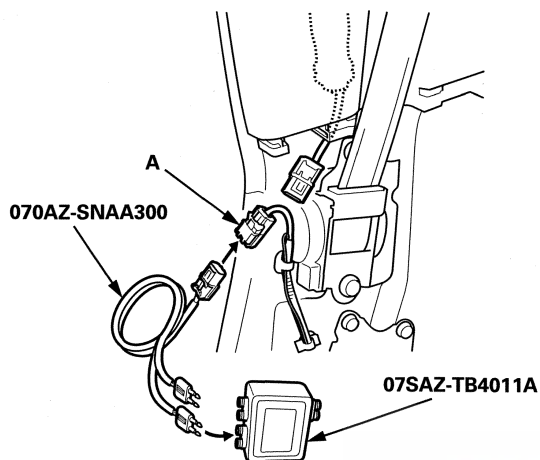
YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.



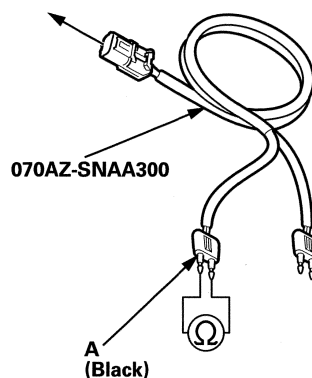
6. Remove the right cargo area side trim panel (see page 20-76) then disconnect the right side curtain airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the right side curtain airbag inflator 2P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 34-3x indicated?*
- YES**—Go to step 12.
- NO**—Short to another wire in the right side curtain airbag inflator; replace the right side curtain airbag (see page 24-177), then clear the DTC.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead L. Do not disconnect SRS simulator lead L from the right side curtain airbag inflator 2P connector on the floor wire harness.
16. Connect an SRS short canceller (070AZ-SAA0100) to SRS unit connector B (39P) terminals No. 24 and the No. 25 (see page 24-21).

17. Measure the resistance between the SRS simulator lead L (A) black terminals.

RIGHT SIDE CURTAIN AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness.■

NO—Short to another wire in the floor wire harness; replace the floor wire harness, then clear the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 34-8x ("x" can be 0 thru 9 or A thru F): Short to Power in the Right Side Curtain Airbag Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

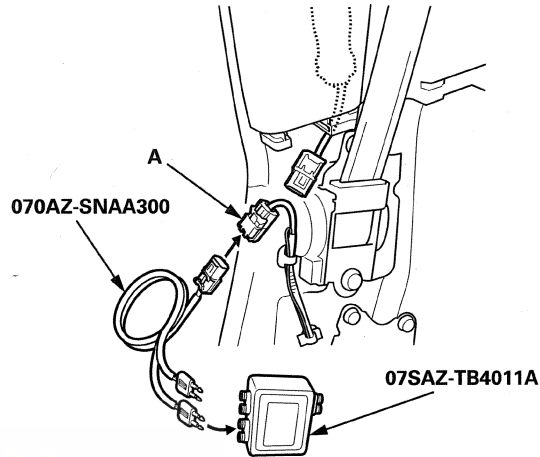
Is DTC 34-8x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Remove the right cargo area side trim panel (see page 20-76) then disconnect the right side curtain airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the right side curtain airbag inflator 2P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).

Is DTC 34-8x indicated?

YES—Go to step 12.

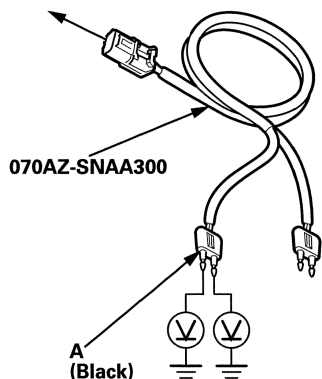
NO—Short to power in the right side curtain airbag inflator; replace the right side curtain airbag (see page 24-177), then clear the DTC. ■

12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from the SRS simulator lead L. Do not disconnect SRS simulator lead L from the right side curtain airbag inflator 2P connector on the floor wire harness.
16. Reconnect the negative cable to the battery.
17. Turn the ignition switch to ON (II), then wait for 10 seconds.



18. Measure the voltage between black terminals of SRS simulator lead L (A) and body ground individually.

RIGHT SIDE CURTAIN AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there less than 0.2 V?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness. ■

NO—Short to power in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

DTC 34-9x ("x" can be 0 thru 9 or A thru F): Short to Ground in the Right Side Curtain Airbag Inflator

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 34-9x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

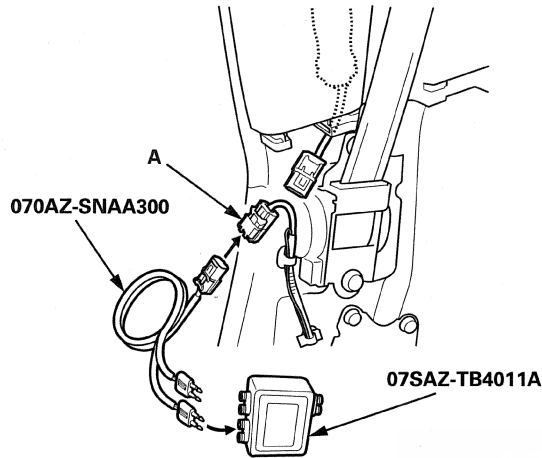
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

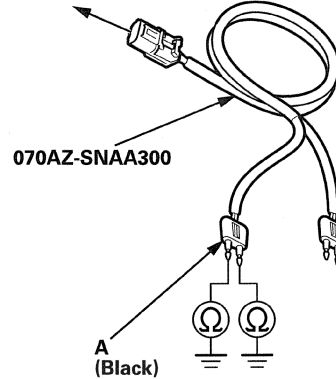
6. Remove the right cargo area side trim panel (see page 20-76) then disconnect the right side curtain airbag inflator 2P connector (A) on the floor wire harness.



7. Connect the terminals of SRS simulator lead L to the SRS inflator simulator (2 Ω connectors), and then connect SRS simulator lead L to the right side curtain airbag inflator 2P connector on the floor wire harness.
8. Reconnect the negative cable to the battery.
9. Clear the DTCs with the HDS (see page 24-26).
10. Turn the ignition switch to ON (II), then wait for 10 seconds.
11. Check for DTCs with the HDS (see page 24-25).
- Is DTC 34-9x indicated?*
- YES**—Go to step 12.
- NO**—Short to ground in the right side curtain airbag inflator; replace the right side curtain airbag (see page 24-177), then clear the DTC.■
12. Turn the ignition switch to LOCK (0).
13. Disconnect the negative cable from the battery, then wait at least 3 minutes.
14. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
15. Disconnect the SRS inflator simulator from SRS simulator lead L. Do not disconnect SRS simulator lead L from the right side curtain airbag inflator 2P connector on the floor wire harness.

16. Measure the resistance between black terminals of SRS simulator lead L (A) and body ground individually.

RIGHT SIDE CURTAIN AIRBAG INFLATOR 2P CONNECTOR on the FLOOR WIRE HARNESS



Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection; if the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the floor wire harness.■

NO—Short to ground in the floor wire harness; replace the floor wire harness, then clear the DTC.■



DTC 41-1x ("x" can be 0 thru 9 or A thru F): No Signal From the Left Front Impact Sensor

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 41-1x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Check for these connector connections:
 - SRS unit connector A (39P) and the SRS unit (see page 24-24).
 - Left front impact sensor 2P connector on the left engine compartment wire harness (see page 24-194).
 - C302 (see page 22-30).

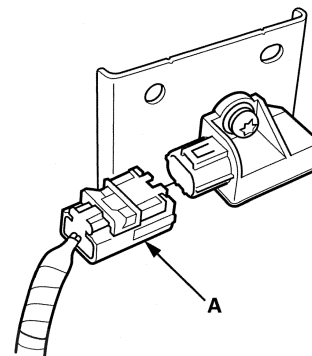
Are the connections OK?

YES—Go to step 7.

NO—Repair the poor connections, then clear the DTC, and retest. If DTC 41-1x is still present, go to step 7. ■

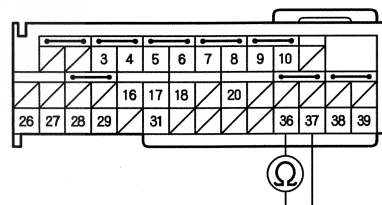
7. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).

8. Disconnect the left front impact sensor 2P connector (A) from the left front impact sensor (see page 24-194).



9. Measure the resistance between SRS unit connector A (39P) terminals No. 36 and No. 37.

SRS UNIT CONNECTOR A (39P)



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Go to step 10.

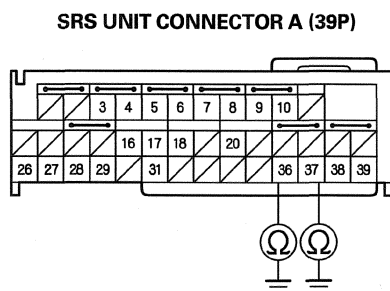
NO—Short to another wire in the left engine compartment wire harness or the dashboard wire harness; replace the faulty harness, then clear the DTC. ■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

10. Measure the resistance between body ground and SRS unit connector A (39P) terminals No. 36 and No. 37 individually.



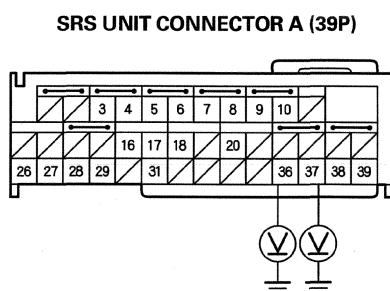
Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Go to step 11.

NO—Short to ground in the left engine compartment wire harness or the dashboard wire harness; replace the faulty harness, then clear the DTC.■

11. Reconnect the negative cable to the battery.
12. Turn the ignition switch to ON (II).
13. Measure the voltage between body ground and SRS unit connector A (39P) terminals No. 36 and No. 37 individually.



Wire side of female terminals

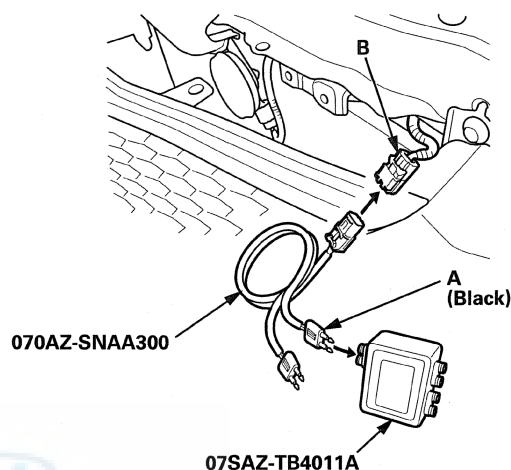
Is there less than 0.2 V?

YES—Go to step 14.

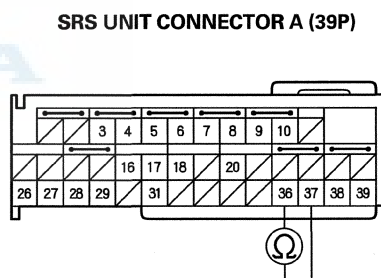
NO—Short to power in the left engine compartment wire harness or the dashboard wire harness; replace the faulty harness, then clear the DTC.■

14. Turn the ignition switch to LOCK (0).

15. Connect the black terminals (A) of SRS simulator lead L to the SRS inflator simulator (jumper connector), and then connect SRS simulator lead L to the left front impact sensor 2P connector (B).



16. Measure the resistance between SRS unit connector A (39P) terminals No. 36 and No. 37.



Wire side of female terminals

Is there less than 1.0 Ω?

YES—Faulty left front impact sensor or SRS unit; replace the left front impact sensor (see page 24-194), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). If the DTC is still present; replace the faulty harness.■

NO—Open in the left engine compartment wire harness or the dashboard wire harness; replace the faulty harness, then clear the DTC.■



**DTC 42-1x ("x" can be 0 thru 9 or A thru F):
No Signal From the Right Front Impact Sensor**

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 42-1x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Check for these connector connections:
 - SRS unit connector A (39P) and the SRS unit (see page 24-24).
 - Right front impact sensor 2P connector on the right engine compartment wire harness (see page 24-194).
 - C202 (see page 22-30).

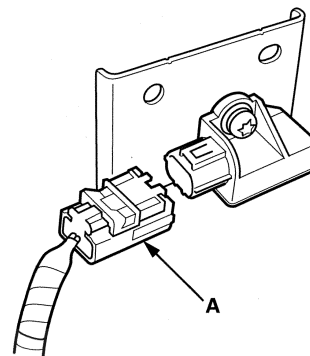
Are the connections OK?

YES—Go to step 7.

NO—Repair the poor connections, then clear the DTC, and retest. If DTC 42-1x is still present, go to step 7. ■

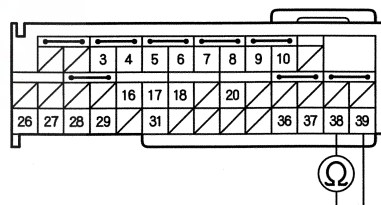
7. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).

8. Disconnect the right front impact sensor 2P connector (A) from the right front impact sensor (see page 24-194).



9. Measure the resistance between SRS unit connector A (39P) terminals No. 38 and No. 39.

SRS UNIT CONNECTOR A (39P)



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Go to step 10.

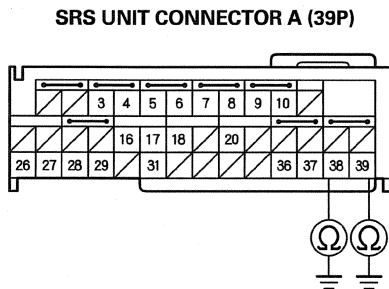
NO—Short to another wire in the right engine compartment wire harness or the dashboard wire harness; replace the faulty harness, then clear the DTC. ■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

10. Measure the resistance between body ground and SRS unit connector A (39P) terminals No. 38 and No. 39 individually.



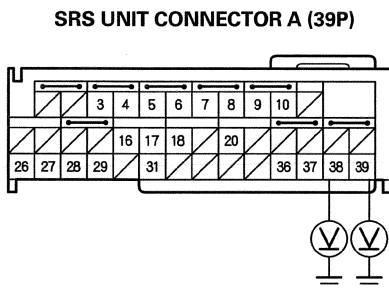
Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Go to step 11.

NO—Short to ground in the right engine compartment wire harness or the dashboard wire harness; replace the faulty harness, then clear the DTC. ■

11. Reconnect the negative cable to the battery.
12. Turn the ignition switch to ON (II).
13. Measure the voltage between body ground and SRS unit connector A (39P) terminals No. 38 and No. 39 individually.



Wire side of female terminals

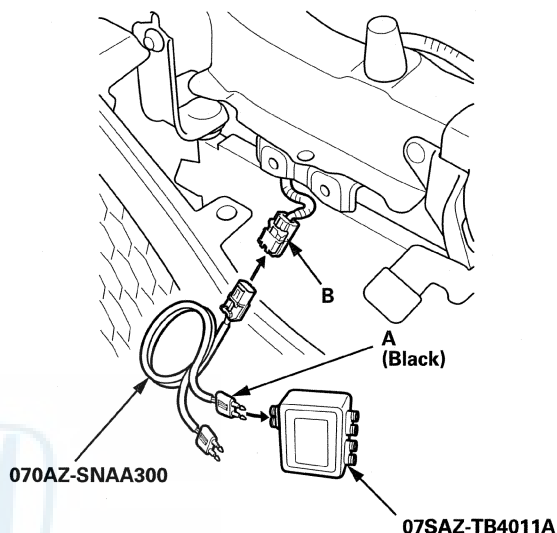
Is there less than 0.2 V?

YES—Go to step 14.

NO—Short to power in the right engine compartment wire harness or the dashboard wire harness; replace the faulty harness, then clear the DTC. ■

14. Turn the ignition switch to LOCK (0).

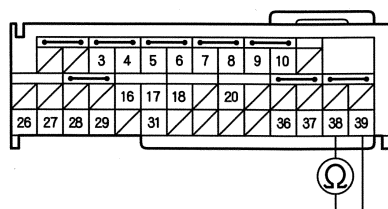
15. Connect the black terminals (A) of SRS simulator lead L to the SRS inflator simulator (jumper connector), and then connect SRS simulator lead L to the right front impact sensor 2P connector (B) on the right engine compartment wire harness.





16. Measure the resistance between SRS unit connector A (39P) terminals No. 38 and No. 39.

SRS UNIT CONNECTOR A (39P)



Wire side of female terminals

Is there less than 1.0 Ω?

YES—Faulty right front impact sensor or SRS unit; replace the right front impact sensor (see page 24-194), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). If the DTC is still present; Replace the faulty engine compartment wire harness or dashboard wire harness. ■

NO—Open in the right engine compartment wire harness or the dashboard wire harness; replace the faulty harness, then clear the DTC. ■

DTC 41-2x, 41-3x, 41-9x, 41-Ax, 41-Bx ("x" can be 0 thru 9 or A thru F): Internal Failure of the Left Front Impact Sensor

DTC 42-2x, 42-3x, 42-9x, 42-Ax, 42-Bx ("x" can be 0 thru 9 or A thru F): Internal Failure of the Right Front Impact Sensor

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for the DTCs with the HDS (see page 24-25).

Is DTC 41-2x, 41-3x, 41-9x, 41-Ax, 41-Bx, 42-2x, 42-3x, 42-9x, 42-Ax, or 42-Bx indicated?

YES—Faulty left or right front impact sensor; replace the left or right front impact sensor (see page 24-194), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). If the DTC is still present; Replace the faulty right or left engine compartment or dashboard wire harness. ■

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 43-1x ("x" can be 0 thru 9 or A thru F):
No Signal From the Left Side Impact Sensor (first)

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27) and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 43-1x indicated?

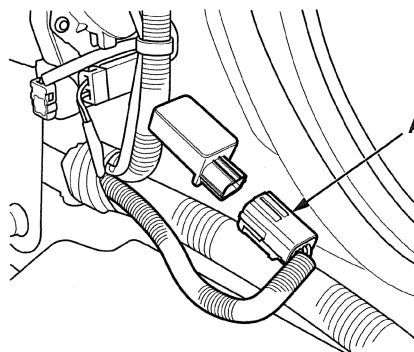
YES—

- If DTC 43-11 is indicated, go to step 4.
- If DTC 43-1x except 43-11 is indicated alone, or DTC 43-11 and 45-11 is indicated, faulty left side impact sensor(first); replace the left side impact sensor (first) (see page 24-189), then clear the DTC. ■

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC. ■

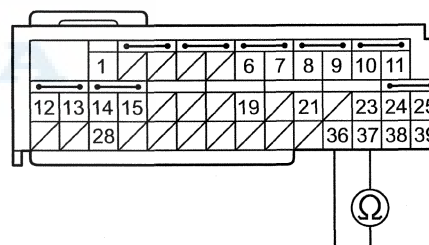
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Disconnect the left side impact sensor (first) 4P connector (A) from the left side impact sensor (first) (see page 24-189).



7. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
8. Measure the resistance between SRS unit connector B (39P) terminals No. 36 and No. 37.

SRS UNIT CONNECTOR B (39P)



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

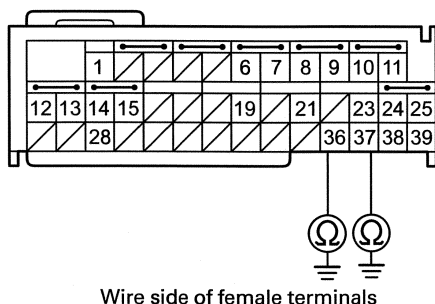
YES—Go to step 9.

NO—Short to another wire in the floor wire harness; replace the floor wire harness, then clear the DTC. ■



9. Measure the resistance between body ground and SRS unit connector B (39P) terminals No. 36 and No. 37 individually.

SRS UNIT CONNECTOR B (39P)



Is there an open circuit, or at least 1 M Ω ?

YES—Go to step 10.

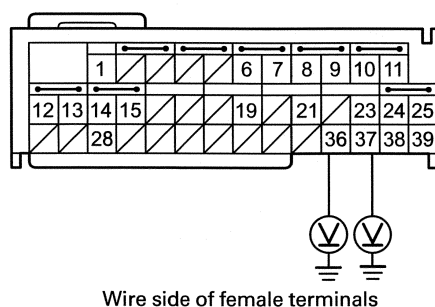
NO—Short to ground in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

10. Reconnect the negative cable to the battery.

11. Turn the ignition switch to ON (II).

12. Measure the voltage between body ground and SRS unit connector B (39P) terminals No. 36 and No. 37 individually.

SRS UNIT CONNECTOR B (39P)



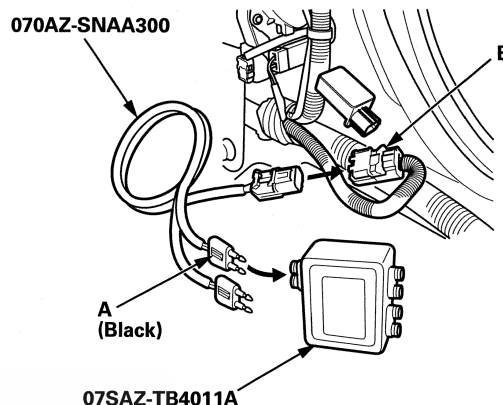
Is there less than 0.2 V?

YES—Go to step 13.

NO—Short to power in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

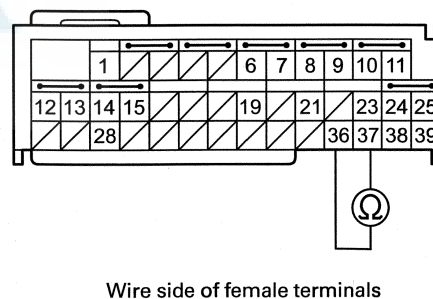
13. Turn the ignition switch to LOCK (0).

14. Connect the black terminals (A) of SRS simulator lead L to the SRS inflator simulator (jumper connector), and then connect SRS simulator lead L to the left side impact sensor (first) 4P connector (B) on the floor wire harness.



15. Measure the resistance between SRS unit connector B (39P) terminals No. 36 and No. 37.

SRS UNIT CONNECTOR B (39P)



Is there less than 1.0 Ω ?

YES—Faulty left side impact sensor(first) or SRS unit; replace the left side impact sensor (first) (see page 24-189), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). If the DTC is still present; replace the faulty floor wire harness. ■

NO—Open in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 44-1x ("x" can be 0 thru 9 or A thru F): No Signal From the Right Side Impact Sensor (first)

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 44-1x indicated?

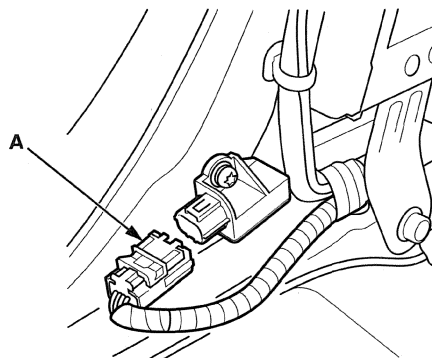
YES—

- If DTC 44-11 is indicated, go to step 4.
- If DTC 44-1x except 44-11 is indicated alone or DTC 44-11 and 46-11 are indicated, faulty right side impact sensor (first); replace the right side impact sensor (first) (see page 24-189), then clear the DTC. ■

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

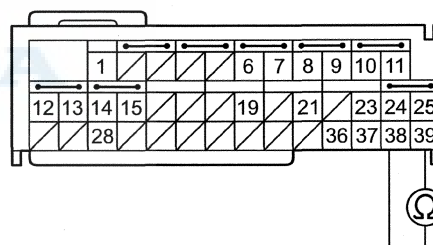
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.

6. Disconnect the right side impact sensor (first) 4P connector (A) from the right side impact sensor (first) (see page 24-189).



7. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).
8. Measure the resistance between SRS unit connector B (39P) terminals No. 38 and No. 39.

SRS UNIT CONNECTOR B (39P)



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

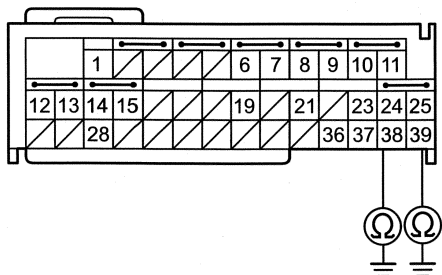
YES—Go to step 9.

NO—Short to another wire in the floor wire harness; replace the floor wire harness, then clear the DTC. ■



9. Measure the resistance between body ground and SRS unit connector B (39P) terminals No. 38 and No. 39 individually.

SRS UNIT CONNECTOR B (39P)



Wire side of female terminals

Is there an open circuit, or at least 1 M Ω ?

YES—Go to step 10.

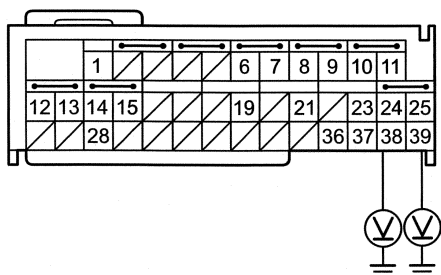
NO—Short to ground in the floor wire harness; replace the floor wire harness, then clear the DTC.■

10. Reconnect the negative cable to the battery.

11. Turn the ignition switch to ON (II).

12. Measure the voltage between body ground and SRS unit connector B (39P) terminals No. 38 and No. 39 individually.

SRS UNIT CONNECTOR B (39P)



Wire side of female terminals

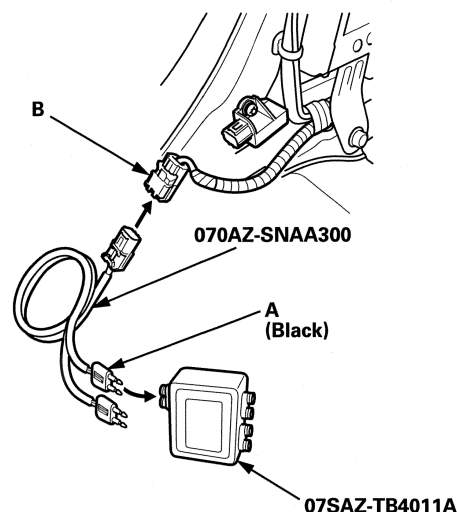
Is there less than 0.2 V?

YES—Go to step 13.

NO—Short to power in the floor wire harness; replace the floor wire harness, then clear the DTC.■

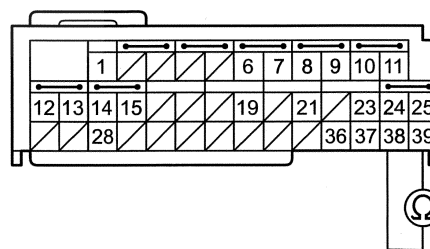
13. Turn the ignition switch to LOCK (0).

14. Connect the black terminals (A) of SRS simulator lead L to the SRS inflator simulator (jumper connector), and then connect SRS simulator lead L to the right side impact sensor (first) 4P connector (B) on the floor wire harness.



15. Measure the resistance between SRS unit connector B (39P) terminals No. 38 and No. 39.

SRS UNIT CONNECTOR B (39P)



Wire side of female terminals

Is there less than 1.0 Ω ?

YES—Faulty right side impact sensor(first) or SRS unit; replace the right side impact sensor (first) (see page 24-189), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). If the DTC is still present; replace the faulty floor wire harness.■

NO—Open in the floor wire harness; replace the floor wire harness, then clear the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 43-2x, 43-8x, 43-9x, 43-Ax, 43-Bx ("x" can be 0 thru 9 or A thru F): Internal Failure of the Left Side Impact Sensor (first)

DTC 44-2x, 44-8x, 44-9x, 44-Ax, 44-Bx ("x" can be 0 thru 9 or A thru F): Internal Failure of the Right Side Impact Sensor (first)

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
 - Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
 - Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.
1. Clear the DTCs with the HDS (see page 24-26).
 2. Turn the ignition switch to ON (II), then wait for 10 seconds.
 3. Check for the DTCs with the HDS (see page 24-25).

Is DTC 43-2x, 43-8x, 43-9x, 43-Ax, 43-Bx, 44-2x, 44-8x, 44-9x, 44-Ax, or 44-Bx indicated?

YES—Faulty left or right side impact sensor(first); replace the left or right side impact sensor (first) (see page 24-189), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). If the DTC is still present; Replace the faulty floor wire harness.■

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

DTC 45-1x ("x" can be 0 thru 9 or A thru F): No Signal From the Left Side Impact Sensor (second)

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
 - Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
 - Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.
1. Clear the DTCs with the HDS (see page 24-26).
 2. Turn the ignition switch to ON (II), then wait for 10 seconds.
 3. Check for DTCs with the HDS (see page 24-25).

Is DTC 45-1x indicated?

YES—

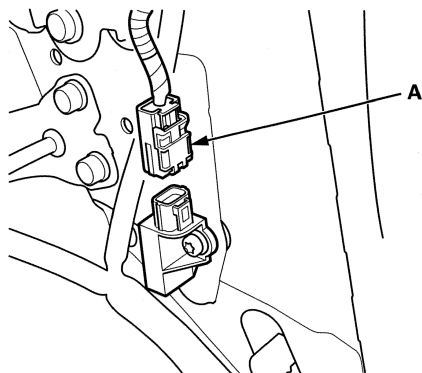
- If DTC 45-11 is indicated, go to step 4.
- If DTC 45-1x except 45-11 is indicated alone, faulty left side impact sensor(second); replace the left side impact sensor (second) (see page 24-190), then clear the DTC.■
- If DTC 43-11 and 45-11 are indicated, faulty left side impact sensor (first); replace the left side impact sensor (first) (see page 24-189), then clear the DTC.■

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect the left side impact sensor (first) 4P connector from the left side impact sensor (first) (see page 24-189).

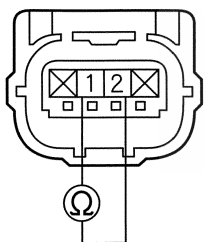


7. Disconnect the left side impact sensor (second) 2P connector (A) from the left side impact sensor (second) (see page 24-190).



8. Measure the resistance between left side impact sensor (second) 2P connector on the floor wire harness terminals No. 1 and No. 2.

LEFT SIDE IMPACT SENSOR (SECOND) 2P CONNECTOR on the FLOOR WIRE HARNESS



Wire side of female terminals

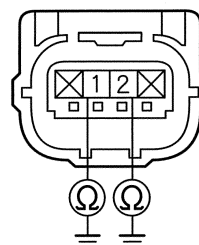
Is there an open circuit, or at least 1 MΩ?

YES—Go to step 9.

NO—Short to another wire in the floor wire harness between the left side impact sensor (first) and the left side impact sensor (second); replace the floor wire harness, then clear the DTC. ■

9. Measure the resistance between body ground and left side impact sensor (second) 2P connector on the floor wire harness terminals No. 1 and No. 2 individually.

LEFT SIDE IMPACT SENSOR (SECOND) 2P CONNECTOR on the FLOOR WIRE HARNESS



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Go to step 10.

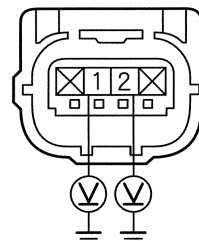
NO—Short to ground in the floor wire harness between the left side impact sensor (first) and the left side impact sensor (second); replace the floor wire harness, then clear the DTC.

10. Reconnect the negative cable to the battery.

11. Turn the ignition switch to ON (II).

12. Measure the voltage between body ground and left side impact sensor (second) 2P connector on the floor wire harness terminals No. 1 and No. 2 individually.

LEFT SIDE IMPACT SENSOR (SECOND) 2P CONNECTOR on the FLOOR WIRE HARNESS



Wire side of female terminals

Is there less than 0.2 V?

YES—Go to step 13.

NO—Short to power in the floor wire harness between the left side impact sensor (first) and the left side impact sensor (second); replace the floor wire harness, then clear the DTC.

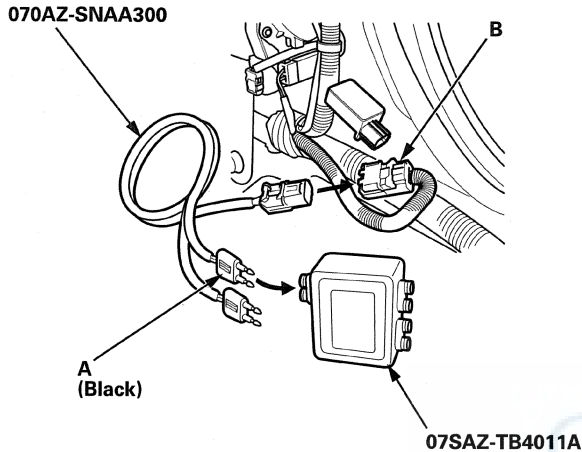
13. Turn the ignition switch to LOCK (0).

(cont'd)

SRS (Supplemental Restraint System)

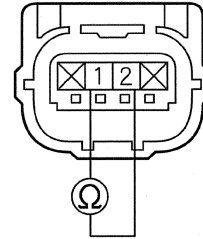
DTC Troubleshooting (cont'd)

14. Connect the black terminals (A) of SRS simulator lead L to the SRS inflator simulator (jumper connector), and then connect SRS simulator lead L to the left side impact sensor (first) 4P connector (B) on the floor wire harness.



15. Measure the resistance between left side impact sensor (second) 2P connector on the floor wire harness terminals No. 1 and No. 2.

LEFT SIDE IMPACT SENSOR (SECOND) 2P CONNECTOR on the FLOOR WIRE HARNESS



Wire side of female terminals

Is there less than 1.0 Ω?

YES—Faulty left side impact sensor (second) or SRS unit; replace the left side impact sensor (second) (see page 24-190), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). If the DTC is still present; replace the faulty floor wire harness.

NO—Open in the floor wire harness between the left side impact sensor (first) and the left side impact sensor (second); replace the floor wire harness, then clear the DTC. ■



**DTC 46-1x ("x" can be 0 thru 9 or A thru F):
No Signal From the Right Side Impact Sensor
(second)**

Special Tools Required

- SRS Inflator Simulator 07SAZ-TB4011A
- SRS Simulator Lead L 070AZ-SNAA300

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 46-1x indicated?

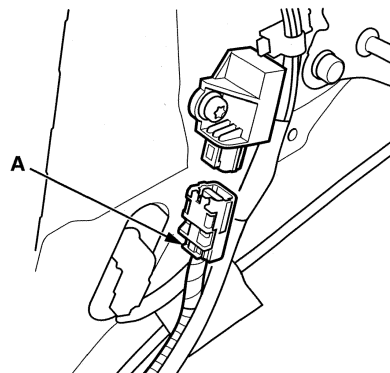
YES—

- If DTC 46-11 is indicated, go to step 4.
- If DTC 46-1x except 46-11 is indicated alone, faulty right side impact sensor (second); replace the right side impact sensor (second) (see page 24-190), then clear the DTC. ■
- If DTC 44-11 and 46-11 are indicated, faulty right side impact sensor (first); replace the right side impact sensor (first) (see page 24-189), then clear the DTC. ■

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

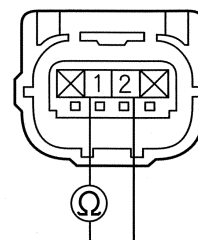
4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect the right side impact sensor (first) 4P connector from the right side impact sensor (first) (see page 24-189).

7. Disconnect the right side impact sensor (second) 2P connector (A) from the right side impact sensor (second) (see page 24-190).



8. Measure the resistance between right side impact sensor (second) 2P connector on the floor wire harness terminals No. 1 and No. 2.

**RIGHT SIDE IMPACT SENSOR (SECOND) 2P
CONNECTOR on the FLOOR WIRE HARNESS**



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Go to step 9.

NO—Short to another wire in the floor wire harness between the right side impact sensor (first) and the right side impact sensor (second); replace the floor wire harness, then clear the DTC. ■

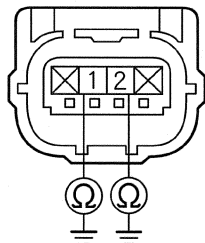
(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

9. Measure the resistance between body ground and right side impact sensor (second) 2P connector on the floor wire harness terminals No. 1 and No. 2 individually.

RIGHT SIDE IMPACT SENSOR (SECOND) 2P CONNECTOR on the FLOOR WIRE HARNESS



Wire side of female terminals

Is there an open circuit, or at least 1 M Ω ?

YES—Go to step 10.

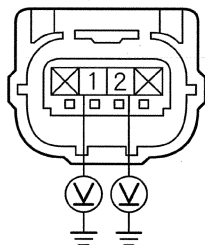
NO—Short to ground in the floor wire harness between the right side impact sensor (first) and the right side impact sensor (second); replace the floor wire harness, then clear the DTC. ■

10. Reconnect the negative cable to the battery.

11. Turn the ignition switch to ON (II).

12. Measure the voltage between body ground and right side impact sensor (second) 2P connector on the floor wire harness terminals No. 1 and No. 2 individually.

RIGHT SIDE IMPACT SENSOR (SECOND) 2P CONNECTOR on the FLOOR WIRE HARNESS



Wire side of female terminals

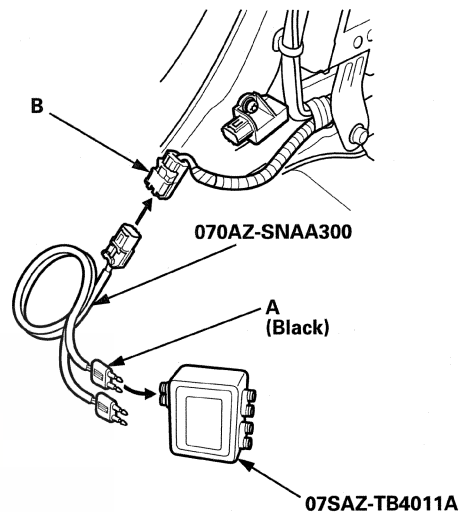
Is there less than 0.2 V?

YES—Go to step 13.

NO—Short to power in the floor wire harness between the right side impact sensor (first) and the right side impact sensor (second); replace the floor wire harness, then clear the DTC. ■

13. Turn the ignition switch to LOCK (0).

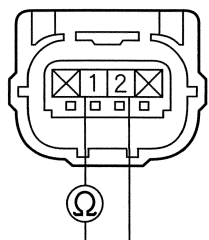
14. Connect the black terminals (A) of SRS simulator lead L to the SRS inflator simulator (jumper connector), and then connect SRS simulator lead L to the right side impact sensor (first) 4P connector (B) on the floor wire harness.





15. Measure the resistance between right side impact sensor (second) 2P connector on the floor wire harness terminals No. 1 and No. 2.

RIGHT SIDE IMPACT SENSOR (SECOND) 2P CONNECTOR on the FLOOR WIRE HARNESS



Wire side of female terminals

Is there less than 1.0 Ω ?

YES—Faulty right side impact sensor(second) or SRS unit; replace the right side impact sensor (second) (see page 24-190), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). If the DTC is still present; replace the faulty floor wire harness. ■

NO—Open in the floor wire harness between the right side impact sensor (first) and the right side impact sensor (second); replace the floor wire harness, then clear the DTC. ■

DTC 45-2x, 45-8x, 45-9x, 45-Ax, 45-Bx ("x" can be 0 thru 9 or A thru F): Internal Failure of the Left Side Impact Sensor (second)

DTC 46-2x, 46-8x, 46-9x, 46-Ax, 46-Bx ("x" can be 0 thru 9 or A thru F): Internal Failure of the Right Side Impact Sensor (second)

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for the DTCs with the HDS (see page 24-25).

Is DTC 45-2x, 45-8x, 45-9x, 45-Ax, 45-Bx, 46-2x, 46-8x, 46-9x, 46-Ax, or 46-Bx indicated?

YES—Faulty left or right side impact sensor (second); replace the left or right side impact sensor (second) (see page 24-190), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). ■

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 51-xx, 52-xx, 53-xx, 54-xx, 55-xx ("x" can be 0 thru 9 or A thru F): Internal Failure of the SRS Unit

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before troubleshooting any of these DTCs, check the battery/system voltage and battery cable connections. If the voltage is low, repair the charging system or replace the battery before troubleshooting the SRS. If the battery/system voltage is now OK, ask the customer if the battery ever went dead or if the engine was started and run with the battery in a low state of charge. A dead battery may trigger one or more of these DTCs.
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.
- Determine if the vehicle has been in a collision; make sure all required parts were replaced.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 51-xx, 52-xx, 53-xx, 54-xx, or 55-xx indicated?

YES—Replace the SRS unit (see page 24-188).■

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

DTC 53-FF: SRS Unit Programming Error

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- This DTC is indicated when a SRS unit update is not completed properly.
- Do not turn the ignition switch to ACCESSORY (I) or to LOCK (0) while updating the SRS unit. If you turn the ignition switch to ACCESSORY (I) or to LOCK (0) before you complete the SRS unit update procedure, the SRS unit can be damaged.
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).

1. Do the SRS unit update procedure (see page 24-27).
2. Clear the DTCs with the HDS (see page 24-26).
3. Turn the ignition switch to LOCK (0).
4. Turn the ignition switch to ON (II), then wait for 10 seconds.
5. Check for DTCs with the HDS (see page 24-25).

Is DTC 53-FF indicated?

YES—Replace the original SRS unit (see page 24-188).■

NO—Update is complete.■



DTC 56-21: Lost Communication With the ECM/PCM (PGM-FI system)

DTC 56-22, 56-23: Undefined Data Received From the ECM/PCM (PGM-FI system)

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Check for any F-CAN and B-CAN communication DTCs with the HDS.

Are there any communication DTCs?

YES—Go to the appropriate DTC troubleshooting.

NO—Go to step 2.

2. Clear the DTCs with the HDS (see page 24-26).
3. Turn the ignition switch to ON (II), then wait for 10 seconds.
4. Check for DTCs with the HDS (see page 24-25).

Is DTC 56-21, 56-31, 56-22, 56-23, 56-32, or 56-33 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

5. Turn the ignition switch to LOCK (0).

6. Start the engine, and see if the malfunction indicator lamp (MIL) also stays on.

Does the MIL stay on longer than 30 seconds?

YES—Go to MIL Circuit Troubleshooting (see page 11-192). ■

NO—Go to step 7.

7. Turn the ignition switch to LOCK (0).
8. Jump the SCS line with the HDS.

NOTE: This step must be done to protect the ECM/PCM from damage.

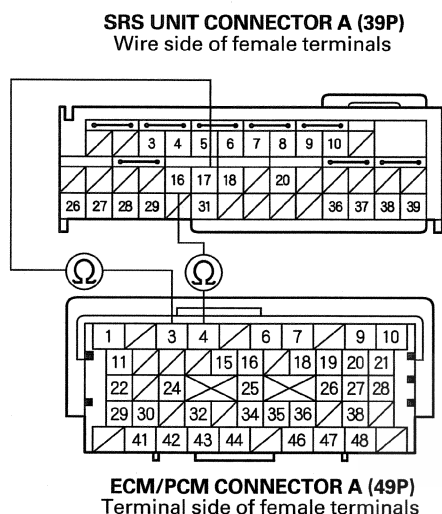
9. Disconnect ECM/PCM connector A (49P) from the ECM/PCM (see page 11-6).
10. Disconnect the negative cable from the battery, then wait at least 3 minutes.
11. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

12. Check for continuity between SRS unit connector A (39P) terminal No. 16 and ECM/PCM connector A (49P) terminal No. 4, and between SRS unit connector A (39P) terminal No. 17 and ECM/PCM connector A (49P) terminal No. 3.



Is there continuity?

YES—Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-188). ■

NO—Open in the harness between the SRS unit connector A (39P) terminal No. 16 and ECM/PCM connector A (49P) terminal No. 4, or between the SRS unit connector A (39P) terminal No. 17 and ECM/PCM connector A (49P) terminal No. 3 (left engine compartment wire harness or the dashboard wire harness); replace the faulty harness, then clear the DTC. ■

DTC 56-25: Lost Communication With the Gauge Control Module

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Check for any F-CAN and B-CAN communication DTCs with the HDS.

Are there any communication DTCs?

YES—Go to the appropriate DTC troubleshooting.

NO—Go to step 2.

2. Release the parking brake, turn the ignition switch to ON (II), and see if the brake system indicator comes on for 2 seconds and then goes off.

Does the brake system indicator come on and then go off after 2 seconds?

YES—Go to step 3.

NO—Faulty gauge control module. Do the gauge control module self-diagnostic function (see page 22-274), and retest. If the gauge control module fails the self-diagnosis, replace the gauge control module (see page 22-294), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). ■

3. Clear the DTCs with the HDS (see page 24-26).

4. Turn the ignition switch to ON (II), then wait for 10 seconds.

5. Check for DTCs with the HDS (see page 24-25).

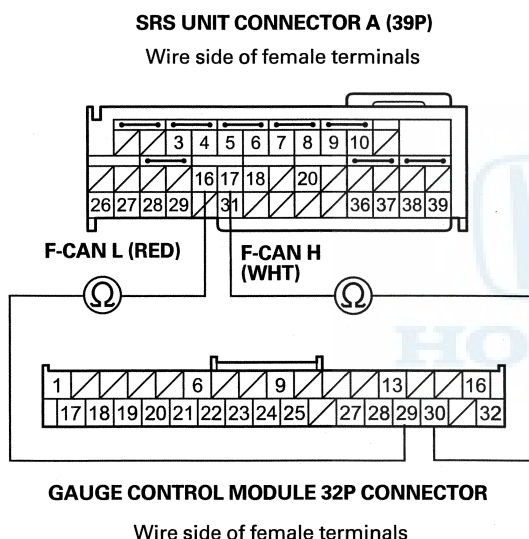
Is DTC 56-25 indicated?

YES—Go to step 6.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■



6. Turn the ignition switch to LOCK (0).
7. Disconnect the negative cable from the battery, then wait at least 3 minutes.
8. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).
9. Disconnect gauge control module 32P connector (see page 22-294).
10. Check for continuity between SRS unit connector A (39P) terminal No. 16 and gauge control module 32P connector terminal No. 29, and between SRS unit connector A (39P) terminal No. 17 and gauge control module 32P connector terminal No. 30.



Is there continuity?

YES—Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-188). If the DTC does not clear, replace the dashboard wire harness.■

NO—Open in the harness between SRS unit connector A (39P) terminal No. 16 and gauge control module 32P connector terminal No. 29, or between the SRS unit connector A (39P) terminal No. 17 and gauge control module 32P connector terminal No. 30; replace the dashboard wire harness, then clear the DTC.■

DTC 56-26, 56-27: Undefined Data Received From the Gauge Control Module

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Check for any F-CAN and B-CAN communication DTCs with the HDS.

Are there any communication DTCs?

YES—Go to the appropriate DTC troubleshooting.

NO—Go to step 2.

2. Clear the DTCs with the HDS (see page 24-26).
3. Turn the ignition switch to ON (II), then wait for 10 seconds.
4. Check for DTCs with the HDS (see page 24-25).

Is DTC 56-26 or 56-27 indicated?

YES—Faulty gauge control module. Do the gauge control module self-diagnostic function (see page 22-274), and retest. If the gauge control module fails the self-diagnosis, replace the gauge control module (see page 22-294), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188).■

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 56-31: Lost Communication With the ECM/PCM (PGM-FI system)

DTC 56-32, 56-33: Undefined Data Received From the ECM/PCM (PGM-FI system)

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Check for any F-CAN and B-CAN communication DTCs with the HDS.

Are there any communication DTCs?

YES—Go to the appropriate DTC troubleshooting. ■

NO—Go to step 2.

2. Clear the DTCs with the HDS (see page 24-26).
3. Turn the ignition switch to ON (II), then wait for 10 seconds.
4. Check for the DTCs with the HDS (see page 24-25).

Is DTC 56-31, 56-32 and 56-33 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

5. Turn the ignition switch to LOCK (0).
6. Turn the ignition switch to ON (II).
7. Start the engine, and see if the malfunction indicator lamp (MIL) also stays on.

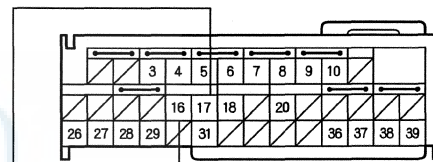
Does the MIL stay on longer than 30 seconds?

YES—Go to the MIL Circuit Troubleshooting (see page 11-192). ■

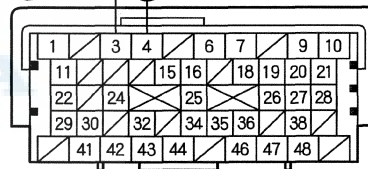
NO—Go to step 8.

8. Turn the ignition switch to LOCK (0).
9. Disconnect the negative cable from the battery, then wait at least 3 minutes.
10. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).
11. Disconnect ECM/PCM connector A (49P) from the ECM/PCM (see page 11-6).
12. Check for continuity between SRS unit connector A (39P) terminal No. 16 and ECM/PCM connector A (49P) terminal No. 4, and between SRS unit connector A (39P) terminal No. 17 and ECM/PCM connector A (49P) terminal No. 3.

SRS UNIT CONNECTOR A (39P)
Wire side of female terminals



ECM/PCM CONNECTOR A (49P)
Terminal side of female terminals



Is there continuity?

YES—Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-188). ■

NO—Open in the harness between the SRS unit connector A (39P) terminal No. 16 and ECM/PCM connector A (49P) terminal No. 4, or between the SRS unit connector A (39P) terminal No. 17 and ECM/PCM connector A (49P) terminal No. 3 (left engine compartment wire harness or the dashboard wire harness); replace the faulty harness, then clear the DTC. ■



**DTC 61-1x ("x" can be 0 thru 9 or A thru F):
Open in the Driver's Seat Belt Buckle Switch**

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

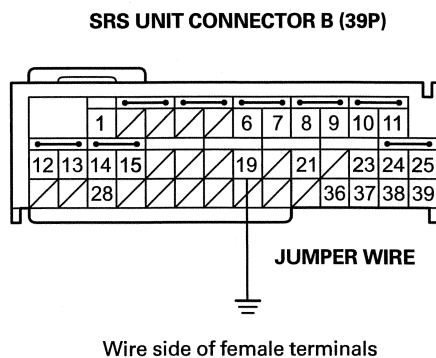
1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
3. Turn the ignition switch to ON (II), then buckle and unbuckle the driver's seat belt several times.
4. Check for DTCs with the HDS (see page 24-25).

Is DTC 61-1x indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

5. Turn the ignition switch to LOCK (0).
6. Install a jumper wire between SRS unit connector B (39P) terminal No. 19 and body ground.



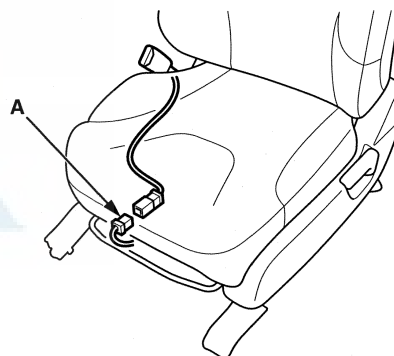
7. Clear the DTCs with the HDS (see page 24-26).
8. Turn the ignition switch to ON (II), then wait for 10 seconds.
9. Check for DTCs with the HDS (see page 24-25).

Is DTC 61-2x indicated?

YES—Go to step 10.

NO—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-188). ■

10. Turn the ignition switch to LOCK (0).
11. Disconnect the jumper wire installed on step 6.
12. Disconnect the driver's seat belt buckle switch 2P connector (A) on the floor wire harness.



13. Turn the ignition switch to ON (II).

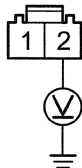
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SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

14. Measure the voltage between the driver's seat belt buckle switch 2P connector on the floor wire harness terminal No. 2 and body ground.

DRIVER'S SEAT BELT BUCKLE SWITCH 2P CONNECTOR on the FLOOR WIRE HARNESS



Wire side of female terminals

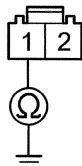
Is there more than 10 V?

YES—Go to step 15.

NO—Open in the floor wire harness; replace the floor wire harness, then clear the DTC.■

15. Turn the ignition switch to LOCK (0).
16. Measure the resistance between the driver's seat belt buckle switch 2P connector on the floor wire harness terminal No. 1 and body ground.

DRIVER'S SEAT BELT BUCKLE SWITCH 2P CONNECTOR on the FLOOR WIRE HARNESS



Wire side of female terminals

Is there less than 1.0 Ω?

YES—Faulty driver's seat belt buckle switch; replace the driver's seat belt buckle assembly (see page 24-6), then clear the DTC.■

NO—Open in the floor wire harness; check for a poor ground at G601 (see page 22-40). If the ground is OK, replace the floor wire harness, then clear the DTC.■

DTC 61-2x ("x" can be 0 thru 9 or A thru F): Short in the Driver's Seat Belt Buckle Switch

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).

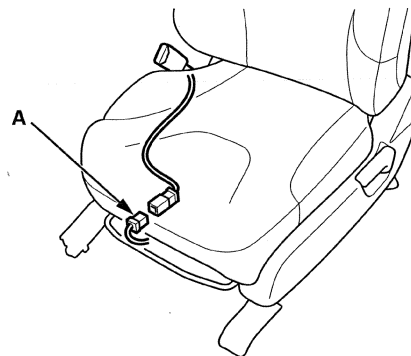
1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
3. Turn the ignition switch to ON (II), then buckle and unbuckle the driver's seat belt several times.
4. Check for the DTCs with the HDS (see page 24-25).

Is DTC 61-2x indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the driver's seat belt buckle switch 2P connector (A) on the floor wire harness.





7. Clear the DTCs with the HDS (see page 24-26).
8. Turn the ignition switch to ON (II), then wait for 10 seconds.
9. Check for DTCs with the HDS (see page 24-25).

Is DTC 61-2x indicated?

YES—Short to ground in the floor wire harness; replace the floor wire harness then clear the DTC.■

NO—Faulty driver's seat belt buckle switch; replace the driver's seat belt buckle assembly (see page 24-6), then clear the DTC.■

DTC 62-1x ("x" can be 0 thru 9 or A thru F): Open in the Front Passenger's Seat Belt Buckle Switch

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
3. Turn the ignition switch to ON (II), then buckle and unbuckle the front passenger's seat belt several times.
4. Check for DTCs with the HDS (see page 24-25).

Is DTC 62-1x indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

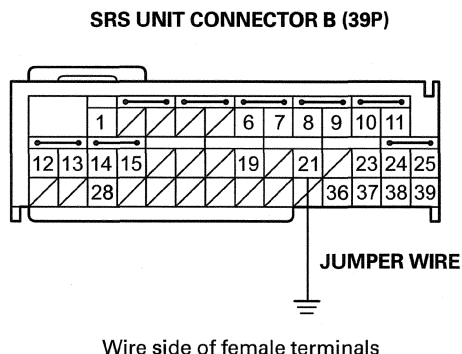
5. Turn the ignition switch to LOCK (0).

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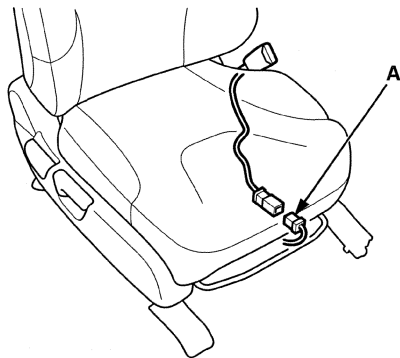
SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

6. Install a jumper wire between SRS unit connector B (39P) terminal No. 21 and body ground.



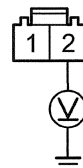
7. Clear the DTCs with the HDS (see page 24-26).
8. Turn the ignition switch to ON (II), then wait for 10 seconds.
9. Check for DTCs with the HDS (see page 24-25).
- Is DTC 62-2x indicated?*
- YES**—Go to step 10.
- NO**—Faulty SRS unit or poor connection at SRS unit connector B (39P) and the SRS unit. Check the connection between the connector and the SRS unit. If the connection is OK, replace the SRS unit (see page 24-188). ■
10. Turn the ignition switch to LOCK (0).
11. Disconnect the jumper wire installed on step 6.
12. Disconnect the front passenger's seat belt buckle switch 2P connector (A) on the floor wire harness.



13. Turn the ignition switch to ON (II).

14. Measure the voltage between the body ground and front passenger's seat belt buckle switch 2P connector terminal No. 2 on the floor wire harness.

FRONT PASSENGER'S SEAT BELT BUCKLE SWITCH 2P CONNECTOR on the FLOOR WIRE HARNESS



Wire side of female terminals

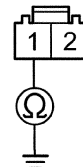
Is there more than 10 V?

YES—Go to step 15.

NO—Open in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

15. Turn the ignition switch to LOCK (0).
16. Measure the resistance between the body ground and front passenger's seat belt buckle switch 2P connector terminal No. 1 on the floor wire harness.

FRONT PASSENGER'S SEAT BELT BUCKLE SWITCH 2P CONNECTOR on the FLOOR WIRE HARNESS



Wire side of female terminals

Is there less than 1.0 Ω?

YES—Faulty front passenger's seat belt buckle switch; replace the front passenger's seat belt buckle assembly (see page 24-6), then clear the DTC. ■

NO—Open in the floor wire harness; check for a poor ground at G603. If the ground is OK, replace the floor wire harness, then clear the DTC. ■



**DTC 62-2x ("x" can be 0 thru 9 or A thru F):
Short in the Front Passenger's Seat Belt
Buckle Switch**

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).

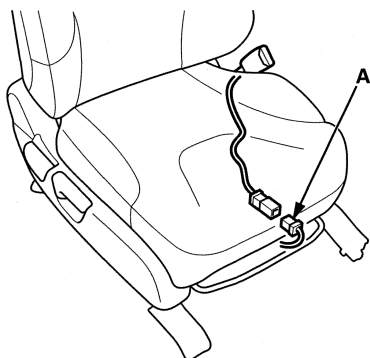
1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
3. Turn the ignition switch to ON (II), then buckle and unbuckle the front passenger's seat belt several times.
4. Check for DTCs with the HDS (see page 24-25).

Is DTC 62-2x indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

5. Turn the ignition switch to LOCK (0).
6. Disconnect the front passenger's seat belt buckle switch 2P connector (A) on the floor wire harness.



7. Clear the DTCs with the HDS (see page 24-26).
8. Turn the ignition switch to ON (II), then wait for 10 seconds.
9. Check for DTCs with the HDS (see page 24-25).

Is DTC 62-2x indicated?

YES—Short to ground in the floor wire harness; replace the floor wire harness, then clear the DTC. ■

NO—Faulty front passenger's seat belt buckle switch; replace the front passenger's seat belt buckle assembly (see page 24-6), then clear the DTC. ■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 71-1x ("x" can be 0 thru 9 or A thru F):

Open in the Driver's Seat Position Sensor

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.
- Information marked with an asterisk (*1) applies to '09-11 models.
- Information marked with an asterisk (*2) applies to '12 model.

1. Raise the driver's seat all the way up.
2. Clear the DTCs with the HDS (see page 24-26).
3. Turn the ignition switch to ON (II), then wait for 10 seconds.
4. Check for DTCs with the HDS (see page 24-25).

Is DTC 71-1x indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

5. Turn the ignition switch to LOCK (0).
6. Check for these connector connections:
 - Driver's seat position sensor 2P connector on the driver's seat position sensor harness (see page 24-195).
 - G603 (see page 22-40).

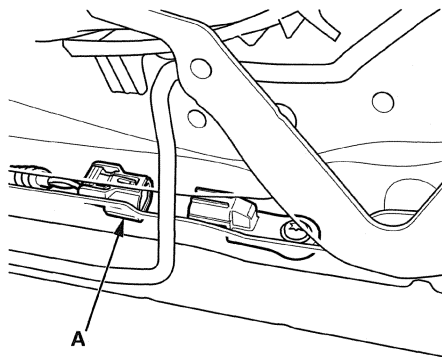
Are the connection OK?

YES—Go to step 7.

NO—Repair the poor connections, then clear the DTC, and retest. If DTC 71-1x is still present, go to step 7.

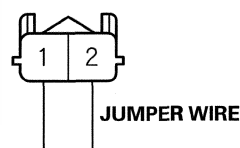
7. Remove the seat recline cover (see page 20-127).

8. Disconnect the driver's seat position sensor 2P connector (A) on the driver's seat position sensor harness.



9. Install a jumper wire between the driver's seat position sensor 2P connector on the driver's seat position sensor harness terminals No. 1 and No. 2.

DRIVER'S SEAT POSITION SENSOR 2P CONNECTOR on the DRIVER'S SEAT POSITION SENSOR HARNESS

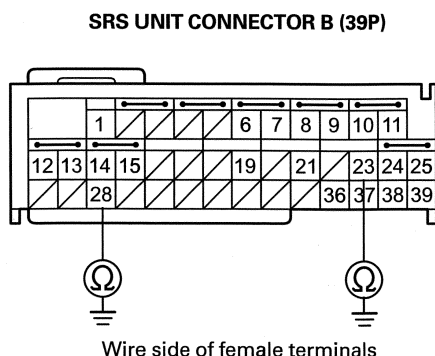


Wire side of female terminals

10. Disconnect the negative cable from the battery, then wait at least 3 minutes.
11. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).



12. Measure the resistance between body ground and SRS unit connector B (39P) terminal No. 23*¹ (No. 28*²).



Is there less than 1.0 Ω ?

YES—Faulty driver's seat position sensor or SRS unit; replace the driver's seat position sensor (see page 24-195), then clear the DTC. If the problem is still present, replace the SRS unit (see page 24-188). ■

NO—Open in the floor wire harness or the driver's seat position sensor harness; replace the faulty harness, then clear the DTC. ■

DTC 71-2x ("x" can be 0 thru 9 or A thru F): Short in the Driver's Seat Position Sensor

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.
- Information marked with an asterisk (*1) applies to '09-11 models.
- Information marked with an asterisk (*2) applies to '12 model.

1. Raise the driver's seat all the way up.
2. Clear the DTCs with the HDS (see page 24-26).
3. Turn the ignition switch to ON (II), then wait for 10 seconds.
4. Check for DTCs with the HDS (see page 24-25).

Is DTC 71-2x indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

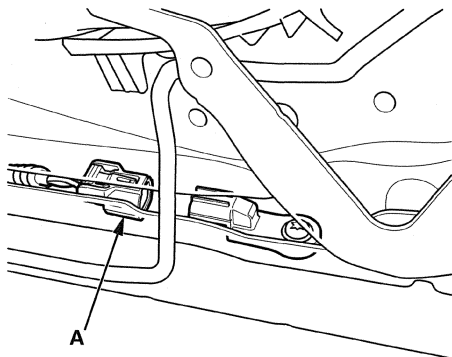
5. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
6. Remove the seat recline cover (see page 20-127).

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

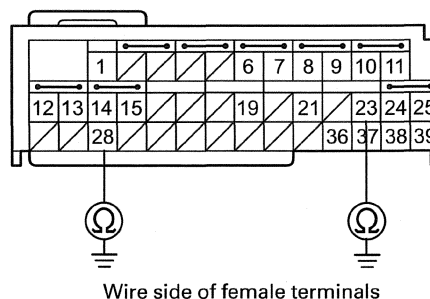
7. Disconnect the driver's seat position sensor 2P connector (A) on the driver's seat position sensor harness.



8. Clear the DTCs with the HDS (see page 24-26).
9. Turn the ignition switch to ON (II), then wait for 10 seconds.
10. Check for DTCs with the HDS (see page 24-25).
- Is DTC 71-2x indicated?*
- YES**—Go to step 11.
- NO**—Faulty driver's seat position sensor; replace the driver's seat position sensor (see page 24-195), then clear the DTC. ■
11. Turn the ignition switch to LOCK (0).
12. Disconnect the negative cable to the battery, then wait at least 3 minutes.
13. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).

14. Measure the resistance between body ground and SRS unit connector B (39P) terminal No. 23*¹ (No. 28*²).

SRS UNIT CONNECTOR B (39P)



Is there an open circuit, or at least 1 MΩ?

YES—Faulty driver's seat position sensor or SRS unit; replace the driver's seat position sensor (see page 24-195), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). ■

NO—Short to ground in the floor wire harness or the driver's seat position sensor harness; replace the faulty harness, then clear the DTC. ■



DTC 81-4x, 81-5x ("x" can be 0 thru 9 or A thru F), 81-63, 81-64: Internal Failure of the ODS Unit

NOTE

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for the DTCs with the HDS. (see page 24-25)

Is DTC 81-4x, 81-5x, 81-63, or 81-64 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

4. Clear the DTCs with the HDS (see page 24-26).
5. Do the ODS unit initialization (see page 24-28).
6. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
7. Turn the ignition switch to ON (II), then wait for 10 seconds.
8. Check for DTCs with the HDS. (see page 24-25)

Is DTC 81-4x, 81-5x, 81-63, or 81-64 indicated?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time.■

9. Replace the ODS unit (see page 24-193).

10. Clear the DTCs with the HDS (see page 24-26).

11. Turn the ignition switch to ON (II), then wait for 10 seconds.

12. Check for DTCs with the HDS (see page 24-25).

Is DTC 81-4x, 81-5x, 81-63, or 81-64 indicated?

YES—Replace the SRS unit (see page 24-188).■

NO—The system is OK at this time.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 81-61: No Signal From the ODS Unit

DTC 81-62: Incorrect data from the ODS unit

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Make sure nothing is on the front passenger's seat.
2. Clear the DTCs with the HDS (see page 24-26).
3. Turn the ignition switch to ON (II), then wait for 10 seconds.
4. Check for DTCs with the HDS (see page 24-25).

Is DTC 81-61 or 81-62 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

5. Turn the ignition switch to LOCK (0).
6. Check the No. 8 (7.5 A) fuse in the under-dash fuse/relay box.

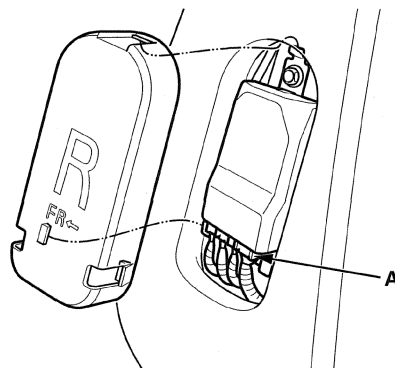
Is the fuse OK?

YES—Go to step 7.

NO—Replace the fuse, then turn the ignition switch to ON (II). If the fuse blows again, check for a short in the No. 8 (7.5 A) fuse circuit (the floor wire harness or the ODS unit harness); replace the faulty harness, then clear the DTC. ■

7. Remove the front passenger's seat-back cover/pad. (see page 20-123)

8. Check the connection between the ODS unit harness 18P connector (A) and the ODS unit.



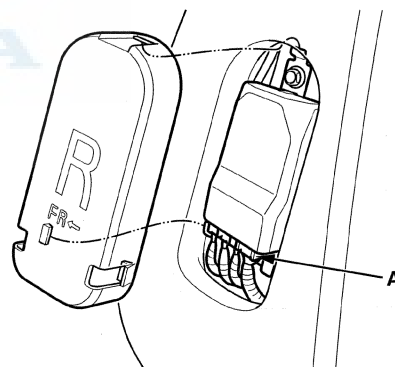
*: This illustration shows '09-10 models.

Is the connection OK?

YES—Go to step 9.

NO—Repair the poor connection, clear the DTC, and retest. If DTC 81-61 or 81-62 is still present, go to step 5.

9. Disconnect the ODS unit harness 18P connector (A) from the ODS unit.



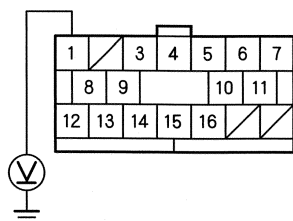
*: This illustration shows '09-10 models.

10. Turn the ignition switch to ON (II), then wait for 10 seconds.



11. Measure the voltage between body ground and ODS unit harness 18P connector terminal No. 1.

ODS UNIT HARNESS 18P CONNECTOR



Wire side of female terminals

Is there battery voltage?

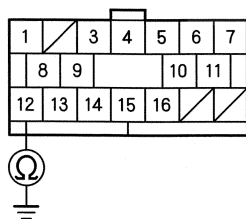
YES—Go to step 12.

NO—Open in the floor wire harness, or the ODS unit harness; replace the faulty harness, then clear the DTC.■

12. Turn the ignition switch to LOCK (0).

13. Measure the resistance between body ground and ODS unit harness 18P connector terminal No. 12.

ODS UNIT HARNESS 18P CONNECTOR



Wire side of female terminals

Is there less than 1.0 Ω?

YES—Go to step 14.

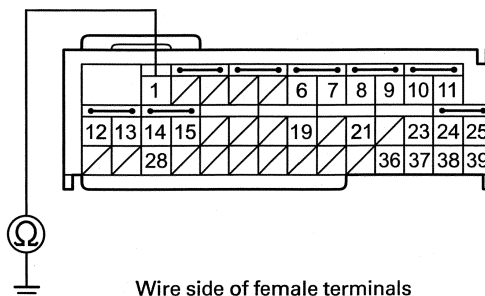
NO—Open in the floor wire harness or the ODS unit harness, or a poor connection at the ODS unit harness 18P connector and the ODS unit. Check the ground connection at the G603 (see page 22-40). Check the connection; if the connection is OK, replace the faulty harness, then clear the DTC.■

14. Disconnect the negative cable from the battery, then wait at least 3 minutes.

15. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).

16. Measure the resistance between body ground and SRS unit connector B (39P) terminal No. 1.

SRS UNIT CONNECTOR B (39P)



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Go to step 17.

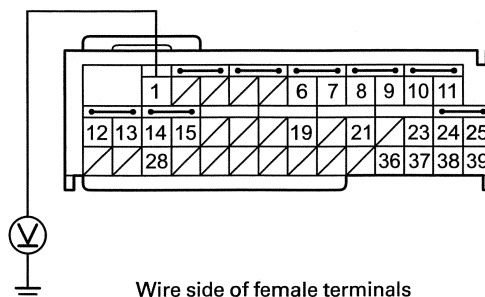
NO—Short to ground or to another wire in the floor wire harness or the ODS unit harness; replace the faulty harness, then clear the DTC.■

17. Reconnect the negative cable to the battery.

18. Turn the ignition switch to ON (II), then wait for 10 seconds.

19. Measure the voltage between body ground and SRS unit connector B (39P) terminal No. 1.

SRS UNIT CONNECTOR B (39P)



Wire side of female terminals

Is there less than 0.2 V?

YES—Go to step 20.

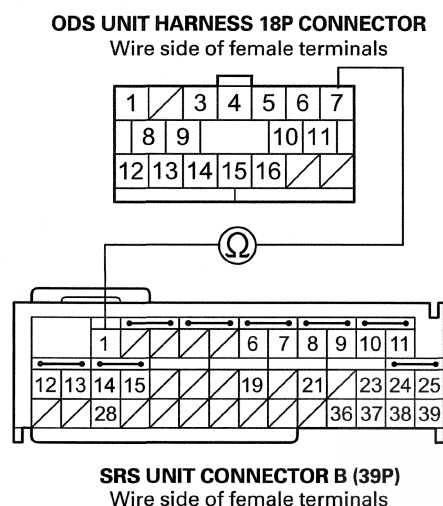
NO—Short to power in the floor wire harness or the ODS unit harness; replace the faulty harness, then clear the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

20. Turn the ignition switch to LOCK (0).
21. Measure the resistance between SRS unit connector B (39P) terminal No. 1 and ODS unit harness 18P connector terminal No. 7.



Is there less than 1.0 Ω ?

YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). ■

NO—Open in the floor wire harness or ODS unit harness; replace the faulty harness, then clear the DTC. ■

DTC 81-71, 81-78: ODS Unit Not Calibrated

DTC 85-71, 85-78: ODS Unit Not Initialized

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 81-71, 81-78, 85-71, or 85-78 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Clear the DTCs with the HDS (see page 24-26).
5. Do initialization;
 - DTC 81-71, 81-78: front passenger's weight sensor initialization (see page 24-29).
 - DTC 85-71, 85-78: ODS unit initialization (see page 24-28).
6. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
7. Turn the ignition switch to ON (II), then wait for 10 seconds.
8. Check for DTCs with the HDS (see page 24-25).

Is DTC 81-71, 81-78, 85-71, or 85-78 indicated?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time. ■



9. Replace the ODS unit (see page 24-193), then clear the DTC.

10. Turn the ignition switch to ON (II), then wait for 10 seconds.

11. Check for DTCs with the HDS (see page 24-25).

Is DTC 81-71, 81-78, 85-71, or 85-78 indicated?

YES—Replace the SRS unit (see page 24-188).■

NO—The system is OK at this time.■

DTC 81-79: Front Passenger's Weight Sensors Initial Check Failure

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).

2. Turn the ignition switch to ON (II), then wait for 10 seconds.

3. Check for DTCs with the HDS. (see page 24-25)

Is DTC 81-79 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

4. Turn the ignition switch to LOCK (0).

5. Make sure nothing is on or under the front passenger's seat, and make sure nothing is in the seat-back pocket.

6. Clear the DTCs with the HDS (see page 24-26).

7. Turn the ignition switch to ON (II), then wait for 10 seconds.

8. Check for DTCs with the HDS. (see page 24-25)

Is DTC 81-79 indicated?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

9. Turn the ignition switch to LOCK (0).
10. Loosen the front passenger's seat mounting bolts, and shake the seat in all directions. Tighten the seat mounting bolts to the specified torque.
11. Clear the DTCs with the HDS (see page 24-26).
12. Do the front passenger's weight sensor initialization (see page 24-29).
13. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
14. Turn the ignition switch to ON (II), then wait for 10 seconds.
15. Check for DTCs with the HDS. (see page 24-25)
Is DTC 81-79 indicated?
YES—Go to step 16.
NO—Intermittent failure, the system is OK at this time.■
16. Replace the front passenger's seat frame including all front passenger's weight sensors (see page 24-191), then clear the DTC.
17. Turn the ignition switch to ON (II), then wait for 10 seconds.
18. Check for DTCs with the HDS. (see page 24-25)
Is DTC 81-79 indicated?
YES—Replace the ODS unit (see page 24-193), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188).■
NO—The system is OK.■

DTC 82-14: No Signal From the Front Passenger's Weight Sensor (front inner side)

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- These SWS DTCs are cleared by turning the ignition switch to LOCK (0).

1. Raise the front passenger's seat all the way up.
2. Clear the DTCs with the HDS (see page 24-26).
3. Turn the ignition switch to ON (II), then wait for 10 seconds.
4. Check for DTCs with the HDS (see page 24-25).

Is DTC 82-14 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26) If another DTC is indicated, troubleshoot the DTC.■

5. From the HDS Main Menu, select SRS, then Inspection. In the Inspection Menu, select the SWS DTC CHECK.

Is an SWS DTC also indicated?

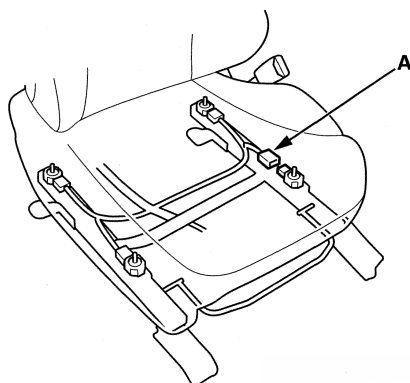
YES—

- DTC 14-11: Short to power in the front passenger's weight sensor (front inner side) power circuit; replace the ODS unit harness, then clear the DTC.■
- DTC 14-12: Short to ground in the front passenger's weight sensor (front inner side) power circuit. Go to step 6.
- DTC 14-13: Open in the front passenger's weight sensor (front inner side) output circuit. Go to step 14.
- DTC 14-14: Short to ground in the front passenger's weight sensor (front inner side) output circuit. Go to step 23.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26) If another DTC is indicated, troubleshoot the DTC.■



6. Turn the ignition switch to LOCK (0).
7. Disconnect the front passenger's weight sensor (front inner side) 3P connector (A) on the ODS unit harness.



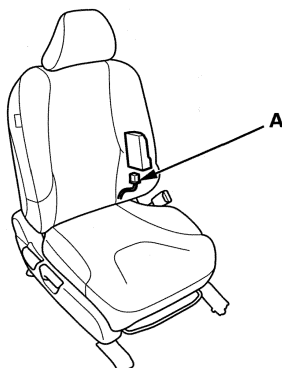
8. Turn the ignition switch to ON (II), then wait for 10 seconds.
9. Check for DTCs with the HDS (see page 24-25).

Is DTC 14-12 indicated?

YES—Go to step 10.

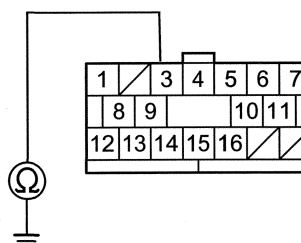
NO—Faulty front passenger's weight sensor (front inner side); replace the front passenger's seat frame including all four front passenger's weight sensors (see page 24-191), then clear the DTC.■

10. Turn the ignition switch to LOCK (0).
11. Disconnect the ODS unit 18P connector (A) from the ODS unit.



12. Measure the resistance between body ground and ODS unit 18P connector terminal No. 3.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

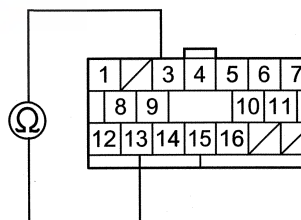
Is there an open circuit, or at least 1 MΩ?

YES—Go to step 13.

NO—Short to ground in the ODS unit harness; replace the ODS unit harness, then clear the DTC.■

13. Measure the resistance between ODS unit 18P connector terminals No. 3 and No. 13.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

Is there an open circuit or at least 1 MΩ?

YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC.■

NO—Short to another wire in the ODS unit harness; replace the ODS unit harness, then clear the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

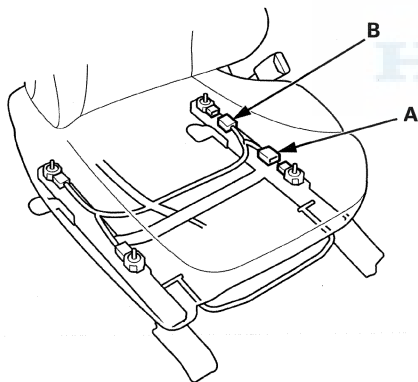
14. Turn the ignition switch to LOCK (0).
15. Swap the connections between the front inner side front passenger's weight sensor and the rear inner side sensor.
16. Turn the ignition switch to ON (II), then wait for 10 seconds.
17. Check for DTCs with the HDS (see page 24-25).

Is DTC 14-13 indicated?

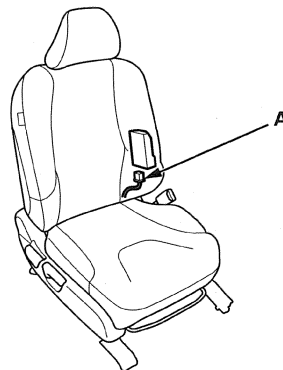
YES—Go to step 18.

NO—Faulty front passenger's weight sensor (front inner side); replace the front passenger's seat frame including all four front passenger's weight sensors (see page 24-191), then clear the DTC. ■

18. Turn the ignition switch to LOCK (0).
19. Disconnect the front passenger's weight sensor (front inner side) 3P connector (A) and the front passenger's weight sensor (rear inner side) 3P connector (B) on the ODS unit harness.

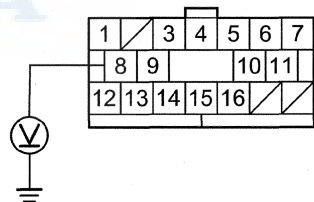


20. Disconnect the ODS unit 18P connector (A) from the ODS unit.



21. Turn the ignition switch to ON (II).
22. Measure the voltage between body ground and ODS unit 18P connector terminal No. 8.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

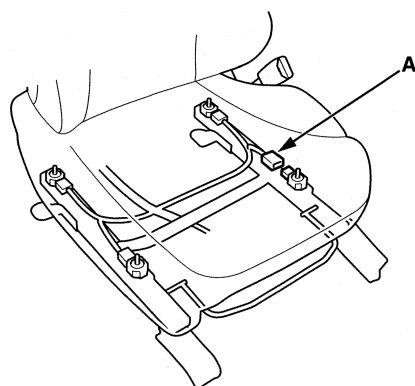
YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC. ■

NO—Short to power in the ODS unit harness; replace the ODS unit harness, then clear the DTC. ■

23. Turn the ignition switch to LOCK (0).



24. Disconnect the front passenger's weight sensor (front inner side) 3P connector (A) on the ODS unit harness.



25. Turn the ignition switch to ON (II), then wait for 10 seconds.

26. Check for DTCs with the HDS (see page 24-25).

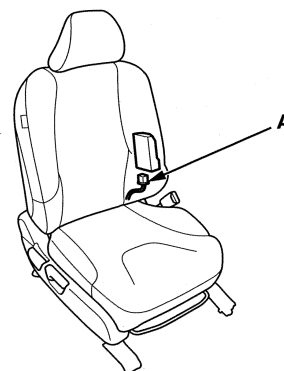
Is DTC 14-14 indicated?

YES—Go to step 27.

NO—Faulty front passenger's weight sensor (front inner side); replace the seat frame including all four front passenger's weight sensors (see page 24-191), then clear the DTC. ■

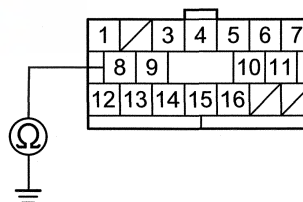
27. Turn the ignition switch to LOCK (0).

28. Disconnect the ODS unit 18P connector (A) from the ODS unit.



29. Measure the resistance between body ground and ODS unit 18P connector terminal No. 8.

ODS UNIT 18P CONNECTOR



Is there an open circuit, or at least 1 MΩ?

YES—Go to step 30.

NO—Short to ground in the ODS unit harness; replace the ODS unit harness, then clear the DTC. ■

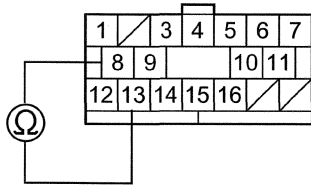
(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

30. Measure the resistance between ODS unit 18P connector terminals No. 8 and No. 13.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC. ■

NO—Short to another wire in the ODS unit harness; replace the ODS unit harness, then clear the DTC. ■

DTC 82-16: No Signal From the Front Passenger's Weight Sensor (rear inner side)

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- These SWS DTCs are cleared by turning the ignition switch to LOCK (0).

1. Raise the front passenger's seat all the way up.
2. Clear the DTCs with the HDS (see page 24-26).
3. Turn the ignition switch to ON (II), then wait for 10 seconds.
4. Check for DTCs with the HDS (see page 24-25).

Is DTC 82-16 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

5. From the HDS Main Menu, select SRS, then Inspection. In the Inspection Menu, select the SWS DTC CHECK.

Is an SWS DTC also indicated?

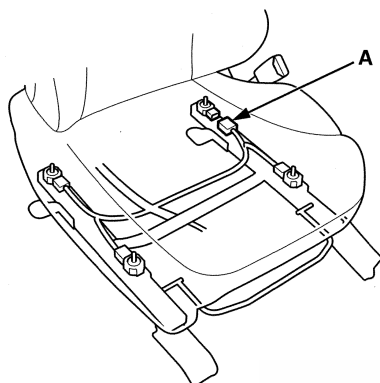
YES—

- DTC 16-11: Short to power in the front passenger's weight sensor (rear inner side) power circuit; replace the ODS unit harness, then clear the DTC. ■
- DTC 16-12: Short to ground in the front passenger's weight sensor (rear inner side) power circuit. Go to step 6.
- DTC 16-13: Open in the front passenger's weight sensor (rear inner side) output circuit. Go to step 14.
- DTC 16-14: Short to ground in the front passenger's weight sensor (rear inner side) output circuit. Go to step 23.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■



6. Turn the ignition switch to LOCK (0).
7. Disconnect the front passenger's weight sensor (rear inner side) 3P connector (A) on the ODS unit harness.



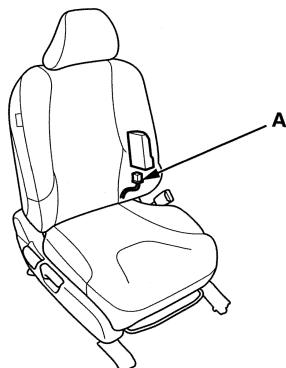
8. Turn the ignition switch to ON (II), then wait for 10 seconds.
9. Check for DTCs with the HDS (see page 24-25).

Is DTC 16-12 indicated?

YES—Go to step 10.

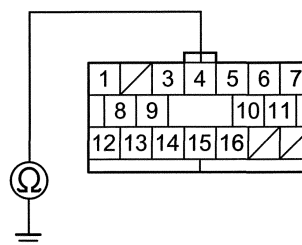
NO—Faulty front passenger's weight sensor (rear inner side); replace the front passenger's seat frame including all four front passenger's weight sensors (see page 24-191), then clear the DTC. ■

10. Turn the ignition switch to LOCK (0).
11. Disconnect the ODS unit 18P connector (A) from the ODS unit.



12. Measure the resistance between body ground and ODS unit 18P connector terminal No. 4.

ODS UNIT18P CONNECTOR



Wire side of female terminals

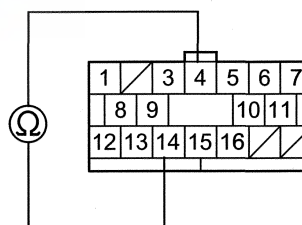
Is there an open circuit, or at least 1 MΩ?

YES—Go to step 13.

NO—Short to ground in the ODS unit harness; replace the ODS unit harness, then clear the DTC. ■

13. Measure the resistance between ODS unit 18P connector terminals No. 4 and No. 14.

ODS UNIT18P CONNECTOR



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC. ■

NO—Short to another wire in the ODS unit harness; replace the ODS unit harness, then clear the DTC. ■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

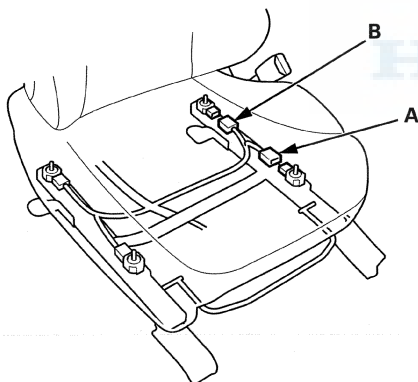
14. Turn the ignition switch to LOCK (0).
15. Swap the connections between the rear inner side front passenger's weight sensor and the front inner side sensor.
16. Turn the ignition switch to ON (II), then wait for 10 seconds.
17. Check for DTCs with the HDS (see page 24-25).

Is DTC 16-13 indicated?

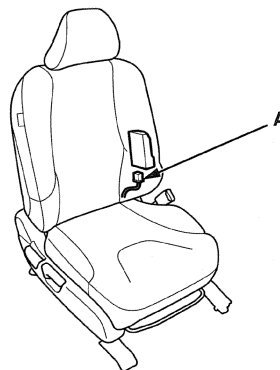
YES—Go to step 18.

NO—Faulty front passenger's weight sensor (rear inner side); replace the front passenger's seat frame including all four front passenger's weight sensors (see page 24-191), then clear the DTC.■

18. Turn the ignition switch to LOCK (0).
19. Disconnect the front passenger's weight sensor (front inner side) 3P connector (A) and front passenger's weight sensor (rear inner side) 3P connector (B) on the ODS unit harness.

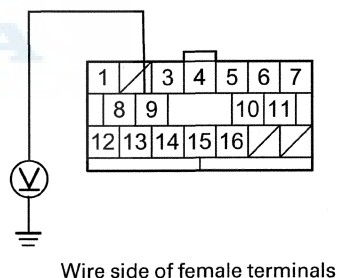


20. Disconnect the ODS unit 18P connector (A) from the ODS unit.



21. Turn the ignition switch to ON (II).
22. Measure the voltage between body ground and ODS unit 18P connector terminal No. 9.

ODS UNIT 18P CONNECTOR



Is there an open circuit, or at least 1 MΩ?

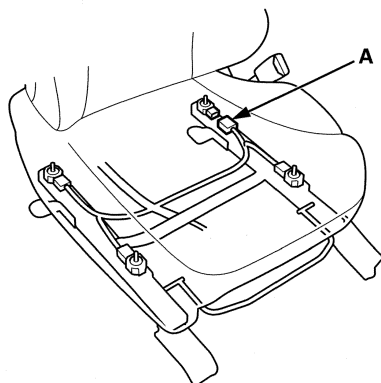
YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC.■

NO—Short to power in the ODS unit harness; replace the ODS unit harness, then clear the DTC.■

23. Turn the ignition switch to LOCK (0).



24. Disconnect the front passenger's weight sensor (rear inner side) 3P connector (A) on the ODS unit harness.



25. Turn the ignition switch to ON (II), then wait for 10 seconds.

26. Check for DTCs with the HDS (see page 24-25).

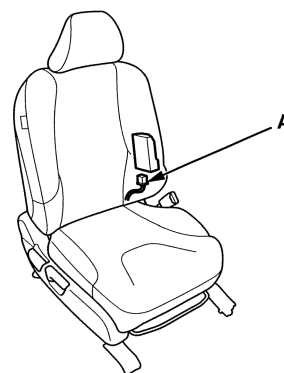
Is DTC 16-14 indicated?

YES—Go to step 27.

NO—Faulty front passenger's weight sensor (rear inner side); replace the front passenger's seat frame including all four front passenger's weight sensors (see page 24-191), then clear the DTC. ■

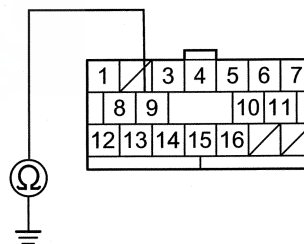
27. Turn the ignition switch to LOCK (0).

28. Disconnect the ODS unit 18P connector (A) from the ODS unit.



29. Measure the resistance between body ground and ODS unit 18P connector terminal No. 9.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Go to step 30.

NO—Short to ground in the ODS unit harness; replace the ODS unit harness, then clear the DTC. ■

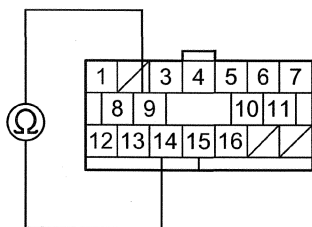
(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

30. Measure the resistance between ODS unit 18P connector terminals No. 9 and No. 14.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC. ■

NO—Short to another wire in the ODS unit harness; replace the ODS unit harness, then clear the DTC. ■

DTC 83-24: No Signal From the Front Passenger's Weight Sensor (front outer side)

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- These SWS DTCs are cleared by turning the ignition switch to LOCK (0).

1. Raise the front passenger's seat all the way up.
2. Clear the DTCs with the HDS (see page 24-26).
3. Turn the ignition switch to ON (II), then wait for 10 seconds.
4. Check for DTCs with the HDS (see page 24-25).

Is DTC 83-24 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

5. From the HDS Main Menu, select SRS, then Inspection. In the Inspection Menu, select the SWS DTC CHECK.

Is another DTC also indicated?

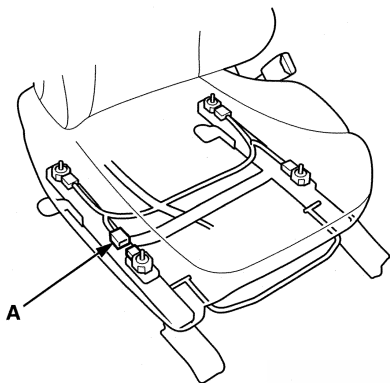
YES—

- DTC 24-11: Short to power in front passenger's weight sensor (front outer side) power circuit; replace the ODS unit harness, then clear the DTC. ■
- DTC 24-12: Short to ground in the front passenger's weight sensor (front outer side) power circuit. Go to step 6.
- DTC 24-13: Open in the front passenger's weight sensor (front outer side) output circuit. Go to step 14.
- DTC 24-14: Short to ground in the front passenger's weight sensor (front outer side) output circuit. Go to step 23.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■



6. Turn the ignition switch to LOCK (0).
7. Disconnect the front passenger's weight sensor (front outer side) 3P connector (A) on the ODS unit harness.



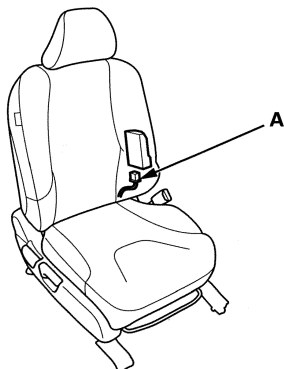
8. Turn the ignition switch to ON (II), then wait for 10 seconds.
9. Check for DTCs with the HDS (see page 24-25).

Is DTC 24-12 indicated?

YES—Go to step 10.

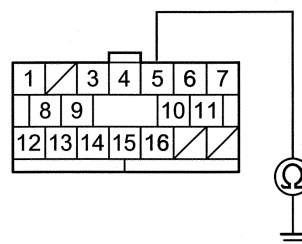
NO—Faulty front passenger's weight sensor (front outer side); replace the front passenger's seat frame including all four front passenger's weight sensors (see page 24-191), then clear the DTC.■

10. Turn the ignition switch to LOCK (0).
11. Disconnect the ODS unit 18P connector (A) from the ODS unit.



12. Measure the resistance between body ground and ODS unit 18P connector terminal No. 5.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

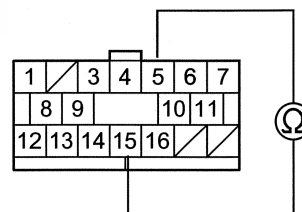
Is there an open circuit, or at least 1 MΩ?

YES—Go to step 13.

NO—Short to ground in the ODS unit harness; replace the ODS unit harness, then clear the DTC.■

13. Measure the resistance between ODS unit 18P connector terminals No. 5 and No. 15.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC.■

NO—Short to another wire in the ODS unit harness; replace the ODS unit harness, then clear the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

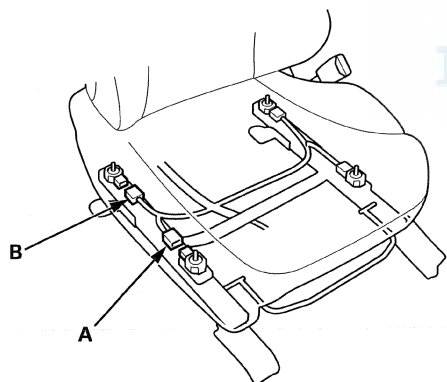
14. Turn the ignition switch to LOCK (0).
15. Swap the connections between the front outer side front passenger's weight sensor and the rear outer side sensor.
16. Turn the ignition switch to ON (II), then wait for 10 seconds.
17. Check for DTCs with the HDS (see page 24-25).

Is DTC 24-13 indicated?

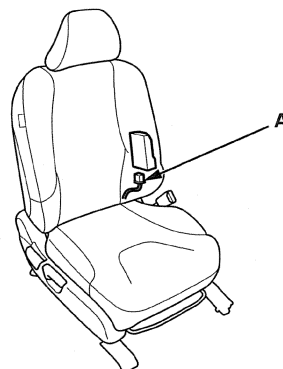
YES—Go to step 18.

NO—Faulty front passenger's weight sensor (front outer side); replace the front passenger's seat frame including all front passenger's weight sensors (see page 24-191), then clear the DTC. ■

18. Turn the ignition switch to LOCK (0).
19. Disconnect the front passenger's weight sensor (front outer side) 3P connector (A) and the front passenger's weight sensor (rear outer side) 3P connector (B) on the ODS unit harness.

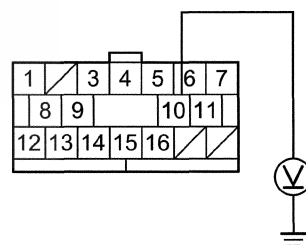


20. Disconnect the ODS unit 18P connector (A) from the ODS unit.



21. Turn the ignition switch to ON (II).
22. Measure the voltage between body ground and ODS unit 18P connector terminal No. 10.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

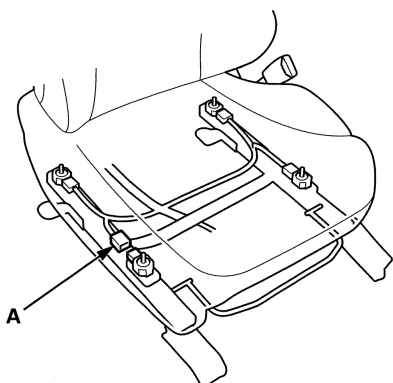
YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC. ■

NO—Short to power in the ODS unit harness; replace the ODS unit harness, then clear the DTC. ■

23. Turn the ignition switch to LOCK (0).



24. Disconnect the front passenger's weight sensor (front outer side) 3P connector (A) on the ODS unit harness.



25. Turn the ignition switch to ON (II), then wait for 10 seconds.

26. Check for DTCs with the HDS (see page 24-25).

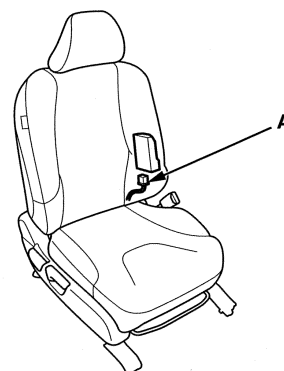
Is DTC 24-14 indicated?

YES—Go to step 27.

NO—Faulty front passenger's weight sensor (front outer side); replace the front passenger's seat frame including all four front passenger's weight sensors (see page 24-191), then clear the DTC. ■

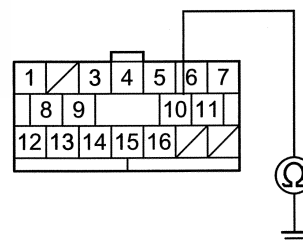
27. Turn the ignition switch to LOCK (0).

28. Disconnect the ODS unit 18P connector (A) from the ODS unit.



29. Measure the resistance between body ground and ODS unit 18P connector terminal No. 10.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Go to step 30.

NO—Short to ground in the ODS unit harness; replace the ODS unit harness, then clear the DTC. ■

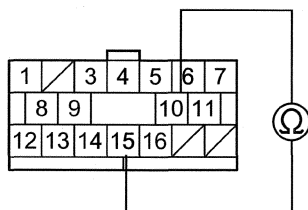
(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

30. Measure the resistance between ODS unit 18P connector terminals No. 10 and No. 15.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC.■

NO—Short to another wire in the ODS unit harness; replace the ODS unit harness, then clear the DTC.■

DTC 83-26: No Signal From the Front Passenger's Weight Sensor (rear outer side)

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- These SWS DTCs are cleared by turning the ignition switch to LOCK (0).

1. Raise the front passenger's seat all the way up.
2. Clear the DTCs with the HDS (see page 24-26).
3. Turn the ignition switch to ON (II), then wait for 10 seconds.
4. Check for DTCs with the HDS (see page 24-25).

Is DTC 83-26 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

5. From the HDS Main Menu, select SRS, then Inspection. In the Inspection Menu, select the SWS DTC CHECK.

Is another DTC also indicated?

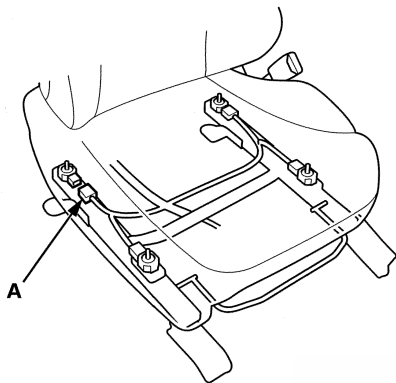
YES—

- DTC 26-11: Short to power in front passenger's weight sensor (rear outer side) power circuit; replace the ODS unit harness, then clear the DTC.■
- DTC 26-12: Short to ground in the front passenger's weight sensor (rear outer side) power circuit. Go to step 6.
- DTC 26-13: Open in the front passenger's weight sensor (rear outer side) output circuit. Go to step 14.
- DTC 26-14: Short to ground in the front passenger's weight sensor (rear outer side) output circuit. Go to step 23.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■



6. Turn the ignition switch to LOCK (0).
7. Disconnect the front passenger's weight sensor (rear outer side) 3P connector (A) on the ODS unit harness.



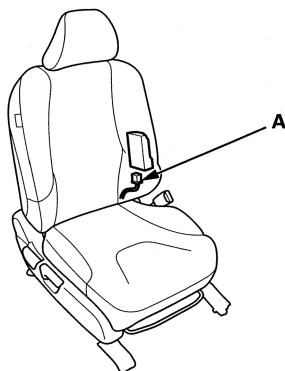
8. Turn the ignition switch to ON (II), then wait for 10 seconds.
9. Check for DTCs with the HDS (see page 24-25).

Is DTC 26-12 indicated?

YES—Go to step 10.

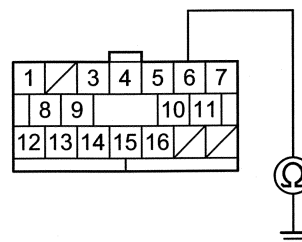
NO—Faulty front passenger's weight sensor (rear outer side); replace the front passenger's seat frame including all four front passenger's weight sensors (see page 24-191), then clear the DTC.■

10. Turn the ignition switch to LOCK (0).
11. Disconnect the ODS unit 18P connector (A) from the ODS unit.



12. Measure the resistance between body ground and ODS unit 18P connector terminal No. 6.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

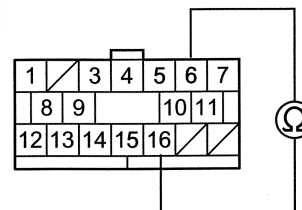
Is there an open circuit, or at least 1 MΩ?

YES—Go to step 13.

NO—Short to ground in the ODS unit harness; replace the ODS unit harness, then clear the DTC.■

13. Measure the resistance between ODS unit 18P connector terminals No. 6 and No. 16.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC.■

NO—Short to another wire in the ODS unit harness; replace the ODS unit harness, then clear the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

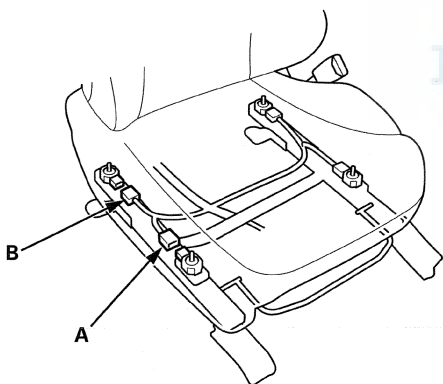
14. Turn the ignition switch to LOCK (0).
15. Swap the connections between the rear outer side front passenger's weight sensor and the front outer side sensor.
16. Turn the ignition switch to ON (II), then wait for 10 seconds.
17. Check for DTCs with the HDS (see page 24-25).

Is DTC 26-13 indicated?

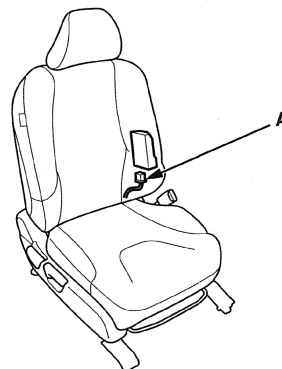
YES—Go to step 18.

NO—Faulty front passenger's weight sensor (rear outer side); replace the front passenger's seat frame including all four front passenger's weight sensors (see page 24-191), then clear the DTC. ■

18. Turn the ignition switch to LOCK (0).
19. Disconnect the front passenger's weight sensor (front outer side) 3P connector (A) and the front passenger's weight sensor (rear outer side) 3P connector (B) on the ODS unit harness.

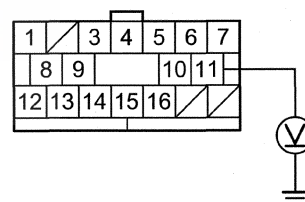


20. Disconnect the ODS unit 18P connector (A) from the ODS unit.



21. Turn the ignition switch to ON (II).
22. Measure the voltage between body ground and ODS unit 18P connector terminal No. 11.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

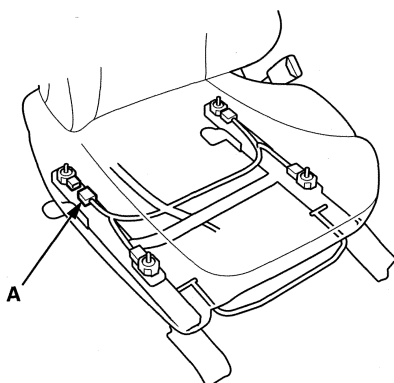
YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC. ■

NO—Short to power in the ODS unit harness; replace the ODS unit harness, then clear the DTC. ■

23. Turn the ignition switch to LOCK (0).



24. Disconnect the front passenger's weight sensor (rear outer side) 3P connector (A) on the ODS unit harness.



25. Turn the ignition switch to ON (II), then wait for 10 seconds.

26. Check for DTCs with the HDS (see page 24-25).

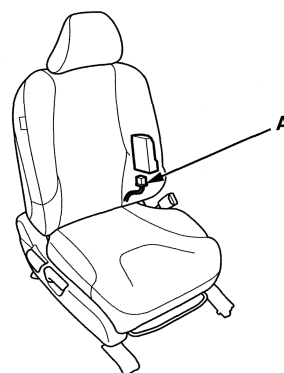
Is DTC 26-14 indicated?

YES—Go to step 27.

NO—Faulty front passenger's weight sensor (rear outer side); replace the front passenger's seat frame including all four front passenger's weight sensors (see page 24-191), then clear the DTC. ■

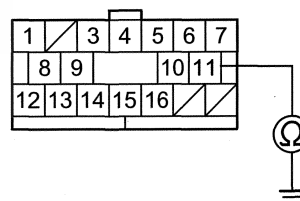
27. Turn the ignition switch to LOCK (0).

28. Disconnect the ODS unit 18P connector (A) from the ODS unit.



29. Measure the resistance between body ground and ODS unit 18P connector terminal No. 11.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Go to step 30.

NO—Short to ground in the ODS unit harness; replace the ODS unit harness, then clear the DTC. ■

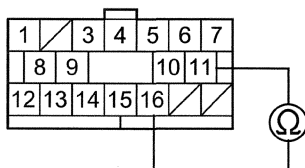
(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

30. Measure the resistance between ODS unit 18P connector terminals No. 11 and No. 16.

ODS UNIT 18P CONNECTOR



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC. ■

NO—Short to another wire in the ODS unit harness; replace the ODS unit harness, then clear the DTC. ■

DTC 82-15: Internal Failure of the Front Passenger's Weight Sensor (front inner side)

DTC 82-17: Internal Failure of the Front Passenger's Weight Sensor (rear inner side)

DTC 83-25: Internal Failure of the Front Passenger's Weight Sensor (front outer side)

DTC 83-27: Internal Failure of the Front Passenger's Weight Sensor (rear outer side)

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
 - Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
 - These SWS DTCs are cleared by turning the ignition switch to LOCK (0).
1. Clear the DTCs with the HDS (see page 24-26).
 2. Turn the ignition switch to ON (II), then wait for 10 seconds.
 3. Check for DTCs with the HDS (see page 24-25).

Is DTC82-15, 82-17, 83-25, or 83-27 indicated?

YES—Faulty front passenger's weight sensor; replace the front passenger's seat frame including all four front passenger's weight sensors (see page 24-191), then clear the DTC. ■

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). ■



DTC 85-4x, 85-5x ("x" can be 0 thru 9 or A thru F), 85-63, 85-64: Internal Failure of the ODS Unit

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 85-4x, 85-5x, 85-63, or 85-64 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

4. Clear the DTCs with the HDS (see page 24-26).
5. Do the ODS unit initialization (see page 24-28).
6. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
7. Turn the ignition switch to ON (II), then wait for 10 seconds.
8. Check for DTCs with the HDS (see page 24-25).

Is DTC 85-4x, 85-5x, 85-63, or 85-64 indicated?

YES—Go to step 9.

NO—Intermittent failure, the system is OK at this time.■

9. Replace the ODS unit (see page 24-193).

10. Clear the DTCs with the HDS (see page 24-26).

11. Turn the ignition switch to ON (II), then wait for 10 seconds.

12. Check for DTCs with the HDS (see page 24-25).

Is DTC 85-4x, 85-5x, 85-63, or 85-64 indicated?

YES—Replace the SRS unit (see page 24-188).■

NO—The system is OK at this time.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 85-61: No Signal From the ODS Unit

DTC 85-62: Incorrect data from the ODS unit

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).

- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Make sure nothing is on the front passenger's seat.
2. Clear the DTCs with the HDS (see page 24-26).
3. Turn the ignition switch to ON (II), then wait for 10 seconds.
4. Check for DTCs with the HDS (see page 24-25).

Is DTC85-61 or 85-62 indicated?

YES—Go to step 5.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.

5. Turn the ignition switch to LOCK (0).
6. Check the No. 8 (7.5 A) fuse in the under-dash fuse/relay box.

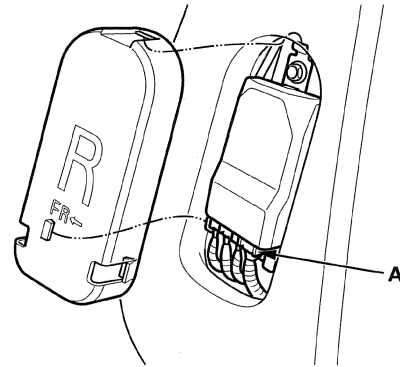
Is the fuse OK?

YES—Go to step 7.

NO—Replace the fuse, then turn the ignition switch to ON (II). If the fuse blows again, check for a short in the No. 8 (7.5 A) fuse circuit (the floor wire harness, or the ODS unit harness); replace the faulty harness, then clear the DTC.■

7. Remove the front passenger's seat-back cover/pad (see page 20-123).

8. Check the connection between the ODS unit harness 18P connector (A) and the ODS unit.



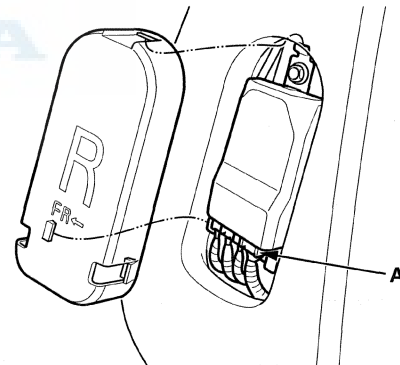
*: This illustration shows '09-10 models.

Is the connection OK?

YES—Go to step 9.

NO—Repair the poor connection, clear the DTC, and retest. If DTC 85-61 or 85-62 is still present, go to step 9.

9. Disconnect the ODS unit harness 18P connector (A) from the ODS unit.



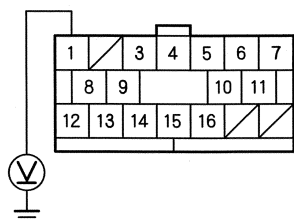
*: This illustration shows '09-10 models.

10. Turn the ignition switch to ON (II).



11. Measure the voltage between body ground and ODS unit harness 18P connector terminal No. 1.

ODS UNIT HARNESS 18P CONNECTOR



Wire side of female terminals

Is there battery voltage?

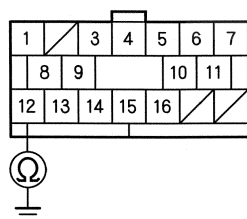
YES—Go to step 12.

NO—Open in the floor wire harness, or the ODS unit harness; replace the faulty harness, then clear the DTC.■

12. Turn the ignition switch to LOCK (0).

13. Measure the resistance between body ground and ODS unit harness 18P connector terminal No. 12.

ODS UNIT HARNESS 18P CONNECTOR



Wire side of female terminals

Is there less than 1.0 Ω?

YES—Go to step 14.

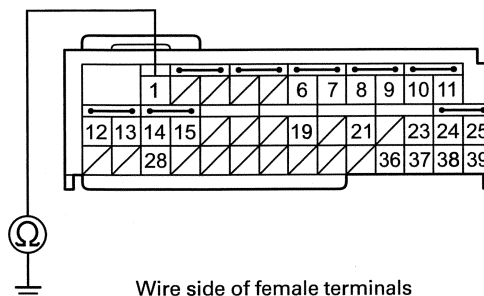
NO—Open in the floor wire harness or the ODS unit harness, or a poor connection at the ODS unit harness 18P connector and the ODS unit. Check the ground connection at the G603 (see page 22-40). Check the connection; if the connection is OK, replace the faulty harness, then clear the DTC.■

14. Disconnect the negative cable from the battery, then wait at least 3 minutes.

15. Disconnect SRS unit connector B (39P) from the SRS unit (see page 24-24).

16. Measure the resistance between body ground and SRS unit connector B (39P) terminal No. 1.

SRS UNIT CONNECTOR B (39P)



Wire side of female terminals

Is there an open circuit, or at least 1 MΩ?

YES—Go to step 17.

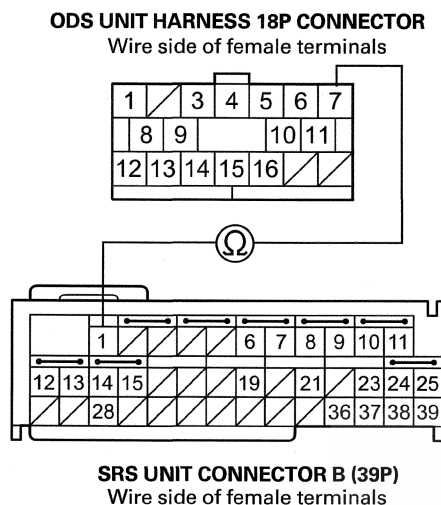
NO—Short to ground or to another wire in the floor wire harness or the ODS unit harness; replace the faulty harness, then clear the DTC.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

17. Measure the resistance between SRS unit connector B (39P) terminal No. 1 and ODS unit 18P connector terminal No. 7.



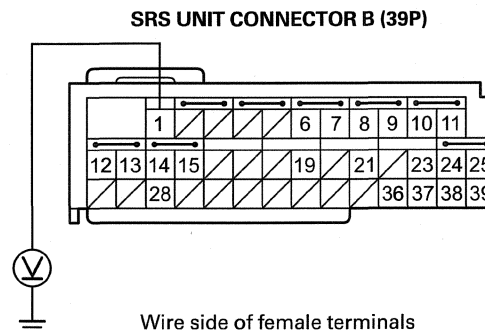
Is there less than 1.0 Ω?

YES—Go to step 18.

NO—Open in the harness between SRS unit connector B (39P) terminal No. 1 and ODS unit harness 18P connector terminal No. 1 (the floor wire harness or the ODS unit harness); replace the faulty harness, then clear the DTC.■

18. Reconnect the negative cable to the battery.
19. Turn the ignition switch to ON (II).

20. Measure the voltage between body ground and SRS unit connector B (39P) terminal No. 1.



Is there less than 0.2 V?

YES—Go to step 21.

NO—Short to power in the floor wire harness or the ODS unit harness; replace the faulty harness, then clear the DTC.■

21. Replace the ODS unit (see page 24-193).
22. Clear the DTCs with the HDS (see page 24-26).
23. Turn the ignition switch to ON (II), then wait for 10 seconds.
24. Check for DTCs with the HDS (see page 24-25).

Is DTC 85-61 or 85-62 indicated?

YES—Replace the OPDS sensor (see page 24-193); if the DTC is still present, replace the SRS unit (see page 24-188).■

NO—This system is OK.■



DTC 85-79: OPDS Initial Check Failure

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 85-79 indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

4. Turn the ignition switch to LOCK (0).
5. Make sure nothing is on the front passenger's seat, and make sure nothing is in the seat-back pocket.
6. Clear the DTCs with the HDS (see page 24-26).
7. Turn the ignition switch to ON (II), then wait for 10 seconds.
8. Check for DTCs with the HDS (see page 24-25).

Is DTC 85-79 indicated?

YES—Go to step 10.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

9. Clear the DTCs with the HDS (see page 24-26).

10. Do the ODS unit initialization (see page 24-28).

11. Turn the ignition switch to LOCK (0), then wait for 10 seconds.

12. Turn the ignition switch to ON (II), then wait for 10 seconds.

13. Check for DTCs with the HDS (see page 24-25).

Is DTC 85-79 indicated?

YES—Faulty ODS unit; replace the ODS unit (see page 24-193), then clear the DTC and retest. If the DTC is still present, replace the OPDS sensor/front passenger's seat-back cover/pad with equipped OPDS sensor (see page 20-123), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188).■

NO—The system is OK.■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 86-1x ("x" can be 0 thru 9 or A thru F):
Faulty OPDS Seat-Back Sensor

DTC 86-2x ("x" can be 0 thru 9 or A thru F):
Faulty OPDS Seat Support Sensor

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

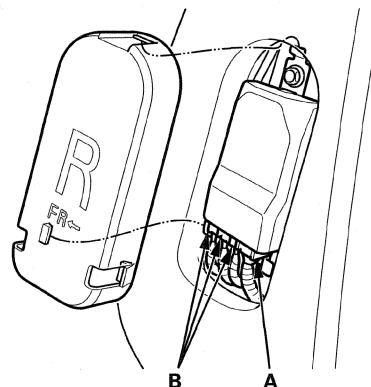
Is DTC 86-1x or 86-2x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Remove the front passenger's seat-back cover/pad (see page 20-123).

6. Check the connection at the ODS unit wire harness 18P connector (A) and sensor connectors (B).



*: This illustration shows '09-10 models.

Are the connections OK?

YES—Go to step 7.

NO—Repair the poor connections, then clear the DTC, and retest. If DTC 86-1x or 86-2x is still present, go to step 7. ■

7. Replace the seat-back cover/pad with equipped OPDS sensor (see page 20-123), then clear the DTC.
8. Clear the DTCs with the HDS (see page 24-26).
9. Do the ODS unit initialization (see page 24-28).
10. Check for DTCs with the HDS (see page 24-25).

Is DTC 86-1x or 86-2x indicated?

YES—Replace the ODS unit (see page 24-193), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). ■

NO—The system is OK. ■



**DTC 92-1x ("x" can be 0 thru 9 or A thru F):
Short to Power in the Front Passenger's
Airbag Cutoff Indicator**

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before doing this troubleshooting procedure, troubleshoot the DTC A1-1x (see page 24-157).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.
- If there are other SRS DTCs stored with 92-1x; troubleshoot them first.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for the DTCs with the HDS (see page 24-25).

Is DTC 92-1x indicated?

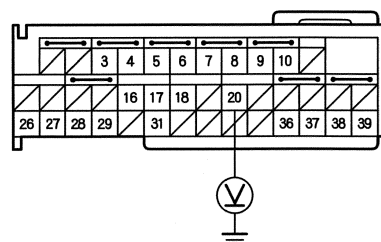
YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect the passenger's airbag cutoff indicator 4P connector (see page 24-196).
7. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).
8. Reconnect the negative cable to the battery.
9. Turn the ignition switch to ON (II).

10. Measure the voltage between body ground and SRS unit connector A (39P) terminal No. 20.

SRS UNIT CONNECTOR A (39P)



Wire side of female terminals

Is there less than 0.2 V?

YES—Faulty SRS unit or front passenger's airbag cutoff indicator; replace the passenger's airbag cutoff indicator (see page 24-196), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). ■

NO—Short to power in the dashboard wire harness; replace the faulty harness, then clear the DTC. ■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 92-2x ("x" can be 0 thru 9 or A thru F): Open or Short to Ground in the Passenger's Airbag Cutoff Indicator

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before doing this troubleshooting procedure, troubleshoot the DTC A1-1x (see page 24-157).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.
- If there are other SRS DTCs stored with 92-2x; troubleshoot them first.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC 92-2x indicated?

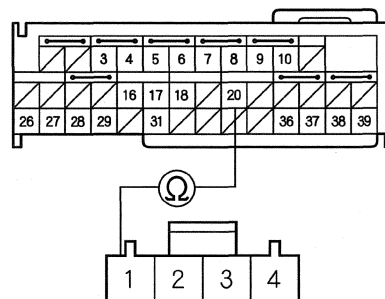
YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Disconnect the passenger's airbag cutoff indicator 4P connector (see page 24-196).
7. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).

8. Measure the resistance between SRS unit connector A (39P) terminal No. 20 and passenger's airbag cutoff indicator 4P connector terminal No. 1.

SRS UNIT CONNECTOR A (39P)
Wire side of female terminals



**PASSENGER'S AIRBAG CUTOFF INDICATOR
4P CONNECTOR**

Wire side of female terminals

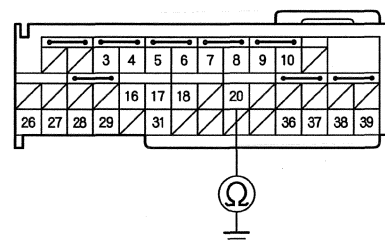
Is there less than 1.0 Ω ?

YES—Go to step 9.

NO—Open in the dashboard wire harness; replace the faulty harness, then clear the DTC. ■

9. Measure the resistance between body ground and SRS unit connector A (39P) terminal No. 20.

SRS UNIT CONNECTOR A (39P)



Wire side of female terminals

Is there an open circuit, or at least 1 M Ω ?

YES—Faulty SRS unit or passenger's airbag cutoff indicator; replace the passenger's airbag cutoff indicator (see page 24-196), then clear the DTC, and retest. If the DTC is still present, replace the SRS unit (see page 24-188). ■

NO—Short to ground in the dashboard wire harness; replace the faulty harness, then clear the DTC. ■



DTC A1-1x ("x" can be 0 thru 9 or A thru F): Faulty Power Supply (VA line)

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC A1-1x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Check the No. 8 (7.5 A) fuse in the under-dash fuse/relay box.

Is the fuse OK?

YES—Go to step 6.

NO—Replace the fuse, then turn the ignition switch to ON (II). If the fuse blows again, check for a short to ground in the dashboard wire harness or in the under-dash fuse/relay box No. 8 (7.5 A) fuse circuit; replace the dashboard wire harness, then clear the DTC, and retest. If the DTC is still present, replace the under-dash fuse/relay box, then clear the DTC. ■

 - USA models (see page 22-65)
 - Canada models (see page 22-66)
6. Turn the ignition switch to LOCK (0).
7. Disconnect the negative cable from the battery, then wait at least 3 minutes.

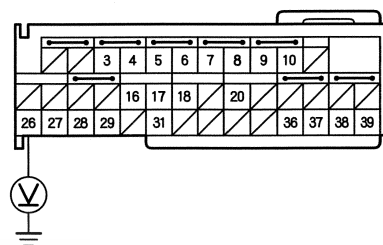
8. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).

9. Reconnect the negative cable to the battery.

10. Turn the ignition switch to ON (II).

11. Measure the voltage between body ground and SRS unit connector A (39P) terminal No. 26.

SRS UNIT CONNECTOR A (39P)



Wire side of female terminals

Is there battery voltage?

YES—Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit; check the connection. If the connection is OK, replace the SRS unit (see page 24-188). ■

NO—Open in the dashboard wire harness; replace the dashboard wire harness, then clear the DTC. ■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC A2-1x ("x" can be 0 thru 9 or A thru F): Faulty Power Supply (VB line)

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC A2-1x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Check the No. 6 (10 A) fuse in the driver's under-dash fuse/relay box.

Is the fuse OK?

YES—Go to step 6.

NO—Replace the fuse, then turn the ignition switch to ON (II). If the fuse blows again, check for a short to ground in the dashboard wire harness or in the under-dash fuse/relay box No. 6 (10 A) fuse circuit; replace the dashboard wire harness, then clear the DTC, and retest. If the DTC is still present, replace the under-dash fuse/relay box, then clear the DTC. ■

- USA models (see page 22-65)
- Canada models (see page 22-66)

6. Turn the ignition switch to LOCK (0).
7. Disconnect the negative cable from the battery, then wait at least 3 minutes.

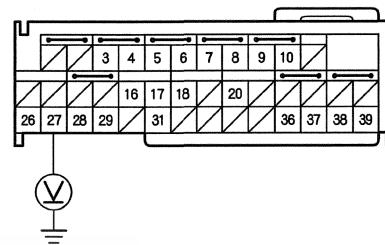
8. Disconnect SRS unit connector A (39P) from the SRS unit (see page 24-24).

9. Reconnect the negative cable to the battery.

10. Turn the ignition switch to ON (II).

11. Measure the voltage between body ground and SRS unit connector A (39P) terminal No. 27.

SRS UNIT CONNECTOR A (39P)



Wire side of female terminals

Is there battery voltage?

YES—Faulty SRS unit or poor connection at SRS unit connector A (39P) and the SRS unit; check the connection. If the connection is OK, replace the SRS unit (see page 24-188). ■

NO—Open in the dashboard wire harness; replace the dashboard wire harness, then clear the DTC. ■



**DTC A3-1x ("x" can be 0 thru 9 or A thru F):
SRS Unit Connector A Not Properly Installed**

**DTC A4-1x ("x" can be 0 thru 9 or A thru F):
SRS Unit Connector B Not Properly Installed**

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15), General Troubleshooting Information (see page 24-24), and Battery Terminal Disconnection and Reconnection (see page 22-69).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for DTCs with the HDS (see page 24-25).

Is DTC A3-1x or A4-1x indicated?

YES—Go to step 4.

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC. ■

4. Turn the ignition switch to LOCK (0).
5. Disconnect the negative cable from the battery, then wait at least 3 minutes.
6. Check the connection between SRS unit connector A or B (39P) and the SRS unit (see page 24-24).

Is the connection OK?

YES—Go to step 7.

NO—Repair the poor connection, then clear the DTC, and retest. If DTC A3-1x or A4-1x is still present, go to step 7.

7. Disconnect SRS unit connector A (39P) or connector B (39P) from the SRS unit (see page 24-24).

8. Check for bent or damaged terminals on the SRS unit.

Are any terminals bent or damaged?

YES—Replace the SRS unit (see page 24-188). ■

NO—Replace the dashboard wire harness or the floor wire harness, then clear the DTC. ■

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC Ex-11 ("x" can be 0 thru 9 or A thru F): Control Operation Recorded

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Clear the DTCs with the HDS (see page 24-26).
2. Turn the ignition switch to ON (II), then wait for 10 seconds.
3. Check for the DTCs with the HDS.

Is DTC Ex-11 indicated?

YES—Faulty SRS unit; replace the SRS unit (see page 24-188).■

NO—Intermittent failure, the system is OK at this time. Go to Troubleshooting Intermittent Failures (see page 24-26). If another DTC is indicated, troubleshoot the DTC.■

DTC Fx-11 ("x" can be 0 thru 9 or A thru F): Airbags and/or Tensioners Deployment Recorded

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, review SRS Precautions and Procedures (see page 24-15) and General Troubleshooting Information (see page 24-24).
- Refer to the DTCs shown:
 - DTC F1-11: Driver's airbag, left side curtain airbag, and/or driver's seat belt tensioner deployed.
 - DTC F2-11: Front passenger's airbag, right side curtain airbag, and/or front passenger's seat belt tensioner deployed.
 - DTC F3-11: Driver's side airbag, left side curtain airbag, and/or driver's seat belt tensioner deployed.
 - DTC F4-11: Front passenger's side airbag, right side curtain airbag, and/or front passenger's seat belt tensioner deployed.
 - DTC F5-11: Both or only one side curtain airbag and seat belt tensioner deployed.
 - DTC F6-11: Both or only one side curtain airbag and seat belt tensioner deployed.

When any airbags or tensioners have deployed, go to Component Replacement/Inspection After Deployment (see page 24-168).■



DTC 14-11: Short to Power in the Front Passenger's Weight Sensor (front inner side) Power Circuit

DTC 14-12: Short to Ground in the Front Passenger's Weight Sensor (front inner side) Power Circuit

DTC 14-13: Short to Power in the Front Passenger's Weight Sensor (front inner side) Output Circuit

DTC 14-14: Short to Ground in the Front Passenger's Weight Sensor (front inner side) Output Circuit

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Only read DTCs from the SRS menu, not from SWS menus unless instructed to check SWS DTCs. SWS (ODS unit) DTCs are subcodes of SRS unit DTCs. Only troubleshoot the corresponding SRS DTCs. Also these SWS DTCs are cleared by turning the ignition switch to LOCK (0)

Do the troubleshooting for SRS unit DTC 82-14 (see page 24-132).

DTC 16-11: Short to Power in the Front Passenger's Weight Sensor (rear inner side) Power Circuit

DTC 16-12: Short to Ground in the Front Passenger's Weight Sensor (rear inner side) Power Circuit

DTC 16-13: Short to Power in the Front Passenger's Weight Sensor (rear inner side) Output Circuit

DTC 16-14: Short to Ground in the Front Passenger's Weight Sensor (rear inner side) Output Circuit

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Only read DTCs from the SRS menu, not from SWS menus unless instructed to check SWS DTCs. SWS (ODS unit) DTCs are subcodes of SRS unit DTCs. Only troubleshoot the corresponding SRS DTCs. Also these SWS DTCs are cleared by turning the ignition switch to LOCK (0)

Do the troubleshooting for SRS unit DTC 82-16 (see page 24-136).

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 24-11: Short to Power in the Front Passenger's Weight Sensor (front outer side) Power Circuit

DTC 24-12: Short to Ground in the Front Passenger's Weight Sensor (front outer side) Power Circuit

DTC 24-13: Open in the Front Passenger's Weight Sensor (front outer side) Output Circuit

DTC 24-14: Short to Ground in the Front Passenger's Weight Sensor (front outer side) Output Circuit

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Only read DTCs from the SRS menu, not from SWS menus unless instructed to check SWS DTCs. SWS (ODS unit) DTCs are subcodes of SRS unit DTCs. Only troubleshoot the corresponding SRS DTCs. Also these SWS DTCs are cleared by turning the ignition switch to LOCK (0)

Do the troubleshooting for SRS unit DTC 83-24 (see page 24-140).

DTC 26-11: Short to Power in the Front Passenger's Weight Sensor (rear outer side) Power Circuit

DTC 26-12: Short to Ground in the Front Passenger's Weight Sensor (rear outer side) Power Circuit

DTC 26-13: Open in the Front Passenger's Weight Sensor (rear outer side) Output Circuit

DTC 26-14: Short to Ground in the Front Passenger's Weight Sensor (rear outer side) Output Circuit

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Only read DTCs from the SRS menu, not from SWS menus unless instructed to check SWS DTCs. SWS (ODS unit) DTCs are subcodes of SRS unit DTCs. Only troubleshoot the corresponding SRS DTCs. Also these SWS DTCs are cleared by turning the ignition switch to LOCK (0)

Do the troubleshooting for SRS unit DTC 83-26 (see page 24-144).



DTC 15-3x: Internal Failure of the Front Passenger's Weight Sensor (front inner side)

DTC 17-3x: Internal Failure of the Front Passenger's Weight Sensor (rear inner side)

DTC 25-3x: Internal failure of the Front Passenger's Weight Sensor (front outer side)

DTC 27-3x: Internal Failure of the Front Passenger's Weight Sensor (rear outer side)

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Only read DTCs from the SRS menu, not from SWS menus unless instructed to check SWS DTCs. SWS (ODS unit) DTCs are subcodes of SRS unit DTCs. Only troubleshoot the corresponding SRS DTCs. Also these SWS DTCs are cleared by turning the ignition switch to LOCK (0)

Do the troubleshooting for SRS unit DTC 82-15, 82-17, 83-25, and 83-27 (see page 24-148).

DTC 41-xx, 42-xx, 43-xx ("x" can be 0 thru 9 or A thru F): Internal Failure of the ODS Unit

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Only read DTCs from the SRS menu, not from SWS menus unless instructed to check SWS DTCs. SWS (ODS unit) DTCs are subcodes of SRS unit DTCs. Only troubleshoot the corresponding SRS DTCs. Also these SWS DTCs are cleared by turning the ignition switch to LOCK (0)

Do the troubleshooting for SRS unit DTC 81-4x (see page 24-127).

(cont'd)

SRS (Supplemental Restraint System)

DTC Troubleshooting (cont'd)

DTC 71-xx ("x" can be 0 thru 9 or A thru F): ODS Unit Not Calibrated

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Only read DTCs from the SRS menu, not from SWS menus unless instructed to check SWS DTCs. SWS (ODS unit) DTCs are subcodes of SRS unit DTCs. Only troubleshoot the corresponding SRS DTCs. Also these SWS DTCs are cleared by turning the ignition switch to LOCK (0)

Do the troubleshooting for SRS unit DTC 81-71 (see page 24-130).

Symptom Troubleshooting

SRS indicator does not come on

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Turn the ignition switch to LOCK (0), then wait for 10 seconds.
2. Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

Does the SRS indicator come on?

YES—Intermittent failure, the system is OK at this time. ■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Connect the HDS to the data link connector (DLC) (see page 24-24).
5. Turn the ignition switch to ON (II).
6. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
7. Do the gauge control module self-diagnostic function (see page 22-274).

Does the SRS indicator come on?

YES—Faulty SRS unit; replace the SRS unit (see page 24-188). ■

NO—Faulty gauge control module; replace the gauge control module (see page 22-294). ■



SRS indicator stays on, but no DTCs are stored, or cannot be read

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before doing this troubleshooting procedure, make sure the battery is fully charged (see page 22-68). If the battery voltage is low, SRS indicator may stay on.
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Turn the ignition switch to ON (II).
2. Start the engine, and see if the malfunction indicator lamp (MIL) also stays on.

Does the MIL stay on longer than 30 seconds?

YES—Go to the MIL Circuit Troubleshooting (see page 11-192). ■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Connect the HDS to the data link connector (DLC) (see page 24-24).
5. Turn the ignition switch to ON (II).
6. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
7. Check for DTCs with the HDS (see page 24-25).

Are any SRS DTCs indicated?

YES—Do the SRS DTC troubleshooting. ■

NO—Go to step 8.

8. From the HDS Main Menu, select BODY ELECTRICAL, then select the desired MODE MENU.

9. Check for DTCs in the Gauge Menu with the HDS.

Is DTC B1187 indicated?

YES—Troubleshoot DTC B1187 (see page 22-288). If the problem is still present, do the troubleshooting procedure for SRS DTCs A1-1x (see page 24-157) and A2-1x (see page 24-158). If the problem is still present, replace the SRS unit (see page 24-188).

NO—Faulty gauge control module; replace the gauge control module (see page 22-294). ■

(cont'd)

SRS (Supplemental Restraint System)

Symptom Troubleshooting (cont'd)

Side airbag cutoff indicator stays on

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Make sure nothing is on the front passenger's seat.
2. Make sure the seat-back is dry.
3. Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

Does the SRS indicator come on and stay on?

YES—Go to the Symptom Troubleshooting “SRS indicator stay on, but no DTCs are stored, or cannot be read” (see page 24-165).■

NO—Go to step 4.

4. Turn the ignition switch to LOCK (0).
5. Connect the HDS to the data link connector (DLC) (see page 24-24).
6. Turn the ignition switch to ON (II).
7. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
8. From the HDS Main Menu, select BODY ELECTRICAL, then select the desired MODE MENU.
9. Check for DTCs in the Gauge Menu with the HDS.

Is DTC B1187 indicated?

YES—Troubleshoot DTC B1187 (see page 22-288).■

NO—Do the ODS unit initialization (see page 24-28), and retest. If the problem is still present, replace the seat-back cover/pad with equipped OPDS sensor (see page 20-123), and retest. If the problem is still present, replace the SRS unit (see page 24-188).■

Side airbag cutoff indicator does not come on

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
- If the SRS indicator also stays on, go to the Symptom Troubleshooting “SRS indicator stays on, but no DTCs are stored, or cannot be read” (see page 24-165).
- Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.

1. Turn the ignition switch to LOCK (0), and wait for 10 seconds.
2. Turn the ignition switch to ON (II), and check that the side airbag cutoff indicator comes on for about 6 seconds

Does the side airbag cutoff indicator come on?

YES—Intermittent failure, the system is OK at this time.■

NO—Go to step 3.

3. Turn the ignition switch to LOCK (0).
4. Connect the HDS to the data link connector (DLC) (see page 24-24).
5. Turn the ignition switch to ON (II).
6. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).
7. Do the gauge control module self-diagnostic function (see page 22-274).

Does the side airbag cutoff indicator come on?

YES—Faulty SRS unit; replace the SRS unit (see page 24-188).■

NO—Faulty gauge control module; replace the gauge control module (see page 22-294).■



Passenger's airbag cutoff indicator stays on or comes on suddenly

NOTE:

- Before doing this troubleshooting procedure, find out if the vehicle was in a collision. If so, verify that all the required components were replaced with new components, of the correct part number, and that they were properly installed (see page 24-168).
 - Under the following conditions, the passenger's airbag cutoff indicator stays on or comes on suddenly:
 - When no one is sitting on the front passenger's seat, but there is an object on the seat more than 5 kg (11 lbs).
 - The seat belt is buckled, but no one is sitting on the front passenger's seat.
 - Someone who is less than about 30 kg (66 lbs) is sitting on the front passenger's seat.
 - Before replacing the SRS unit, check the SRS unit software version with the HDS. If the software version is not the latest, update the SRS unit software (see page 24-27), and retest.
1. Check for these items, then recheck the passenger's airbag cutoff indicator.
- The front passenger's seat is installed correctly.
 - Nothing is/was on the front passenger's seat.
 - Nothing is/was under the front passenger's seat.
 - Nothing is/was in the front passenger's seat-back pocket.
 - Whoever was sitting on the front passenger's seat was sitting in the proper sitting position.
 - The front passenger's weight sensors may not measure the correct weight of the front passenger. If the passenger is more than 30 kg (65 lbs) but is supporting some of their body weight with their feet on the floor, or with their hands and arms on an arm rest, the actual weight of the passenger is not measured.

Does the passenger's airbag cutoff indicator stay on?

YES—Go to step 2.

NO—Troubleshooting is complete.■

2. Turn the ignition switch to LOCK (0).

3. Connect the HDS to the data link connector (DLC) (see page 24-24).

4. Turn the ignition switch to ON (II).

5. Make sure the HDS communicates with the vehicle and the SRS unit. If it does not communicate, troubleshoot the DLC circuit (see page 11-193).

6. From the HDS Main Menu, select SRS, then Inspection. In the Inspection Menu, select AFTER REPLACING FRONT PASSENGER'S SEAT COMPONENT(S), and follow the problems.

Does the passenger's airbag cutoff indicator stay on?

YES—Go to step 7.

NO—Troubleshooting is complete.■

7. From the HDS Main Menu, select SRS, then Inspection. In the Inspection Menu, select AFTER A VEHICLE COLLISION, and follow the prompts.

Does the passenger's airbag cutoff indicator stay on?

YES—Faulty SRS unit; replace the SRS unit (see page 24-188), and retest. If the problem is still present, replace the ODS unit (see page 24-193), and retest. If the problem is still present, replace the front passenger's weight sensor assembly (see page 24-191).■

NO—Troubleshooting is complete.■

SRS (Supplemental Restraint System)

Component Replacement/Inspection After Deployment

NOTE:

- Before doing any SRS repairs, check for DTCs (see page 24-25), for the less obvious deployed components (seat belt tensioners, front impact sensors, side impact sensors, etc).
- If there is a breaking or damage found in harness relevant to the replacement parts shown below, replace it, do not repair.
- Do not replace the ODS unit unless it is physically damaged or a specific fault was found during DTC troubleshooting. Because it could complicate troubleshooting other DTCs.
- After a vehicle collision, do the front seat active head restraint inspection (see page 20-116).

After a collision where the seat belt tensioners deployed, replace these items:

- SRS unit
- Seat belt tensioner(s)
- Front impact sensor(s)

After a collision where the front airbag(s) deployed, replace these items:

- SRS unit
- Deployed airbag(s)
- Seat belt tensioner(s)
- Front impact sensor(s)

After a collision where the side airbag(s) deployed, replace these items:

- SRS unit
- Deployed side airbag(s)
- Side impact sensor(s) (first)
- Side impact sensor(s) (second)
- B-pillar lower trim
- Front seat assembly (impact side)
- Seat belt tensioner(s)

After a collision where a side curtain airbag has deployed, replace the items for the side(s) that deployed:

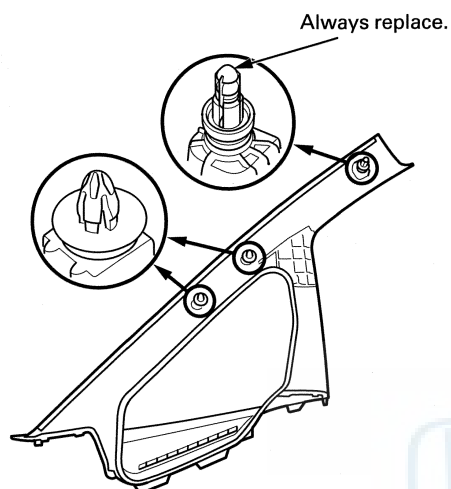
- SRS unit
- Deployed side curtain airbag(s)
- Seat belt tensioner(s)
- Side impact sensor(s) (first)
- Side impact sensor(s) (second)
- Roof trim
- A-pillar trim
- B-pillar upper trim
- Quarter pillar trim
- Front grab handle
- Rear grab handle
- All related trim clip(s)
- Sunvisor



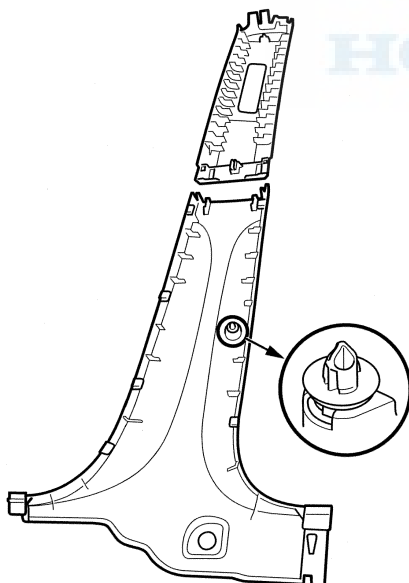


After a moderate to severe side or rear collision, inspect for any damage on the side curtain airbag or other related components. Replace the components as needed.

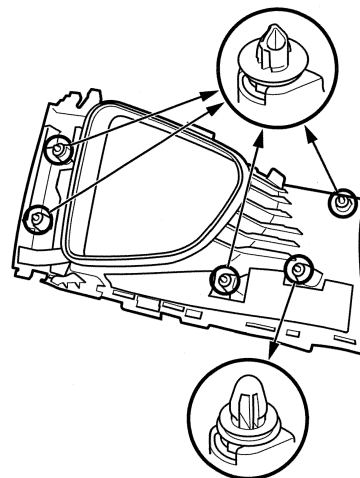
A-pillar trim



B-pillar trim



Quarter pillar trim



During the repair process, inspect these areas:

- Inspect all the SRS wire harnesses. Replace, do not repair, any damaged harnesses.
- Inspect the cable reel for heat damage. If there is any damage, replace the cable reel.

After the vehicle is completely repaired, turn the ignition switch to ON (II). If the SRS indicator comes on for about 6 seconds and then goes off, the SRS is OK. If the indicator does not function properly, check for DTCs with the HDS (see page 24-25). If you cannot retrieve a code, do the SRS Symptom Troubleshooting.

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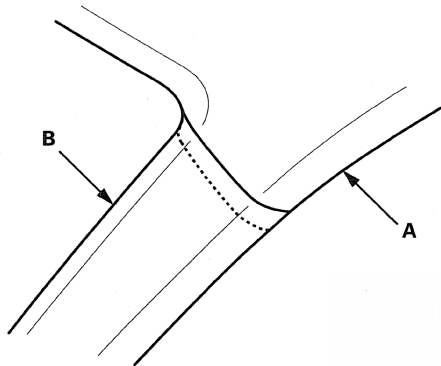
SRS (Supplemental Restraint System)

Component Replacement/Inspection After Deployment (cont'd)

Checking and Adjusting the Headliner/Pillar Trim Overlap

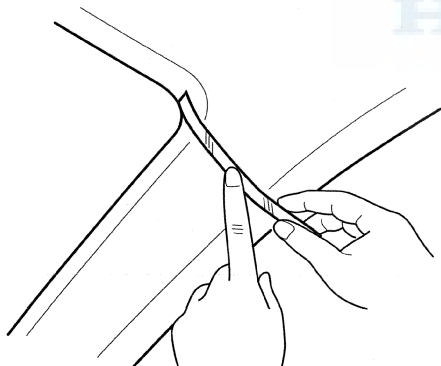
To prevent the side curtain airbag from deploying and damaging the pillar trim, the overlap between the headliner and pillar trim must be less than 8 mm (0.3 in). To check the overlap, do this:

1. Install the headliner (A) and the pillar trim (B).



This illustration shows A-pillar.

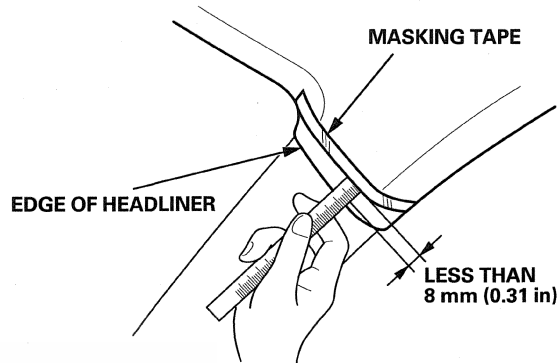
2. Apply masking tape to the headliner to mark the upper edge of each pillar trim.



This illustration shows A-pillar.

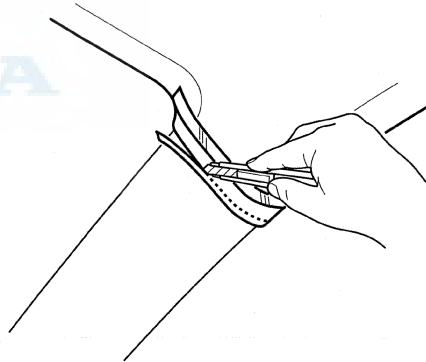
3. Remove the pillar trim, and measure the headliner overlap.

- If the overlap is less than 8 mm (0.31 in), remove the tape, and install the pillar trim.
- If the overlap is more than 8 mm (0.31 in), go to step 4.



This illustration shows A-pillar.

4. Carefully trim the headliner with a utility knife, reducing the overlap to less than 8 mm (0.3 in).



This illustration shows A-pillar.

5. Remove the tape, and install the pillar trim.

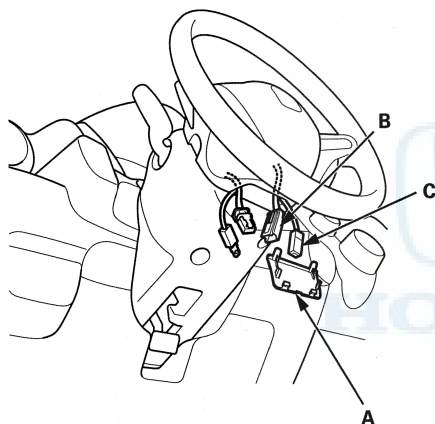


Driver's Airbag Replacement

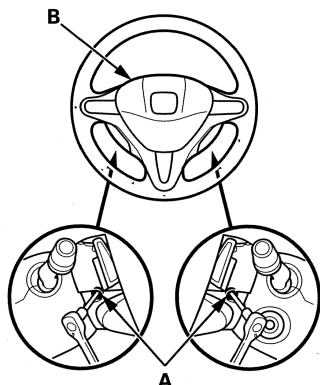
NOTE: If replacing the driver's airbag after deployment, refer to Component Replacement/Inspection After Deployment (see page 24-168) for a complete list of other parts that must also be replaced.

Removal

1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.
2. Remove the access panel (A) from the steering wheel, then disconnect the driver's airbag inflator 4P connector (B) and horn switch 1P connector (C) from the cable reel.



3. Remove the two TORX bolts (A) using a TORX T30 bit.



4. Remove the driver's airbag (B).

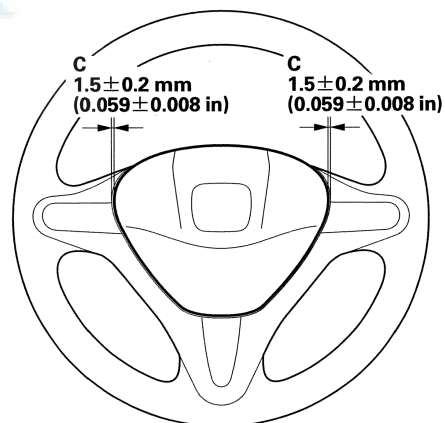
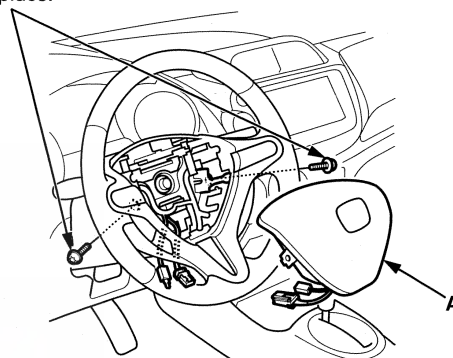
Installation

NOTE: If replacing a deployed airbag, inspect the cable reel for heat damage. If there is any damage, replace the cable reel (see page 24-186).

1. Place the driver's airbag (A) in the steering wheel, and secure it with new TORX bolts (B), using a TORX T30 bit.

NOTE: Make sure the clearance (C) between the steering wheel and horn pad is the specified value.

B
9.4 N·m (1.0 kgf·m, 6.9 lbf·ft)
Replace.

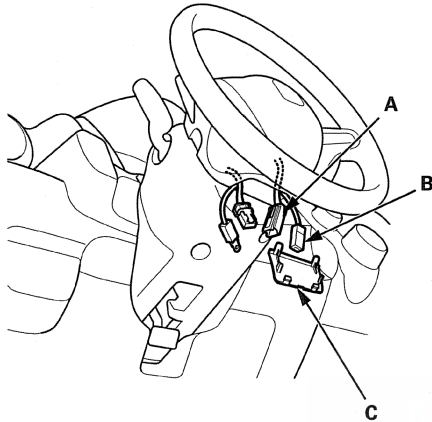


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SRS (Supplemental Restraint System)

Driver's Airbag Replacement (cont'd)

2. Connect the driver's airbag inflator 4P connector (A), and horn switch 1P connector (B), then install the access panel (C) on the steering wheel.



3. Do the battery terminal reconnection procedure (see page 22-70).
4. Clear any DTCs with the HDS (see page 24-26).
5. After installing the driver's airbag, confirm proper system operation:
 - Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.
 - Make sure the horn work properly.

Front Passenger's Airbag Replacement

NOTE: If replacing the front passenger's airbag after deployment, refer to Component Replacement/Inspection After Deployment (see page 24-168) for a complete list of other parts that must also be replaced.

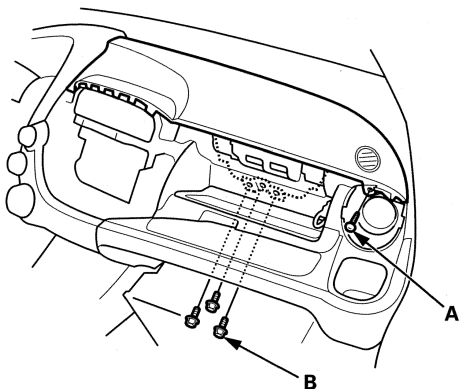
Removal

1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.
2. Remove these items:
 - The glove box is lowered (see step 3 on page 20-102)
 - Passenger's tray lid (see page 20-100)
 - Dashboard vent (see page 20-98)
 - Audio-Navigation unit (see page 23-154) or audio unit (see page 23-67)
3. Remove the connector clip, then disconnect the front passenger's airbag inflator 4P connector (A) on the dashboard wire harness.



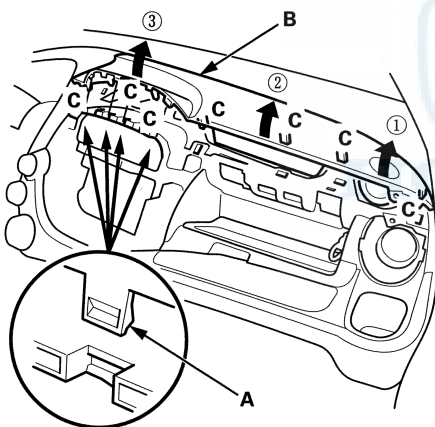


4. Remove the screw (A) from the passenger's lid.



5. Remove the three mounting bolts (B) from the bracket.

6. Release the hooks (A) of the front passenger's lid (B) from the audio panel.

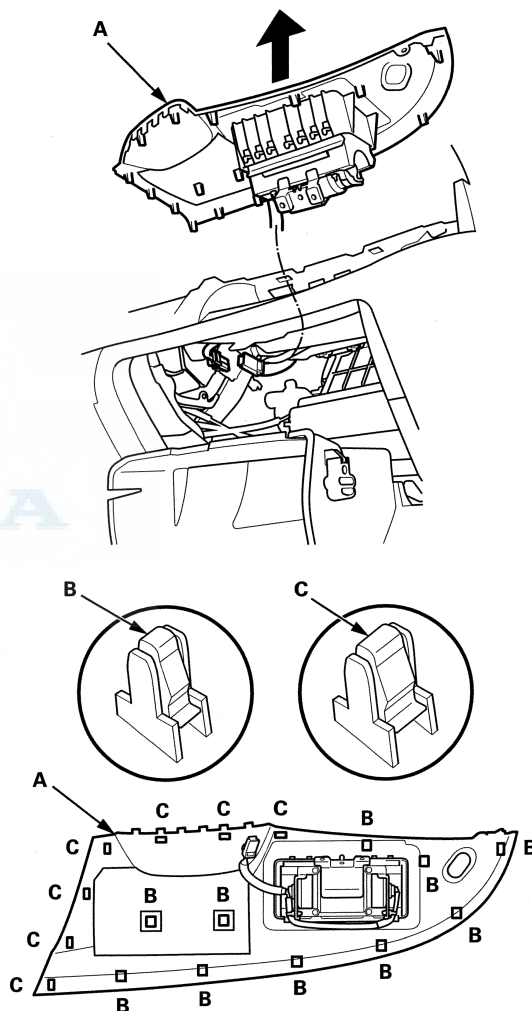


7. Pull up the front edges of the front passenger's lid to release the hooks (C).

8. Remove the front passenger's airbag assembly (A) out of the dashboard. If you are replacing only the front passenger's lid, go to step 9.

NOTE:

- The front passenger's lid has pawls (B, C) on each side which attach it to the dashboard.
- Take care not to damage the front passenger's airbag.



(cont'd)

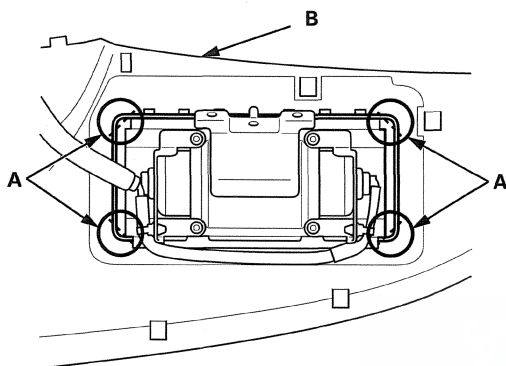
SRS (Supplemental Restraint System)

Front Passenger's Airbag Replacement (cont'd)

9. Cut the four corners (A) of the front passenger's lid (B) as shown, and remove the front passenger's airbag.

NOTE:

- Always replace the front passenger's lid whenever you remove the airbag from the panel.
- Replace the airbag if the airbag mounting hooks or its housing is damaged.

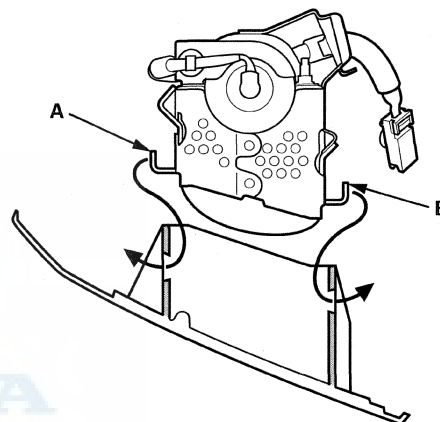


Installation

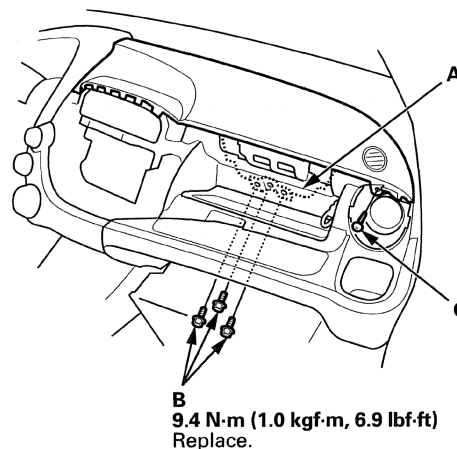
1. Insert the hooks (A) of the front passenger's airbag housing into the new front passenger's lid, then insert the other hooks (B) into the panel.

NOTE:

- Make sure there are no objects between the airbag and the front passenger's lid.
- Make sure the airbag is fully seated, and make sure the front passenger's lid is not deformed or damaged after the airbag is in place.
- Make sure the hooks are set properly.



2. Place the front passenger's airbag assembly (A) into the dashboard. Torque the new front passenger's airbag mounting bolts (B).



3. Install the screw (C) in the front passenger's lid.



Side Airbag Replacement

4. Connect the front passenger's airbag inflator 4P connector (A) on the dashboard wire harness, then connect the connector clip. Reinstall the glove box (see page 20-101).

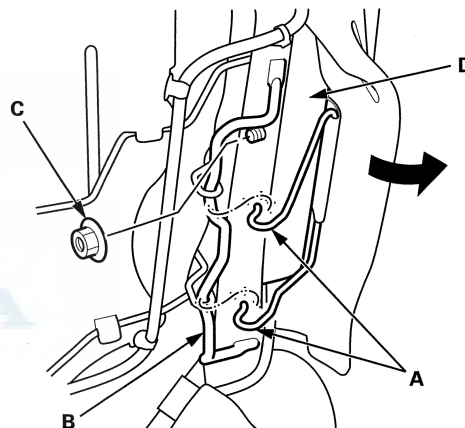


5. Do the battery terminal reconnection procedure (see page 22-70).
6. Clear any DTCs with the HDS (see page 24-26).
7. After installing the front passenger's airbag, confirm proper system operation: Turn the ignition switch to ON (II), and check that the SRS indicator should come on for about 6 seconds and then goes off.
8. Reinstall all removed parts.

NOTE: If replacing the side airbag after deployment, refer to Component Replacement/Inspection After Deployment (see page 24-168) for a complete list of other parts that must also be replaced.

Removal

1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.
2. Remove the front seat assembly (see page 20-117).
3. Pull off the seat-back cover/pad as needed (see page 20-123).
4. Release the rear hooks (A) from the seat-back frame (B).



5. Remove the mounting nut (C) and the side airbag (D).

(cont'd)

SRS (Supplemental Restraint System)

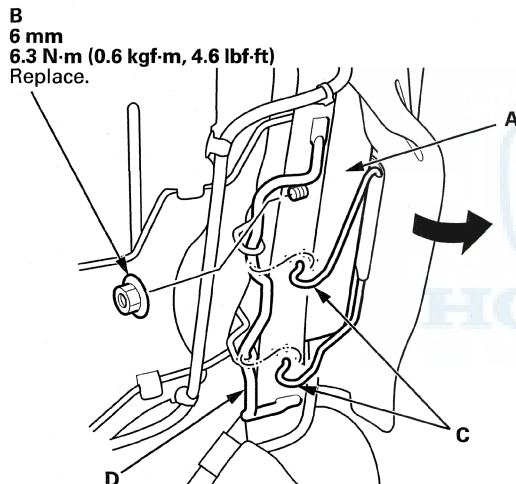
Side Airbag Replacement (cont'd)

Installation

NOTE:

- If the side airbag lid is secured with tape, remove the tape.
- Do not open the lid on the side airbag cover.
- Use new mounting nut tightened to the specified torque.
- Make sure that the seat-back cover/pad is installed properly. Improper installation may prevent proper deployment.
- Be sure to install the harness so that it is not pinched or interfering with other parts.

1. Place the side airbag (A) on the seat-back frame. Install the new side airbag mounting nut (B).



2. Install the rear hooks (C) in the seat-back frame (D).
3. Install the seat-back cover/pad (see page 20-123).
4. Install the front seat assembly (see page 20-117). then connect the floor wire harness 2P connector.
5. Move the front seat and the seat-back through their full ranges of movement, making sure the harness are not pinched or interfering with other parts.
6. Do the battery terminal reconnection procedure (see page 22-70).
7. Clear any DTCs with the HDS (see page 24-26).
8. After installing the side airbag, confirm proper system operation: Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

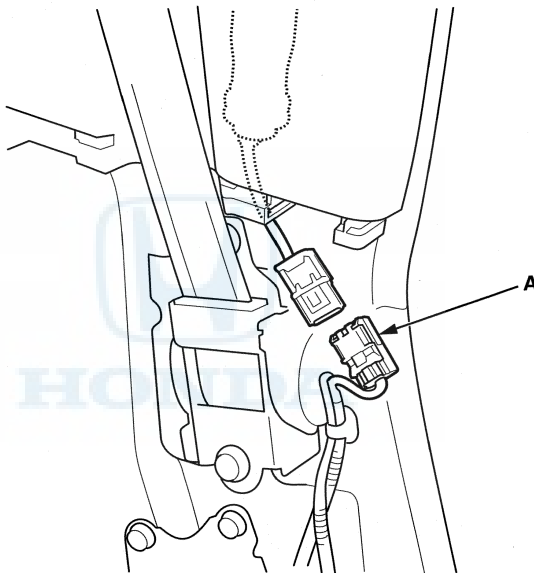


Side Curtain Airbag Replacement

Removal

NOTE:

- If replacing the side curtain airbag after deployment, refer to Component Replacement/Inspection After Deployment (see page 24-168) for a complete list of other parts that must also be replaced.
 - Review the interior trim replacement procedure before doing repair or service (see page 20-65).
 - Removal of the side curtain airbag must be done according to Precaution and Procedures (see page 24-15).
 - The side curtain airbag system consists of many components. When the side curtain airbag has been deployed, go to Component Replacement/Inspection After Deployment, and replace all of the parts listed (see page 24-168).
1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.
 2. Remove the cargo area side trim (see page 20-76).
 3. Disconnect the side curtain airbag inflator 2P connector (A) on the floor wire harness.



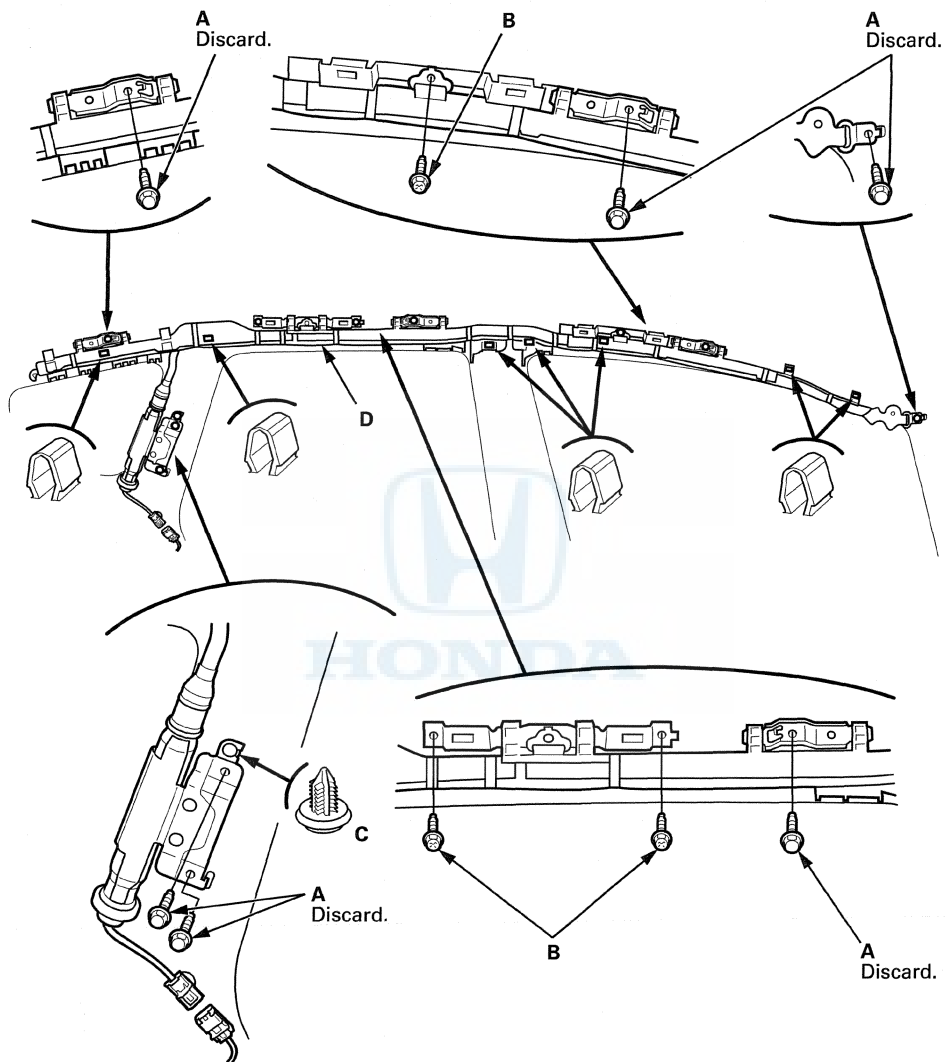
Left side shown; Right side is similar.

(cont'd)

SRS (Supplemental Restraint System)

Side Curtain Airbag Replacement (cont'd)

4. Remove the headliner (see page 20-86).
5. Remove the side airbag mounting bolts (A) and mounting screws (B) from the bracket. Detach the clip (C), then remove the side curtain airbag (D).



Left side shown; Right side is similar.

6. Install all removed parts in reverse order of removal. If any clips are stress-whitened, replace them with new ones.
7. Confirm proper headliner/pillar trim overlap (see page 24-170).



Installation

NOTE:

- If replacing the side curtain airbag after deployment, refer to Component Replacement/Inspection After Deployment (see page 24-168) for a complete list of other parts that must also be replaced.
- Installation of the side curtain airbag must be done according to the Precautions and Procedures (see page 24-15).
- If the airbag is frayed, or has any other visible damage, replace it. Do not attempt to repair an airbag.
- When you install the airbag, make sure it is not twisted, and that it is not caught between the inflator bracket by the bracket bolts.
- Make sure that the side curtain airbag inflator retainer is installed properly. Otherwise the airbag could incorrectly deploy and cause damage or injuries.
- Make sure the side curtain airbag and the securing tape is not cut or is peeling. If the airbag or the tape is cut or is peeling, replace the airbag.
- If there is any damage to the side curtain airbag, do not try to repair it. Replace any damaged side curtain airbag.

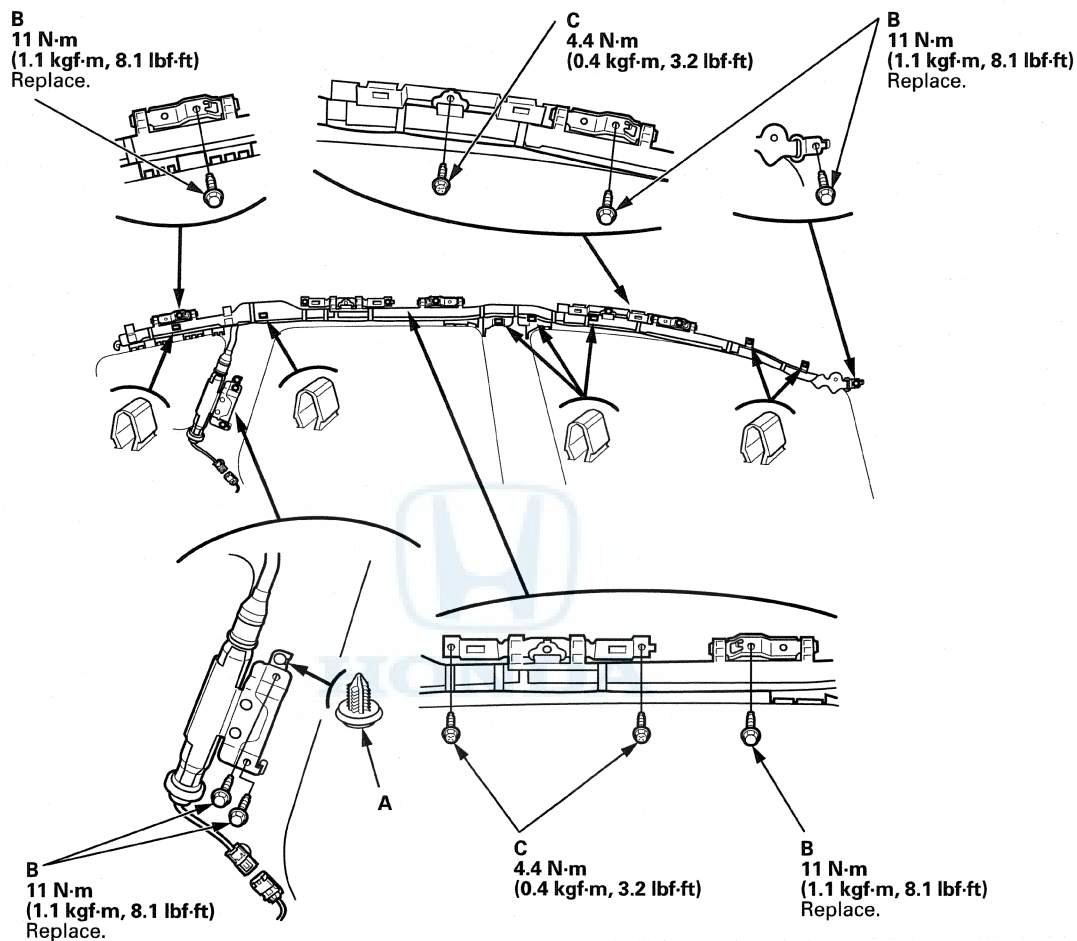


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SRS (Supplemental Restraint System)

Side Curtain Airbag Replacement (cont'd)

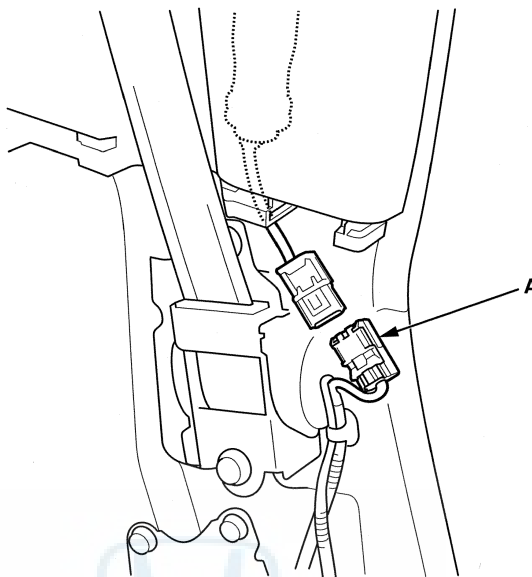
1. Place the side curtain airbag assembly on the side of the roof, and fit its clip (A) into the hole in the body. Tighten the new side curtain airbag mounting bolts (B) and mounting screws (C) to the specified torque, and the clip is pushed until stopping.



Left side shown; Right side is similar.



2. Connect the side curtain airbag inflator 2P connector (A) on the floor wire harness.



Left side shown; Right side is similar.

3. Do the battery terminal reconnection procedure (see page 22-70).
4. Clear any DTCs with the HDS (see page 24-26).
5. After installing the side curtain airbag, confirm proper system operation: Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.
6. Install all removed parts in reverse order of removal. If any clips are stress-whitened, replace them with new ones.
7. Confirm proper headliner/pillar trim overlap (see page 24-170).

SRS (Supplemental Restraint System)

Airbag and Tensioner Disposal

Special Tools Required

Deployment Tool 07AAZ-000A100

Before scrapping any airbags, side airbags, side curtain airbags, seat belt tensioners (including those in a whole vehicle to be scrapped), the part(s) must be deployed. If the vehicle is still within the warranty period, the Honda District Parts and Service Manager must give approval and/or special instruction before deploying the part(s). Only after the part(s) have been deployed (as the result of vehicle collision, for example), can they be scrapped. If the parts appear intact (not deployed), treat them with extreme caution. Follow these procedures.

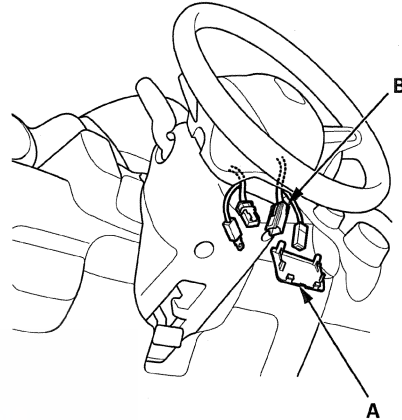
Deploying Airbags in the Vehicle

If an SRS equipped vehicle is to be entirely scrapped, its airbags, side airbags, side curtain airbags, and seat belt tensioners, should be deployed while still in the vehicle. These parts should not be considered as salvageable parts and should never be installed in another vehicle.

1. Turn the ignition switch to LOCK (0).
2. Disconnect the negative cable to the battery, then wait at least 3 minutes before starting work.
3. Confirm that each front airbag, side airbag, side curtain airbag, or seat belt tensioner is securely mounted.
4. Confirm that the deployment tool is functioning properly by following the check procedure on the tool label.

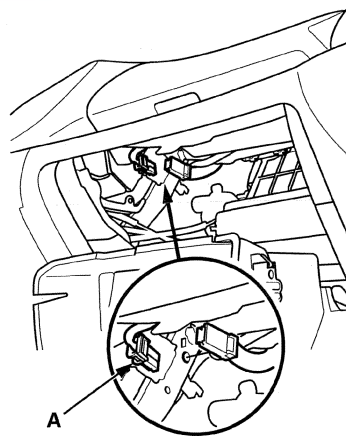
Driver's Airbag

5. Remove the access panel (A) from the steering wheel, then disconnect the driver's airbag inflator 4P connector (B).



Front Passenger's Airbag

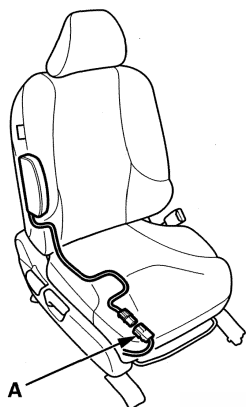
6. Remove the glove box (see page 20-101).
7. Disconnect the front passenger's airbag inflator 4P connector (A) on the dashboard wire harness.





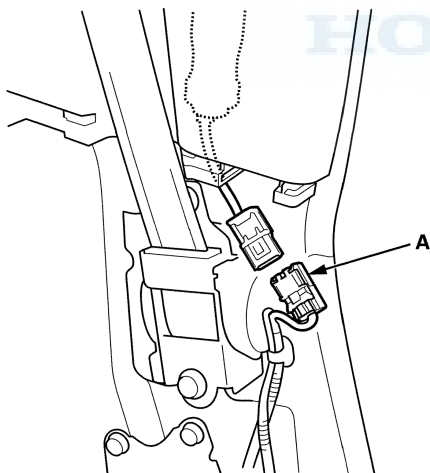
Side Airbag

8. Disconnect the driver's and the front passenger's side airbag inflator 2P connectors (A) on the floor wire harness.



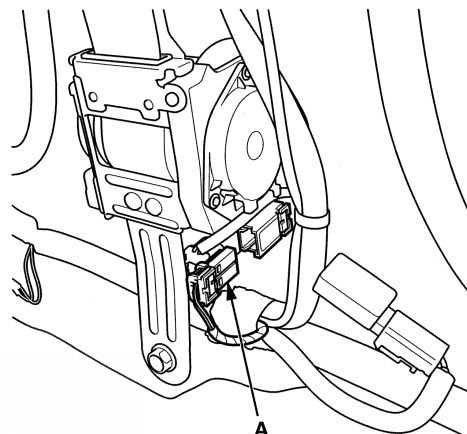
Side Curtain Airbag

9. Remove the cargo area side trim (see page 20-76).
10. Disconnect the left and right side curtain airbag inflator 2P connectors (A) on the floor wire harness.



Seat Belt Tensioner

11. Remove the B-pillar lower trim (see page 20-72).
12. Disconnect the left and right side seat belt tensioner 4P connectors (A) on the floor wire harness. Pull the seat belt out all the way and cut it.



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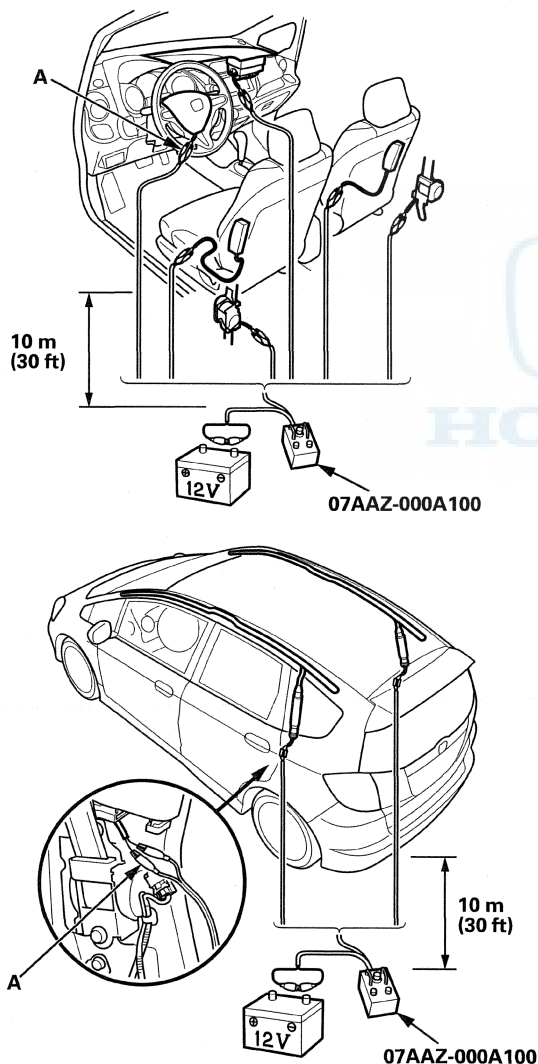
SRS (Supplemental Restraint System)

Airbag and Tensioner Disposal (cont'd)

13. Cut off each connector, and strip the ends of the wires. Twist each pair of unlike colored wires together, and clip an alligator clip (A) from the deployment tool to each pair.

NOTE:

- Place the deployment tool at least 10 m (33 ft) away from the vehicle.
- The driver's and front passenger's airbags have dual inflators. Twist each pair of unlike colored wires together, and clip an alligator clip to each pair.



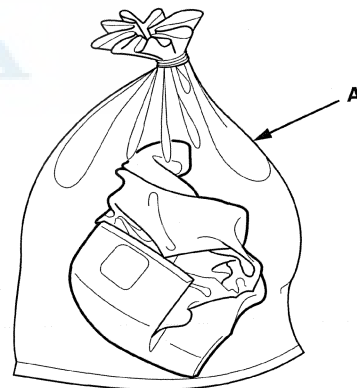
14. Connect a 12 V battery to the tool.

- If the green light on the tool comes on, the igniter circuit is defective and cannot deploy the component. Go to Disposal of Damaged Components.
- If the red light on the tool comes on, the component is ready to be deployed.

15. Push the tool's deployment switch. The airbags and tensioners should deploy (deployment is both highly audible and visible: A loud noise and rapid inflation of the bag, followed by slow deflation).

- If the components deploy and the green light on the tool comes on, continue with this procedure.
- If a component does not deploy, and the green light comes ON, its igniter is defective. Go to Disposal of Damaged Components.
- During deployment, the airbags can become hot enough to burn you. Wait for 30 minutes after deployment before touching the airbags.

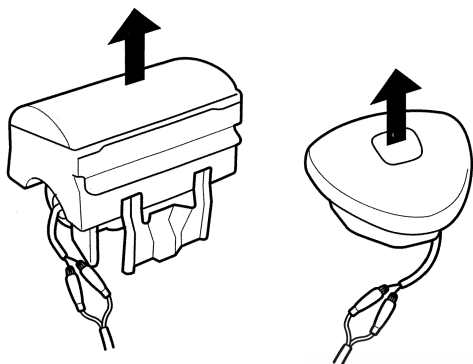
16. Dispose of the complete airbag. No part of it can be reused. Place it in a sturdy plastic bag (A), and seal it securely. Dispose of the deployed airbag according to your local regulations.





Deploying Components Out of the Vehicle

If an intact airbag or tensioner has been removed from a scrapped vehicle, or has been found defective or damaged during transit, storage, or service, it should be deployed as follows:



1. Confirm that the deployment tool is functioning properly by following the check procedure Deploying Airbags in the Vehicle on the tool label.
2. Position the airbag face up, outdoors, on flat ground, at least 10 m (33 ft) from any obstacles or people.
3. Follow step 13 through 16 of the in-vehicle deployment procedure.

NOTE: The driver's and front passenger's airbags have dual inflators. Twist each pair of unlike colored wires together, and clip an alligator clip to each pair.

Disposal of Damaged Components

1. If installed in a vehicle, follow the removal procedure for the driver's airbag (see page 24-171), the front passenger's airbag (see page 24-172), the side airbag (see page 24-175), the side curtain airbag (see page 24-177), and the seat belt tensioner (see page 24-4).

2. In all cases, make a short circuit by cutting, stripping, and twisting together the two inflator wires.

NOTE: The driver's and front passenger's airbags have dual inflators. The like color wires go to the individual inflators. Twist the like colored wires together.

3. Package the component in exactly the same packaging that the new replacement part came in.
4. Mark the outside of the box **DAMAGED AIRBAG NOT DEPLOYED, DAMAGED SIDE AIRBAG NOT DEPLOYED, DAMAGED SIDE CURTAIN AIRBAG NOT DEPLOYED, or DAMAGED SEAT BELT TENSIONER NOT DEPLOYED** so it does not get confused with your parts stock.
5. Contact your Honda District Parts and Service Manager for instructions on how and where to return it for disposal.

Deployment Tool Check

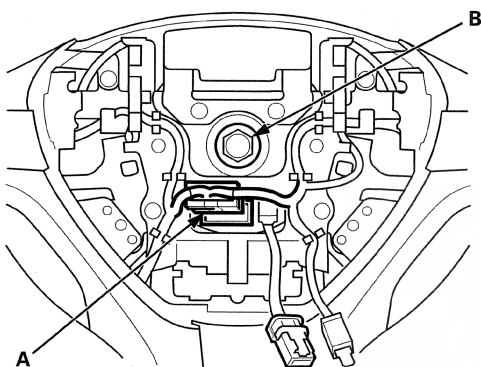
1. Connect the yellow clips to both switch protector handles on the tool.
2. Then connect the red lead to the positive battery post and the black lead to the negative battery post.
3. Push the operation switch: The green light should come on, indicating that the tool is operating properly and is ready for use. If the red light stays on, the tool is faulty, and another one must be used for the procedure.
4. Disconnect the tool clips and connectors from the protector handles and the battery.

SRS (Supplemental Restraint System)

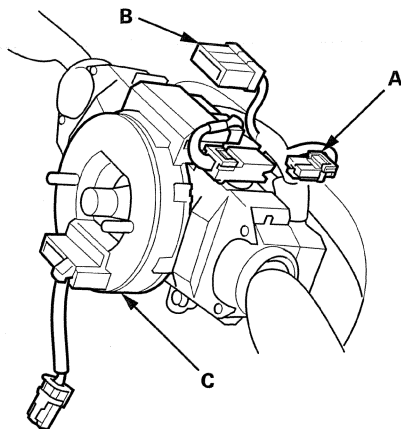
Cable Reel Replacement

Removal

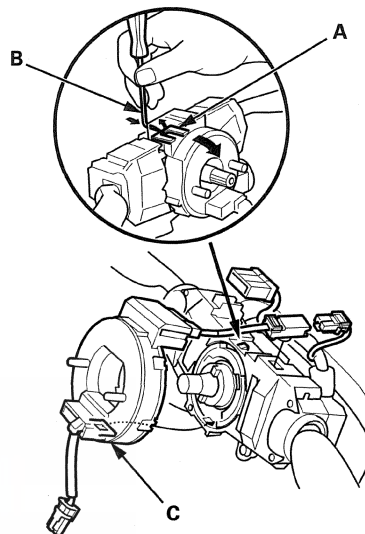
1. Make sure the front wheels are aligned straight ahead.
2. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.
3. Remove the driver's airbag (see page 24-171).
4. Disconnect the cable reel 20P connector (A) from the cable reel, then remove the steering wheel bolt (B).



5. Confirm that the front wheels point straight ahead, then remove the steering wheel with a steering wheel puller (see step 5 on page 17-6). Do not tap on the steering wheel or steering column shaft when removing the steering wheel.
6. Remove the column covers (see page 20-105).
7. Disconnect the cable reel 4P connector (A) and the cable reel 20P connector (B) from the cable reel (C).



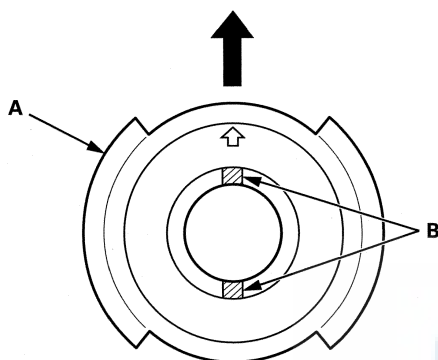
8. Release the lock tab (A) under the cable reel connector with a 90 ° hook shaped tool (B). Slide the tool below the cable reel connector just above the lock tab. Release the lower lock tab (C), and slide the cable reel off the column.



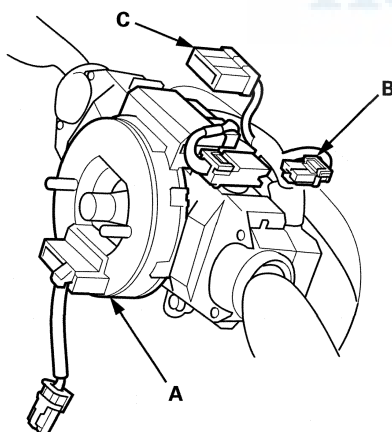


Installation

1. Before installing the steering wheel, make sure the front wheels are aligned straight ahead.
2. If not already done, disconnect the negative cable from the battery, then wait at least 3 minutes.
3. Set the turn signal canceling sleeve (A) so that the tabs (B) are aligned vertically.

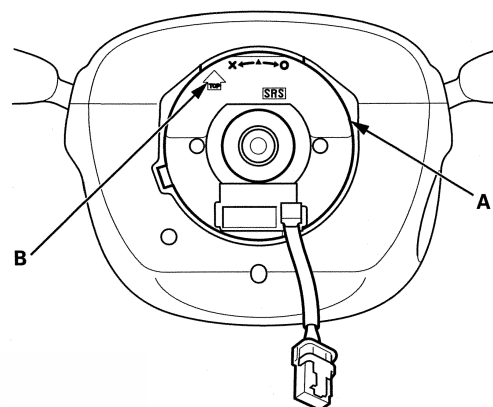


4. Carefully install the cable reel (A) on the steering column shaft. Then connect the cable reel 4P connector (B) and the cable reel 20P connector (C) to the cable reel.

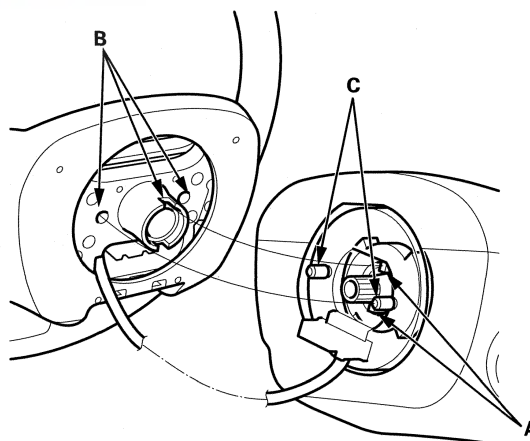


5. Install the steering column covers (see page 20-105).

6. Before installing the steering wheel, make sure the front wheels are pointing ahead, then center the cable reel (A). Do this by first rotating the cable reel clockwise until it stops. Then rotate it counterclockwise (about three turns) until the arrow mark (B) on the cable reel label points straight up.



7. Position the two tabs (A) of the turn signal canceling sleeve as shown, and install the steering wheel on to the steering column shaft, making sure the steering wheel hub (B) engages the pins (C) of the cable reel and tabs of the turn signal canceling sleeve. Do not tap on the steering wheel or steering column shaft when installing the steering wheel.



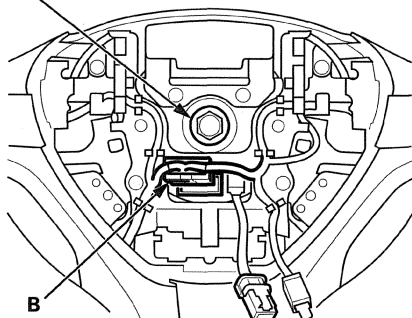
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SRS (Supplemental Restraint System)

Cable Reel Replacement (cont'd)

8. Install the steering wheel bolt (A), and tighten it to the specified torque, then connect the cable reel 20P connector (B) to the cable reel.

A
39 N·m (4.0 kgf·m, 29 lbf·ft)
Replace.



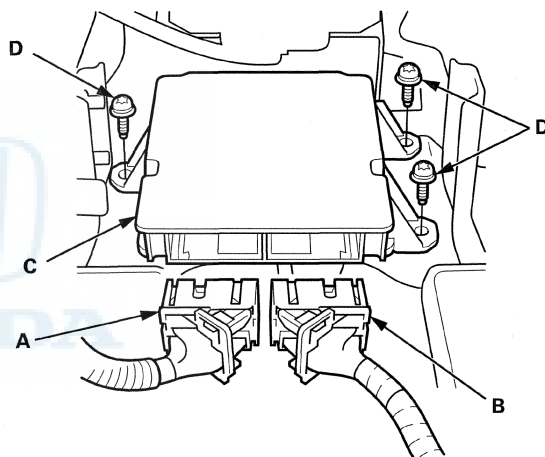
9. Install the driver's airbag (see page 24-171).
10. Do the battery terminal reconnection procedure (see page 22-70).
11. Clear any DTCs with the HDS (see page 24-26).
12. After installing the cable reel, confirm proper system operation:
- Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.
 - Make sure the horn and turn signal switches work properly.
 - Make sure the steering wheel switches work properly.
13. After installation, check the steering wheel spoke angle. If the steering spoke angles to the right and left are not equal (steering wheel is not centered), correct the engagement of the steering wheel/column shaft splines.

SRS Unit Replacement

Removal

1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.
2. Remove the center console (see page 20-93).
3. Remove the heater joint duct (see step 5 on page 20-106).
4. Disconnect SRS unit connectors A (39P) and B (39P) from the SRS unit (C).

NOTE: The SRS unit connectors have lever locks. Release the locks before disconnecting the connectors (see page 24-20).



5. Remove the TORX bolts (D) using a TORX T30 bit, then pull out the SRS unit.

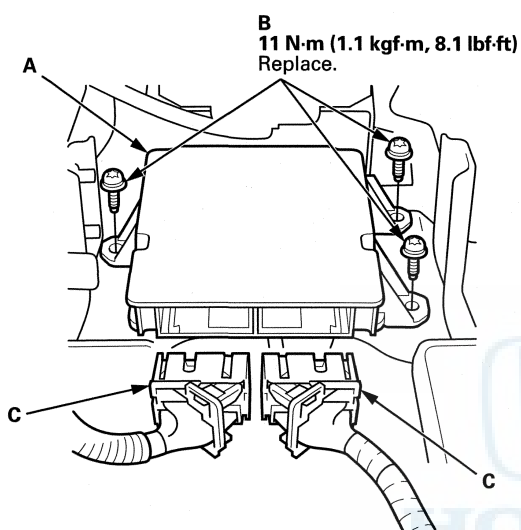


Side Impact Sensor (First) Replacement

Installation

1. Install the SRS unit (A) with new TORX bolts (B), then connect the SRS connectors (C) to the SRS unit; push them into position until they click and the lever locks are fully secured (see page 24-20).

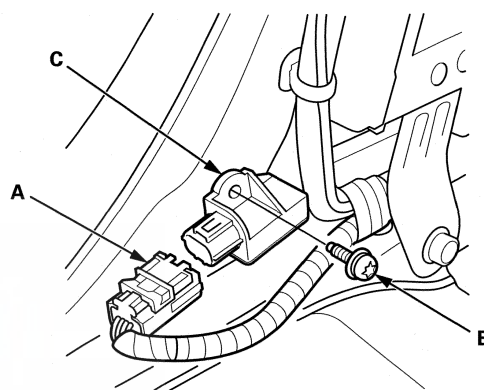
NOTE: Be sure the SRS unit is sitting squarely against its bracket before torquing the TORX bolts.



2. Do the battery terminal reconnection procedure (see page 22-70).
3. Make sure the SRS unit has the latest software. If it does not have the latest, update the software in the SRS unit (see page 24-27).
4. Do the OPDS sensor initialization (see page 24-28).
5. Check the operation of the ODS unit with the HDS. (see page 24-30).
6. Confirm proper SRS operation: Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.
7. Reinstall all removed parts.

Removal

1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.
2. Remove the front seat assembly (see page 20-117).
3. Remove the B-pillar lower trim panel (see page 20-72).
4. Disconnect the side impact sensor (first) 4P connector (A) on the floor wire harness.



5. Remove the TORX bolt (B) using a TORX T30 bit, then remove the side impact sensor (first) (C).

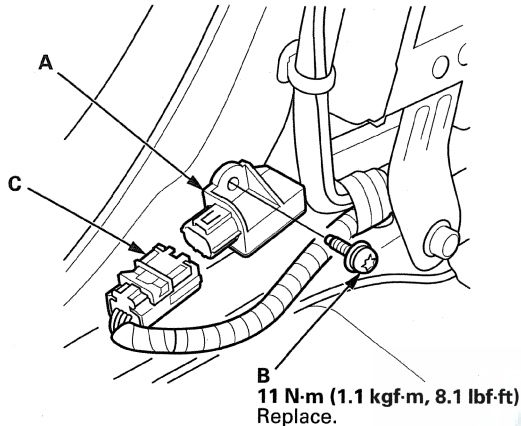
(cont'd)

SRS (Supplemental Restraint System)

Side Impact Sensor (First) Replacement (cont'd)

Installation

1. Install the side impact sensor (first) (A) with a new TORX bolt (B), using a TORX T30 bit. Connect the side impact sensor (first) 4P connector (C) on the floor wire harness.

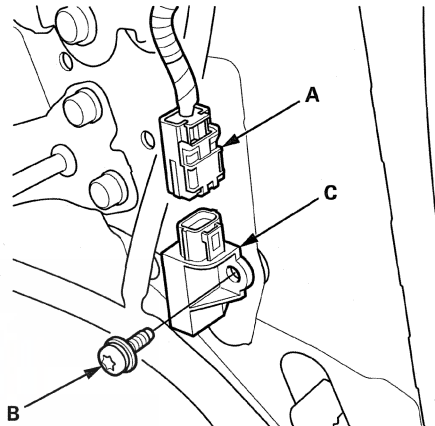


2. Do the battery terminal reconnection procedure (see page 22-70).
3. Clear any DTCs with the HDS (see page 24-26).
4. Confirm proper SRS operation: Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.
5. Reinstall all removed parts.

Side Impact Sensor (Second) Replacement

Removal

1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.
2. Remove the cargo area side trim (see page 20-76).
3. Disconnect the side impact sensor (second) 2P connector (A) on the floor wire harness.



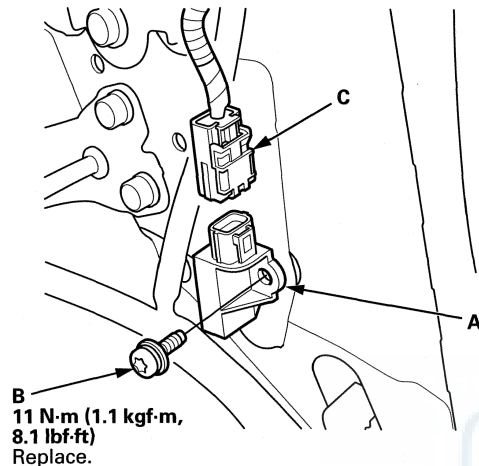
4. Remove the TORX bolt (B) using a TORX T30 bit, then remove the side impact sensor (second) (C).



Front Passenger's Weight Sensor Replacement

Installation

1. Install the side impact sensor (second) (A) with a new TORX bolt (B), using a TORX T30 bit. Connect the side impact sensor (second) 2P connector (C) on the floor wire harness.

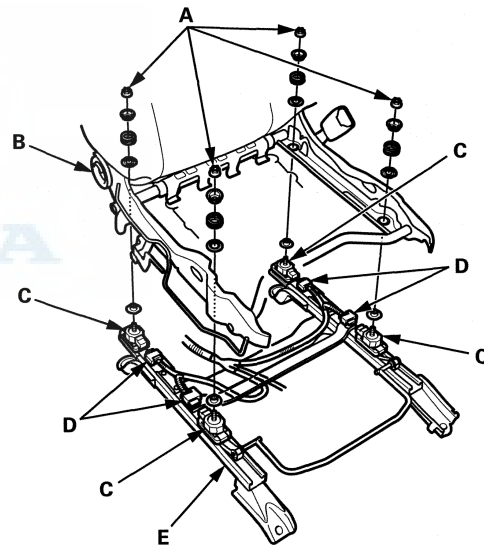


2. Do the battery terminal reconnection procedure (see page 22-70).
3. Clear any DTCs with the HDS (see page 24-26).
4. Confirm proper SRS operation: Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds, and then goes off.
5. Reinstall all removed parts.

Removal

NOTE: .

- Removal of the front passenger's weight sensors must be done according to precautions and procedures (see page 24-15).
 - The front passenger's weight sensor are part of the seat track and must be replaced as an assembly.
1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.
 2. Remove the front passenger's seat (see page 20-117).
 3. Remove the cushion cover/pad from the seat cushion frame (see page 20-130).
 4. Remove the TORX nuts (A) attaching the seat track (B) to the weight sensors (C) using a TORX E18 socket.



5. Disconnect the front passenger's weight sensor connectors (D), then remove the front passenger's seat slide assembly (E) including both passenger's weight sensors.

(cont'd)

SRS (Supplemental Restraint System)

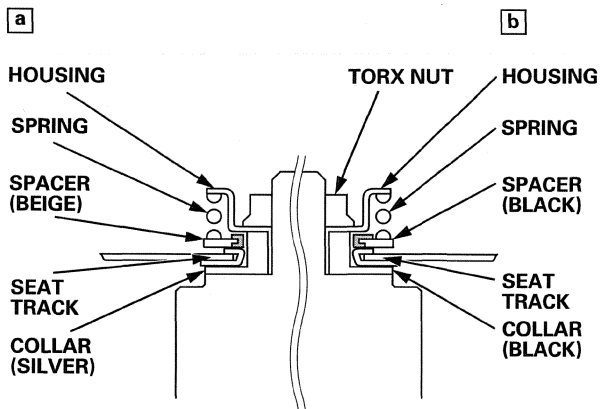
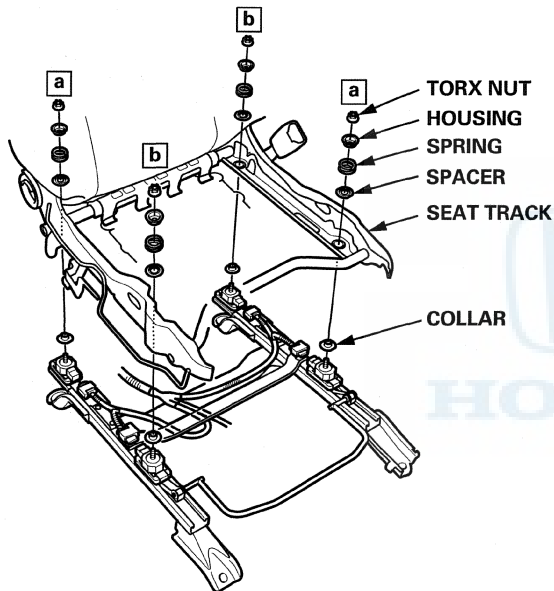
Front Passenger's Weight Sensor Replacement (cont'd)

Installation

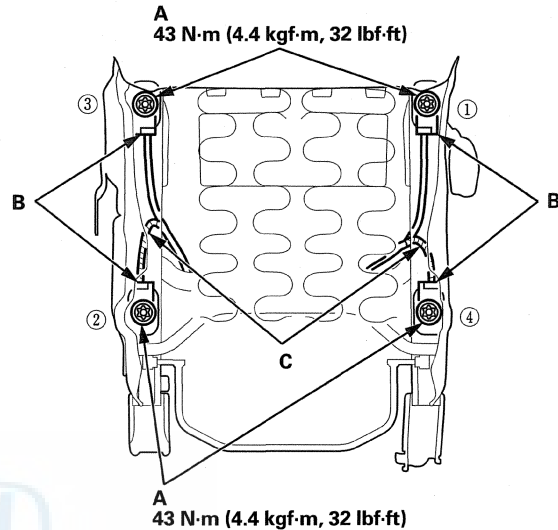
NOTE:

- Be sure to install the harness wires so they are not pinched or interfere with other parts.
- The front passenger's weight sensor are part of the seat track and must be replaced as an assembly.
- The spacers and collars can be identified by their color. Make sure to install the spacers and collars as shown.

1. Install the new front passenger's seat slide assembly under the seat track.



2. When tightening the TORX nuts (A), begin with ①, and tighten them in a crisscross pattern in two or more steps.



3. Connect the front passenger's weight sensor connectors (B).

NOTE: The sensor connectors with the white tape (C) connect to the front sensors.

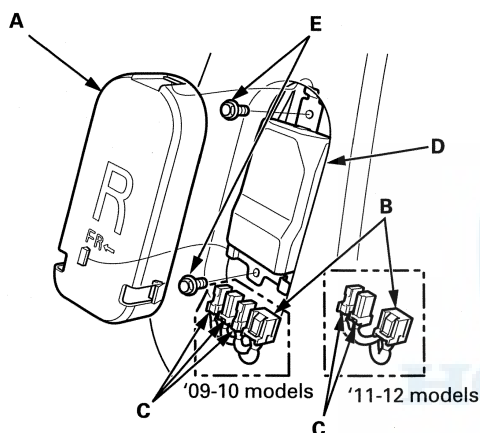
4. Reassemble the front passenger's seat cushion cover/pad (see page 20-130).
5. Reinstall the front passenger's seat (see page 20-117).
6. Do the battery terminal reconnection procedure (see page 22-70).
7. Clear any DTCs with the HDS (see page 24-26).
8. Do the front passenger's weight sensor initialization (see page 24-29).
9. Confirm proper SRS operation: Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.



ODS Unit Replacement

Removal

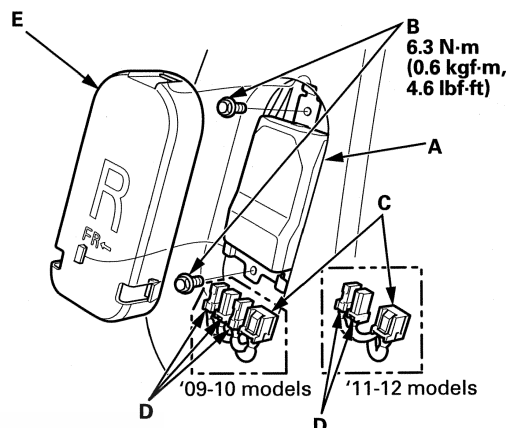
1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.
2. Disconnect the passenger's side airbag harness 2P connector (see step 5 on page 24-23).
3. Remove the front passenger's seat-back cover/pad (see page 20-123).
4. Remove the cover (A), then disconnect the ODS unit 18P connector (B) and OPDS sensor connectors (C) from the ODS unit (D).



5. Remove the two bolts (E) and the ODS unit.

Installation

1. Place the ODS unit (A) on the seat-back frame. Tighten the two bolts (B).



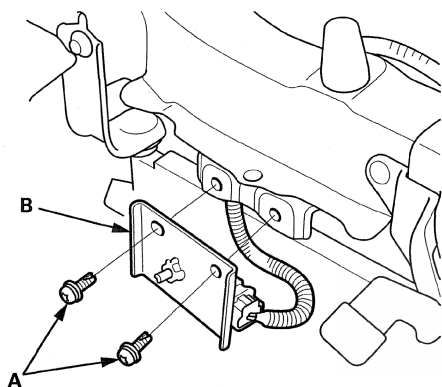
2. Connect the ODS unit harness 18P connector (C) and OPDS sensor connectors (D) to the ODS unit. Reinstall the cover (E).
3. Install the front passenger's seat-back cover (see page 20-123).
4. Install the front passenger's seat assembly (see page 20-117), then connect the side airbag harness 2P connector.
5. Do the battery terminal reconnection procedure (see page 22-70).
6. Set the seat-back in the normal position, and make sure there is nothing on the front passenger's seat.
7. Clear any DTCs with the HDS (see page 24-26).
8. Do the OPDS sensor initialization (see page 24-28).
9. Confirm proper SRS operation: Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

SRS (Supplemental Restraint System)

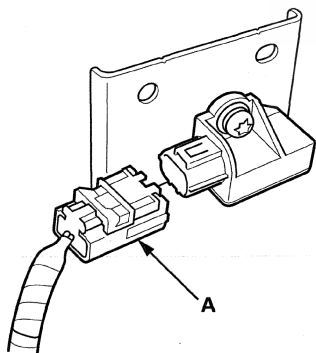
Front Impact Sensor Replacement

Removal

1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.
2. Remove the front grille cover (see page 20-166).
3. Remove the TORX bolt (A) using a TORX T30 bit, then remove the front impact sensor (B).

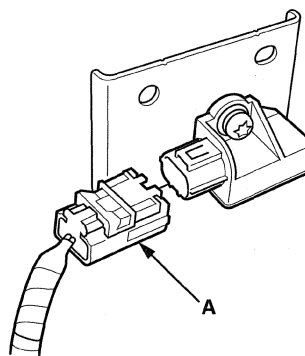


4. Disconnect the left or right front impact sensor 2P connector (A) on the left or right engine compartment wire harness.

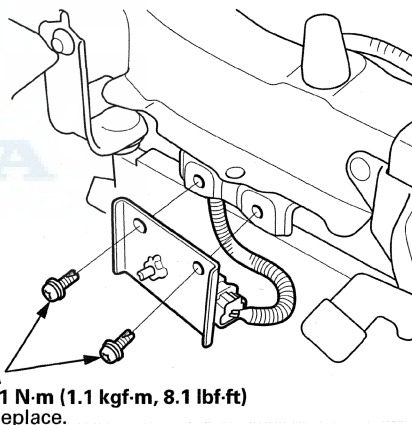


Installation

1. Connect the left or right front impact sensor 2P connector (A) on the left or right engine compartment wire harness.



2. Install the front impact sensor with a new TORX bolt (A), using a TORX T30 bit.



3. Do the battery terminal reconnection procedure (see page 22-70).
4. Clear any DTCs with the HDS (see page 24-26).
5. Confirm proper SRS operation: Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.
6. Reinstall all removed parts.

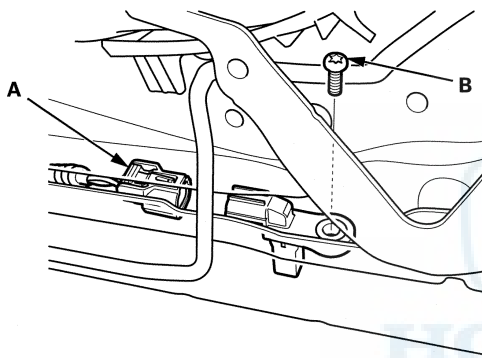


Driver's Seat Position Sensor Replacement

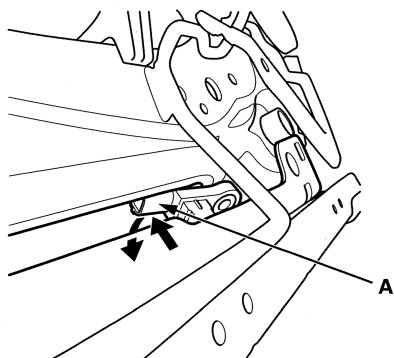
Removal

NOTE: Do not turn the ignition switch to ON (II), and do not connect the battery cable while removing the driver's seat position sensor.

1. Do the battery terminal disconnection procedure (see page 22-69), then wait at least 3 minutes before starting work.
2. Remove the recline cover (see page 20-127).
3. Disconnect the driver's seat position sensor 2P connector (A) on the driver's seat position sensor harness. Remove the TORX bolt (B) using a TORX T30 bit.



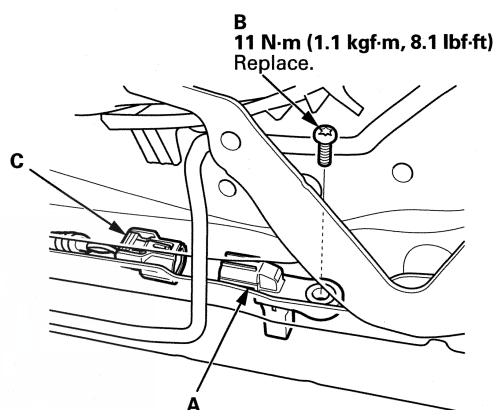
4. Remove the driver's seat position sensor (A) through the space between the seat track and slide as shown.



Installation

NOTE:

- Be sure to install the harness so it does not pinched or interfere with other parts.
 - Do not turn the ignition switch to ON (II), and do not connect the battery cable while installing the driver's seat position sensor.
1. Install the driver's seat position sensor (A) with a new TORX bolt (B).



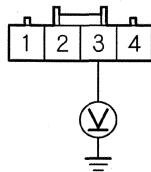
2. Connect the driver's seat position sensor 2P connector (C) on the driver's seat position sensor harness.
3. Install the recline cover (see page 20-127).
4. Do the battery terminal reconnection procedure (see page 22-70).
5. Clear any DTCs with the HDS (see page 24-26).
6. Check the operation of the driver's seat position sensor with the HDS (see page 24-32).
7. Confirm proper SRS operation: Turn the ignition switch to ON (II), and check that the SRS indicator comes on for about 6 seconds and then goes off.

SRS (Supplemental Restraint System)

Passenger's Airbag Cutoff Indicator Illumination Bulb Test/Replacement

1. Remove the audio unit (see page 23-67) or navigation unit from the dashboard (see page 23-154).
2. Turn the ignition switch to ON (II).
3. Measure the voltage between passenger's airbag cutoff indicator 4P connector terminal No. 3 and body ground. There should be battery voltage.
 - If there is battery voltage, go to step 4.
 - If there is no battery voltage, check the No. 29 (10 A) fuse in the under-dash fuse/relay box. If the fuse is blown, replace it and retest. If the fuse blows again, check for a short in the No. 29 (10 A) fuse line.

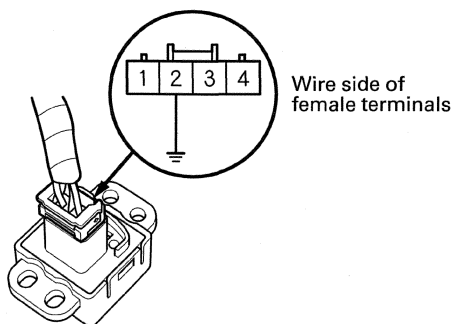
PASSENGER'S AIRBAG CUTOFF INDICATOR CONNECTOR (4P)



Wire side of female terminals

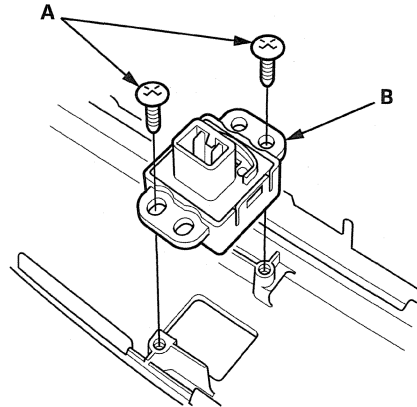
4. Reconnect the 4P connector to the passenger's airbag cutoff indicator.
5. Install a jumper wire between passenger's airbag cutoff indicator connector (4P) terminal No. 2 and body ground. The indicator should come on.
 - If the indicator comes on, check the dashlight brightness controller circuit.
 - If the indicator does not come on, go to step 6 to replace the passenger's airbag cutoff indicator.

PASSENGER'S AIRBAG CUTOFF INDICATOR CONNECTOR (4P)



6. Turn the ignition switch to LOCK (0), and disconnect the passenger's airbag cutoff indicator 4P connector.

7. Remove the mounting screws (A) and push out the passenger's airbag cutoff indicator (B) from behind the center panel.



8. Reinstall the parts in the reverse order of removal.



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